United States Department of Agriculture

Soil Conservation Service

In cooperation with North Carolina Department of Environment, Health, and Natural Resources; North Carolina Agricultural Research Service; North Carolina Cooperative Extension Service; Davie Soil and Water Conservation District; and Davie County Board of Commissioners

Soil Survey of Davie County, North Carolina

How To Use This Soil Survey

General Soil Map

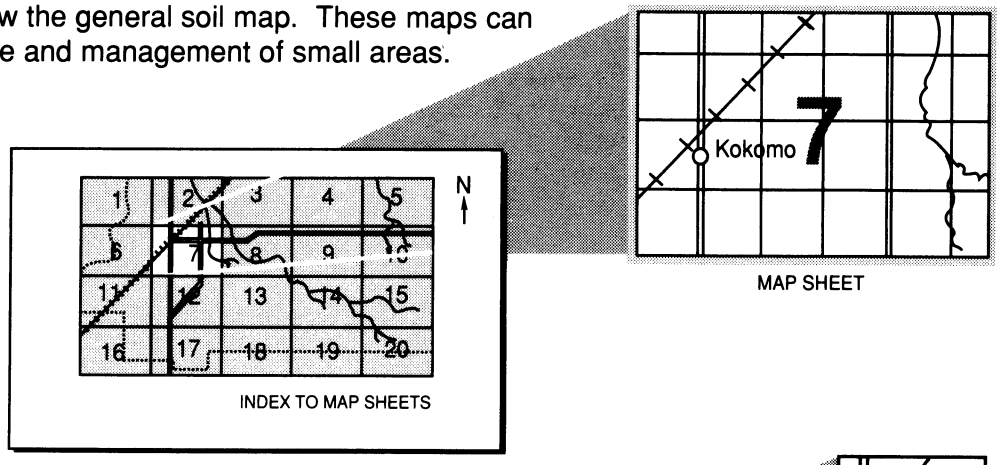
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

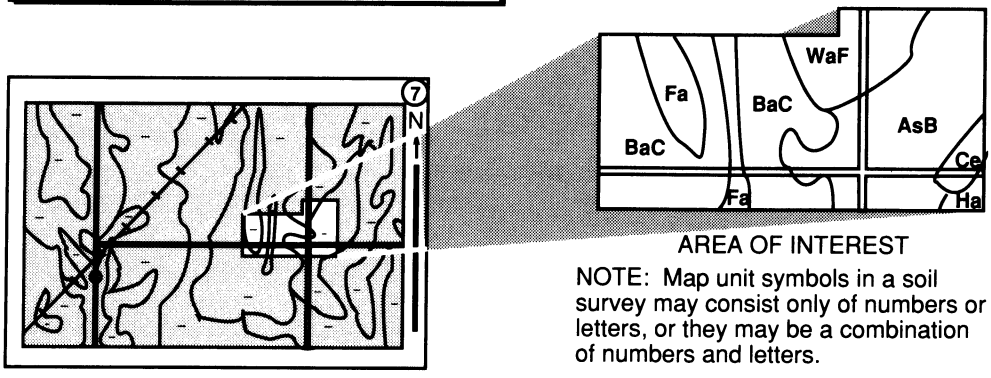
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

MAP SHEET

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



MAP SHEET

AREA OF INTEREST

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

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the North Carolina Agricultural Research Service, 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 1987. Soil names and descriptions were approved in 1988. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1987. This soil survey was made cooperatively by the Soil Conservation Service; the North Carolina Department of Environment, Health, and Natural Resources; the North Carolina Agricultural Research Service; the North Carolina Cooperative Extension Service; Davie Soil and Water Conservation District; and the Davie County Board of Commissioners. The survey is part of the technical assistance furnished to the Davie Soil and Water Conservation District. The Davie County Board of Commissioners provided financial assistance for the survey.

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

The first soil survey for Davie County was published in 1927 by the U.S. Department of Agriculture. This survey updates the first survey, provides more detailed maps on aerial photographs, and contains more interpretive information *(8)*.

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: Stripcropping, grassed waterways, and field borders on Cecil sandy clay loam, 2 to 8 percent slopes, eroded, and Pacolet sandy clay loam, 8 to 15 percent slopes, eroded, in Davie County.

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Issued May 1995

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Summary of Tables

Foreword

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

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

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Wet soils and some clayey 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 North Carolina Cooperative Extension Service.

Coy A. Garrett
State Conservationist
Soil Conservation Service

Soil Survey of
Davie County, North Carolina

By David T. Knight, North Carolina Department of Environment, Health, and Natural Resources

Soils surveyed by David T. Knight and Joseph A. Hinton, North Carolina Department of Environment, Health, and Natural Resources, and John W. Tuttle, Clifford M. McCachren, and Michael A. Rouse, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service,
in cooperation with
North Carolina Department of Environment, Health, and Natural Resources; North Carolina Agricultural Research Service; North Carolina Cooperative Extension Service; Davie Soil and Water Conservation District; and Davie County Board of Commissioners

DAVIE COUNTY is in the northwestern part of North Carolina (fig. 1). It is bounded on the north by Yadkin County, on the west by Iredell County, and on the east and south by the Yadkin and South Yadkin Rivers. It has a total area of 170,797 acres, or about 267 square miles. If areas of water that are more than 40 acres in size are excluded, the total area of the county is 170,618 acres.

In 1986 the population of the county was estimated at about 28,400. Mocksville had a population of 3,400, and Cooleemee had a population of 1,078.

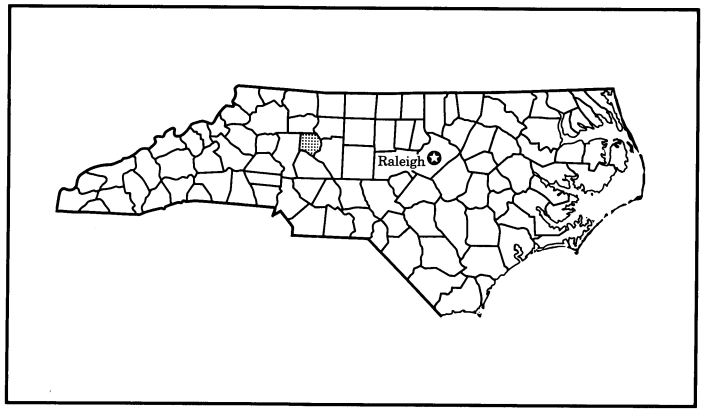

Figure 1.—Location of Davie County in North Carolina.

General Nature of the County

This section gives general information about Davie County. It describes history and development; physiography, relief, and drainage; and climate.

History and Development

Although no evidence of permanent Indian settlements exists in what is now Davie County, several tribes, such as the Sauras, Senecas, Saponas, and Cherokees, claimed the area as a hunting ground. Trade with the Indians brought mainly English, German, and a few Scotch-Irish settlers to the area in the early 1700's. Groups of German-speaking immigrants settled in communities in the 1760's.

In the mid-1700's, Daniel Boone, who was about 17 years old, came with his family from Pennsylvania and settled in what is now Davie County when his father, Squire Boone, purchased land in the area. Daniel Boone married and began to raise a family while hunting, exploring, and developing the skills and resourcefulness that would make him a legendary

frontiersman. He lived with his wife and children in this area for 13 years before moving to an area that is now in Wilkes County. His parents and other family members, however, remained in the area that became Davie County.

When North Carolina became a royal colony of the English Crown in 1730, the area that is now Davie County was a part of Bladen County. In 1748, the area became a part of Anson County and in 1753, part of Rowan County. When the people living between "the forks of the Yadkin" wished to have their own government, Davie County was formed out of Rowan County in 1836. The county was named after William R. Davie, a Revolutionary War leader and a governor of North Carolina. The town of Mocksville, at a place formerly called Mock's Old Field, became the county seat.

In the mid-1800's, about 90 percent of the people of the county farmed for a living. Corn, wheat, oats, Irish potatoes, sweet potatoes, peas, and beans were grown for food. Hogs were the principal source of meat. Tobacco and cotton were important non-food crops. In the 1920's dairying became a major agricultural enterprise, and later on, other livestock began to be raised.

After World War II, such industries as compressors, furniture, and textile products began to develop in the county. Feed mills and a tobacco processing center also helped to develop industry in the county.

Physiography, Relief, and Drainage

Davie County is in the Piedmont Physiographic Region. The average elevation is about 800 feet above sea level. Extremes range from about 1,010 feet, north of the community of Sheffield, near the Iredell County line, to about 630 feet near the confluence of the Yadkin and South Yadkin Rivers.

The county is drained by the Yadkin and South Yadkin Rivers and their tributaries. Little Creek, Hunting Creek, and Bear Creek are the major tributaries that drain into the South Yadkin River. Frost Mill Creek, Cedar Creek, Sugar Creek, Buffalo Creek, Elisha Creek, Ellsworth Creek, and No Creek are the major tributaries that empty into Dutchman Creek, which flows into the Yadkin River. Carter Creek, Carters Creek, Peeler Creek, and Peoples Creek also flow into the Yadkin River. Nine flood control lakes have been built along Dutchman Creek and its tributaries as part of the Dutchman Creek Watershed Project.

Because of the many waterways in the county, more than 87 percent of the soils are well drained. About 2 percent are somewhat poorly drained. Excessively drained and poorly drained soils each total less than 1 percent.

Climate

Davie County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. Cold waves are rare and moderate in one or two days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly in the form of afternoon thunderstorms, is adequate for all crops.

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

In winter, the average temperature is 40 degrees F and the average daily minimum temperature is 28 degrees. The lowest temperature on record, which occurred at Statesville on January 31, 1966, is -8 degrees. In summer, the average temperature is 75 degrees and the average daily maximum temperature is 87 degrees. The highest recorded temperature, which occurred at Statesville on June 27, 1954, is 105 degrees.

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

The total annual precipitation is about 46 inches. Of this, 24 inches, or 52 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 21 inches. The heaviest 1-day rainfall during the period of record was 7.68 inches at Statesville on June 21, 1972. Thunderstorms occur on about 46 days each year.

The average seasonal snowfall is 10 inches. The greatest snow depth at any one time during the period of record was 15 inches. On an average of 4 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of

a hurricane causes extremely heavy rains for 1 to 3 days.

The average relative humidity in midafternoon is about 55 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 55 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 9 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils in Davie County. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They studied many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the material from which the soil formed.

Soils occur in an orderly pattern that results from the combined influence over time of climate, parent material, relief, and plants and animals. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. This model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

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

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify the soils. After describing the soils 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. The data from these analyses and tests and from field-observed characteristics and soil properties are used to predict behavior of the soils under different uses. Interpretations are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations sometimes are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a relatively high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will be at a specific level in the soil on a specific date.

Soil boundaries are drawn on aerial photographs and each delineation is identified as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in accurately locating boundaries.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed

properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the 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 minor soils.

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 identified in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

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

General Soil Map Units

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

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

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

The general soil map of Davie County does not join those of Iredell and Yadkin Counties exactly in all places because of changes in dominance of similar series across county lines, changes in series concepts, or changes in mapping of miscellaneous areas.

1. Gaston-Mocksville-Mecklenburg

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey or loamy subsoil with a low or moderate shrink-swell potential; formed in material weathered from mafic and intermediate crystalline rocks; on uplands

This map unit is mainly in the northeastern, central, and southwestern parts of the county. The landscape consists of broad to narrow ridges and side slopes.

Most of the gently sloping or strongly sloping soils in this map unit are used as cropland, pasture, or hayland. The rest of the acreage is used mainly as woodland.

This map unit makes up about 27 percent of the county. It is about 49 percent Gaston soils, 17 percent Mocksville soils, 10 percent Mecklenburg soils, and 24 percent soils of minor extent (fig. 2).

Gaston soils are gently sloping on the broad ridges and are strongly sloping and moderately steep on side slopes. Typically, they have a surface layer of dark reddish brown clay loam or loam. The subsoil is predominantly dark red and red clay and clay loam.

Mocksville soils are gently sloping to moderately steep on narrow ridges and are strongly sloping to steep on side slopes. Typically, they have a surface layer of dark grayish brown sandy loam. The subsoil is predominantly dark yellowish brown clay loam.

Mecklenburg soils are gently sloping on the broad ridges and are strongly sloping on side slopes. Typically, they have a surface layer of dark brown clay loam. The subsoil is yellowish red clay and clay loam.

The minor soils include Armenia soils on small or medium flood plains or in depressions, Chewacla soils on flood plains, Iredell and Sedgefield soils in depressions and at the head of drainageways, and Enon soils on ridges and side slopes.

In most areas the gently sloping major soils in this map unit have been cleared of trees and generally are moderately suited to cultivated crops. Corn, soybeans, and small grain are the main crops. The gently sloping and strongly sloping soils generally are moderately suited to pasture and hay. Tall fescue and ladino clover are the main forage species. A high content of clay in the surface layer of the Gaston and Mecklenburg soils adversely affects tilth and seedbed preparation. The susceptibility to erosion also is a problem, especially in the more sloping areas.

The gently sloping to steep soils generally are moderately suited to woodland. The wooded areas are mostly mixed hardwoods or mixed hardwoods and pine. Some areas that were once cleared of trees are planted to pine or support mostly volunteer native pine. In the steep areas, the use of logging equipment is restricted, and erosion is a hazard along logging roads and skid trails. In some areas woodland management is limited by the high content of clay in the surface layer caused by excessive water erosion.

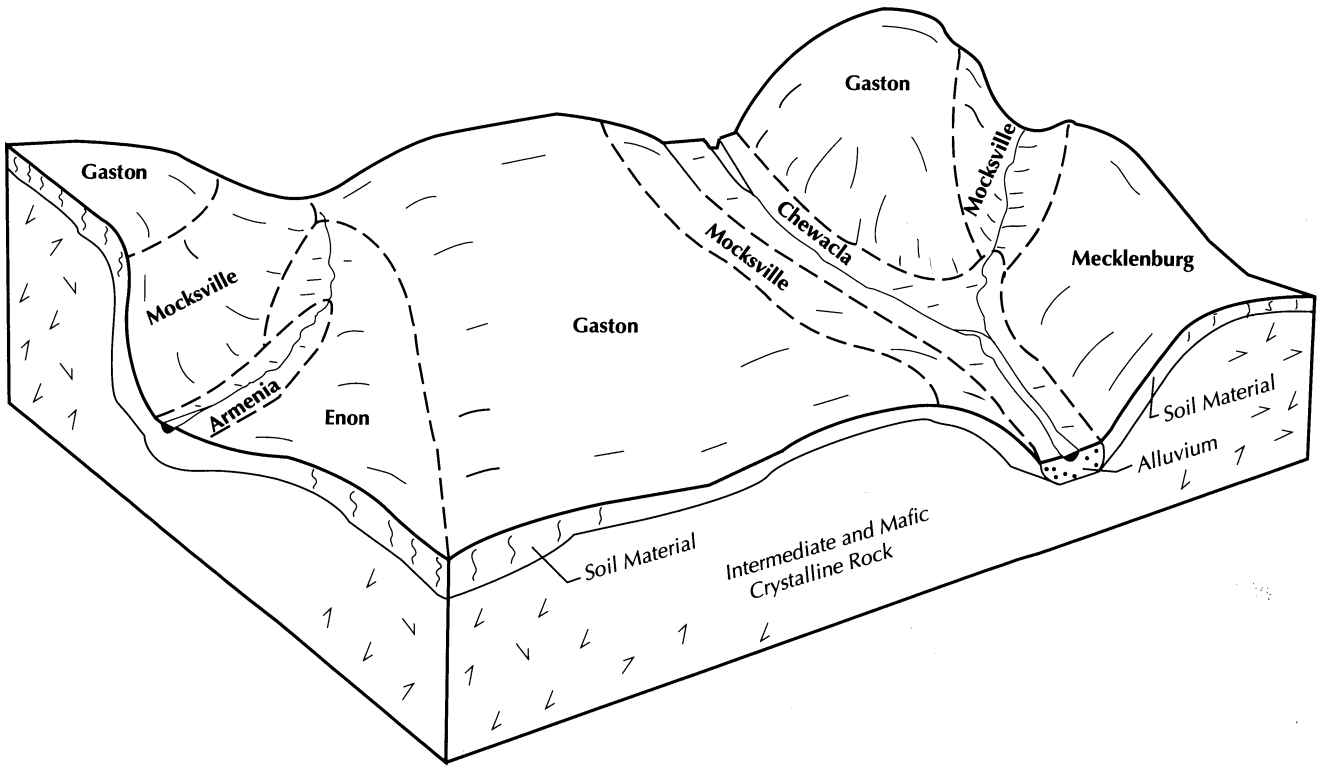

Figure 2.—The relationship of soils, landscape, and parent material in the Gaston-Mocksville-Mecklenburg general soil map unit.

2. Cecil-Pacolet-Rion

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey or loamy subsoil with a low shrink-swell potential; formed in material weathered from felsic crystalline rocks; on uplands

This map unit is in the western, south-central, and northeastern parts of the county. The landscape consists of broad ridges and side slopes.

The Cecil soils in this map unit are used mainly as cropland, hayland, or pasture. Some areas are wooded. The Pacolet and Rion soils in this map unit are used mainly as woodland.

This map unit makes up about 23 percent of the county. It is about 32 percent Cecil soils, 30 percent Pacolet soils, 9 percent Rion soils, and 29 percent soils of minor extent (fig. 3).

The gently sloping Cecil soils are on broad ridges. Typically, they have a surface layer of reddish brown sandy clay loam. The subsoil is predominantly red clay.

The gently sloping to steep Pacolet soils are on side slopes. Typically, they have a surface layer of yellowish brown sandy loam or yellowish red sandy clay loam. The subsoil is red clay and clay loam.

The strongly sloping to steep Rion soils are on side slopes. Typically, they have a surface layer of yellowish brown sandy loam. The subsoil is reddish yellow clay loam and brownish yellow sandy loam.

The minor soils include Appling soils on ridges, Chewacla soils on flood plains, and Wedowee soils on gently sloping ridges and strongly sloping side slopes.

The gently sloping to strongly sloping major soils in this map unit are moderately suited to cultivated crops, pasture, and hay. Corn, soybeans, and small grain are the main cultivated crops. Tall fescue and ladino clover are the main forage species. A high content of clay in the surface layer caused by excessive water erosion adversely affects tilth and seedbed preparation on the gently sloping Cecil and Pacolet soils. Erosion is a severe hazard on the strongly sloping to steep soils.

The soils in this map unit are moderately suited to woodland. The wooded areas are mostly mixed hardwoods and pine. In some areas woodland management is limited by the high content of clay in the surface layer caused by excessive water erosion.

3. Pacolet-Wedowee

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey subsoil with a low shrink-swell potential; formed in material weathered from felsic crystalline rocks; on uplands

This map unit is mainly in the eastern part of the county, along the Yadkin River. The landscape consists of moderately broad to relatively narrow ridges and side slopes.

The gently sloping Pacolet and Wedowee soils are used mainly as cropland, pasture, or hayland. The strongly sloping Pacolet and Wedowee soils are mostly wooded, with some areas used as pasture or hayland.

This map unit makes up about 19 percent of the county. It is about 73 percent Pacolet soils, 10 percent Wedowee soils, and 17 percent soils of minor extent (fig. 4).

The gently sloping Pacolet soils are on ridges, and the strongly sloping Pacolet soils are on side slopes. Typically, they have a surface layer of yellowish red sandy clay loam and a subsoil of red clay and clay loam.

The gently sloping Wedowee soils are on moderately broad to narrow ridges, and the strongly sloping Wedowee soils are on side slopes. Typically, they have a surface layer of dark yellowish brown sandy loam. The subsoil is predominantly yellowish red clay.

The minor soils include Chewacla soils on flood plains and Rion soils on strongly sloping to steep side slopes.

The gently sloping major soils in this map unit are moderately suited to cropland, pasture, and hay. Corn, soybeans, and small grain are the main cultivated crops. Tall fescue and ladino clover are the main forage species. The slope causes a severe hazard of erosion in cultivated areas.

The soils in this map unit are moderately suited to woodland. Wooded areas are mostly mixed hardwoods or mixed hardwoods and pine. The use of logging equipment is limited in areas of moderately steep and

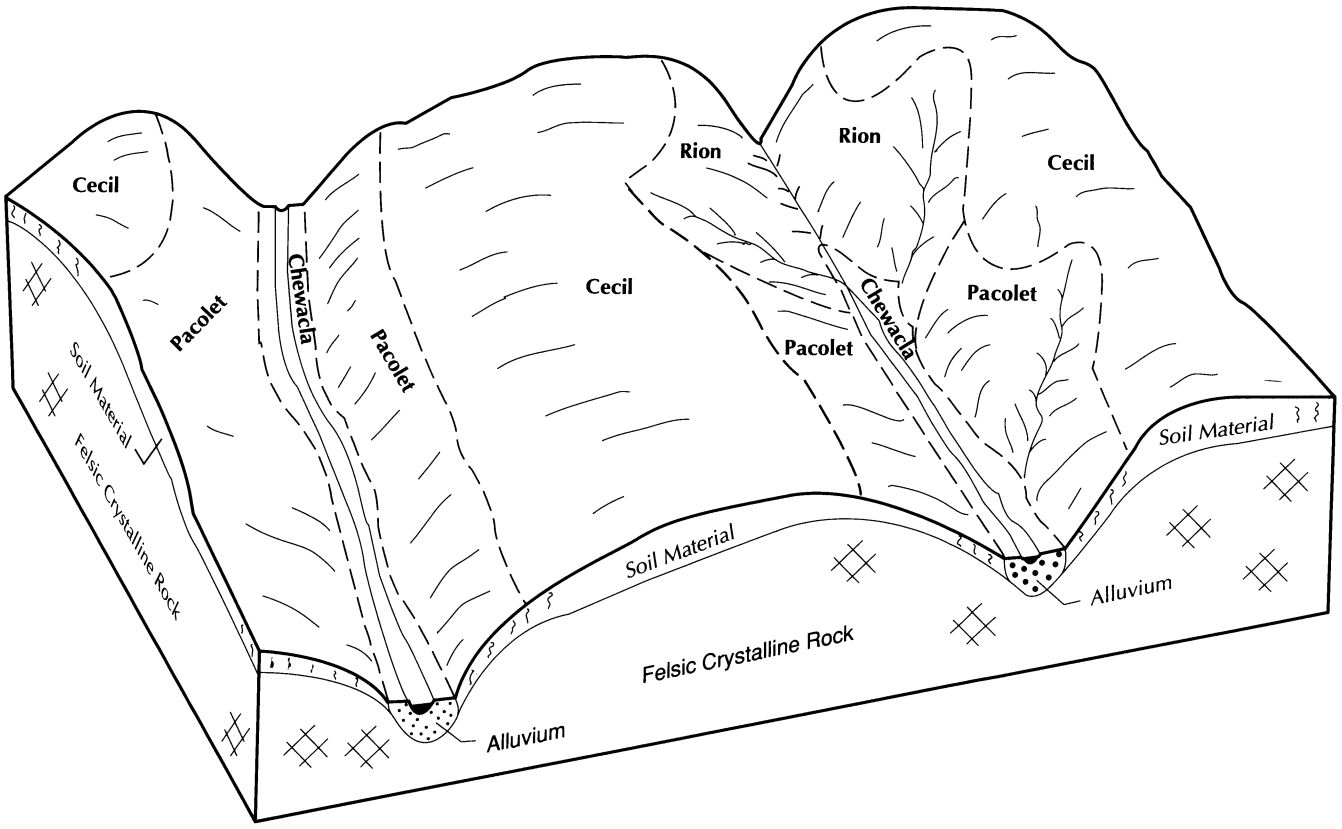

Figure 3.—The relationship of soils, landscape, and parent material in the Cecil-Pacolet-Rion general soil map unit.

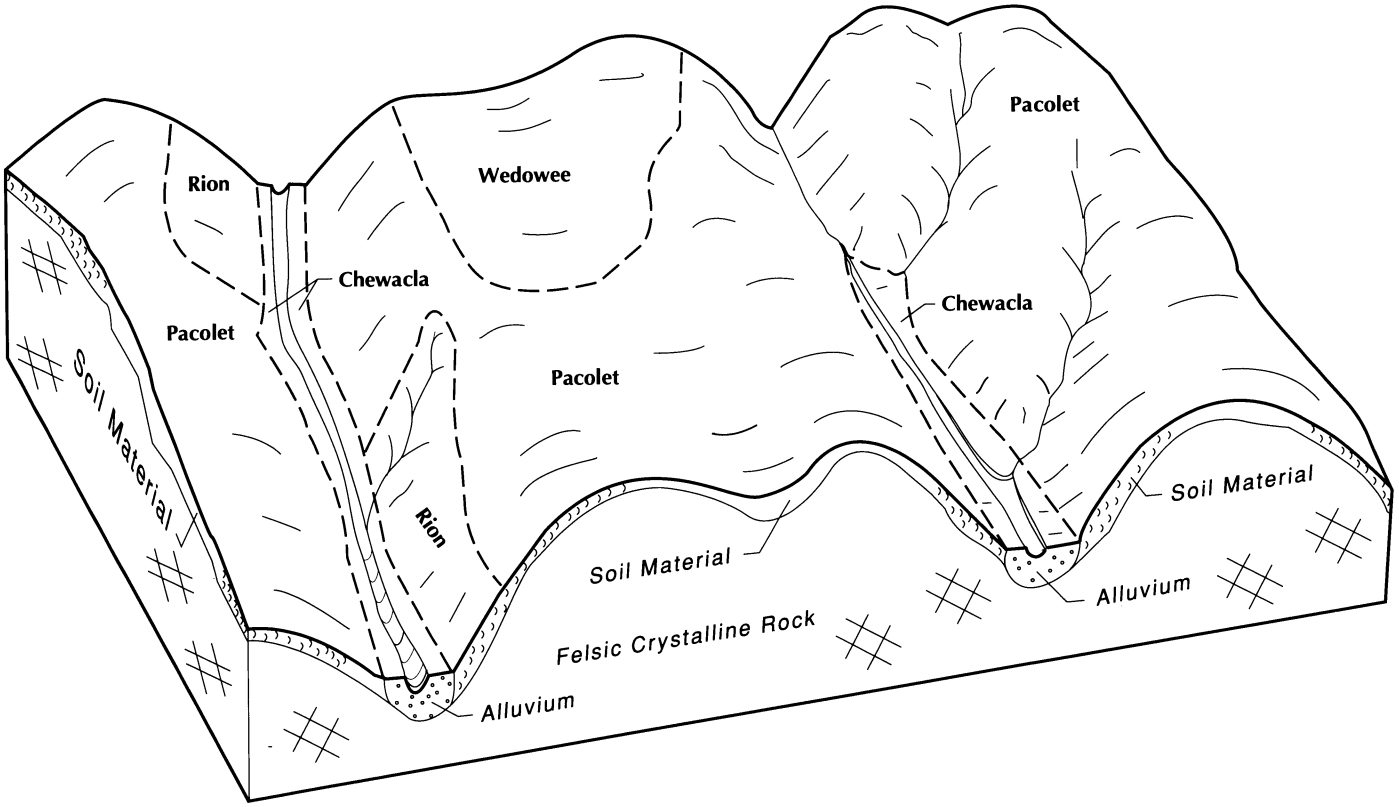

Figure 4.—The relationship of soils, landscape, and parent material in the Pacolet-Wedowee general soil map unit.

steep soils, and erosion is a hazard along logging roads and skid trails.

4. Enon-Mocksville

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey or loamy subsoil with a high or low shrink-swell potential; formed in material weathered from mafic and intermediate crystalline rocks; on uplands

This map unit is mainly in the north-central part of the county. Two smaller areas are along the southern county line. The landscape consists of broad ridges and narrow side slopes.

The gently sloping Enon and Mocksville soils are used mainly as pasture or hayland. A small acreage is used as cropland. The rest of this map unit is used mainly as woodland or pasture.

This map unit makes up about 17 percent of the county. It is about 51 percent Enon soils, 20 percent Mocksville soils, and 29 percent soils of minor extent (fig. 5).

The gently sloping Enon soils are on broad to narrow ridges, and the strongly sloping Enon soils are on side slopes. Typically, they have a surface layer of dark brown fine sandy loam. The subsoil is predominantly yellowish brown clay. Some areas of the Enon soils are very stony.

The gently sloping Mocksville soils are on relatively narrow ridges, and the strongly sloping to steep Mocksville soils are on narrow side slopes. Typically, they have a surface layer of dark grayish brown sandy loam. The subsoil is predominantly dark yellowish brown clay loam.

The minor soils include Armenia, Chewacla, Iredell, Mecklenburg, and Sedgefield soils. Armenia soils are on small or medium flood plains and on flats and in depressions on uplands. Chewacla soils are on flood plains. Iredell soils are in depressions and at the head of drainageways. Mecklenburg soils are on ridges and side slopes. Sedgefield soils are on the broader ridges, in depressions, or in concave areas at the head of drainageways.

The gently sloping major soils in this map unit are

moderately suited to cropland and are well suited to pasture. Corn, soybeans, and small grain are the main cultivated crops. Tall fescue and ladino clover are the main forage species. Erosion is a moderate hazard in cultivated areas. In some areas stones in the surface layer also are a limitation affecting cropland.

The soils in this map unit are moderately suited to woodland. The wooded areas are mostly mixed hardwoods. The slope and stones in the surface layer in some areas limit the use of equipment. Because of the slope, erosion is a severe hazard along logging roads and skid trails.

5. Mayodan

Gently sloping to steep, well drained soils that have a loamy surface layer and a clayey subsoil with a moderate shrink-swell potential; formed in material weathered from Triassic sedimentary rocks; on uplands

This map unit is in the northwestern part of the county. The landscape consists of gently sloping ridges and strongly sloping to steep side slopes.

The gently sloping soils in this map unit are used mainly as cropland, hayland, or pasture. The strongly sloping to steep soils are used mainly as woodland.

This map unit makes up about 10 percent of the county. It is about 85 percent Mayodan soils and 15 percent soils of minor extent (fig. 6).

Typically, the Mayodan soils have a surface layer of pale brown silt loam in uneroded areas and a surface layer of yellowish red silty clay loam in eroded areas. The subsoil is predominantly red and yellowish red clay and silty clay.

The minor soils include Chewacla soils on flood plains and Granville soils on ridges and side slopes.

Most of the gently sloping major soils in this map unit are moderately suited to cultivated crops, pasture, and hay. Corn, soybeans, tobacco, and small grain are the main cultivated crops. Tall fescue and ladino clover are the main forage species. Erosion is a moderate hazard. The more sloping areas are more susceptible to erosion than the less sloping areas and thus are less well suited

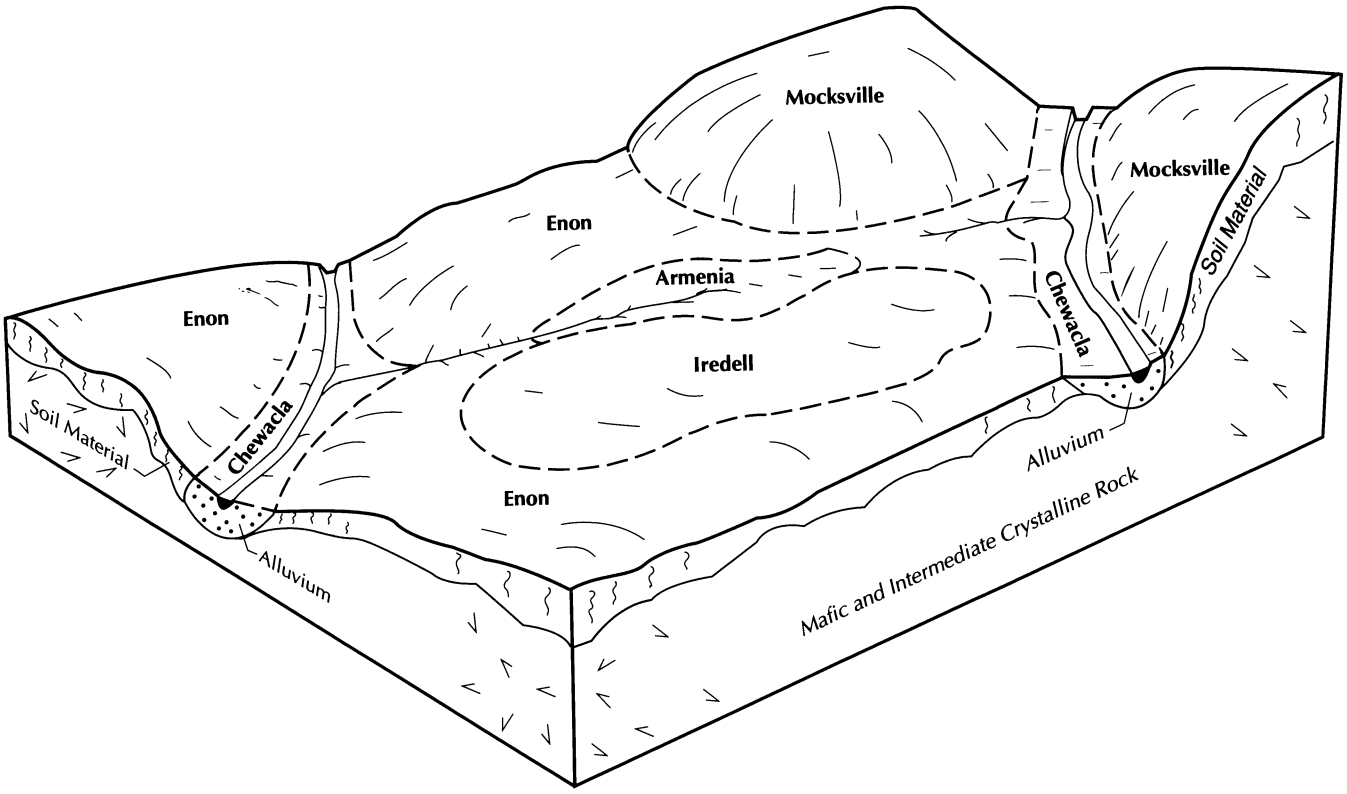

Figure 5.—The relationship of soils, landscape, and parent material in the Enon-Mocksville general soil map unit.

to cultivated crops. In the moderately eroded areas, a high content of clay in the surface layer adversely affects tillage and seedbed preparation.

The soils in this map unit are moderately suited to woodland. The wooded areas are mostly mixed hardwoods or mixed hardwoods and pine. Areas that were once cleared of trees have been planted to pine or support volunteer native pine. In some areas, the slope restricts the use of logging equipment and erosion is a severe hazard along logging roads and skid trails. In the moderately eroded areas, the high content of clay in the surface layer limits the use of equipment and increases the seedling mortality rate.

6. Chewacla-Riverview

Nearly level, somewhat poorly drained and well drained soils that have a loamy surface layer and subsoil with a low shrink-swell potential; formed in recent alluvium; on flood plains

This map unit is along the major streams in the county. The areas are long and narrow and are on the lowest elevations in the county.

Chewacla soils are used mainly as woodland. Some areas are used as pasture or cropland. Riverview soils are used mainly as cropland or pasture.

This map unit makes up 4 percent of the county. It is about 54 percent Chewacla soils, 28 percent Riverview soils, and 18 percent soils of minor extent (fig. 7).

Chewacla soils are somewhat poorly drained and are frequently flooded. They are in the lower areas away from the larger stream channels and are commonly adjacent to the channels along the smaller streams. Typically, they have a surface layer of dark yellowish brown loam. The subsoil is yellowish brown, light yellowish brown, and very pale brown loam, sandy clay loam, and sandy loam.

Riverview soils are well drained and are frequently flooded. They occur in the slightly higher areas near the larger stream channels. Typically, they have a surface layer of dark yellowish brown loam. The subsoil is brown, dark yellowish brown, and yellowish brown clay loam and silty clay loam.

The minor soils include Altavista, Buncombe, and

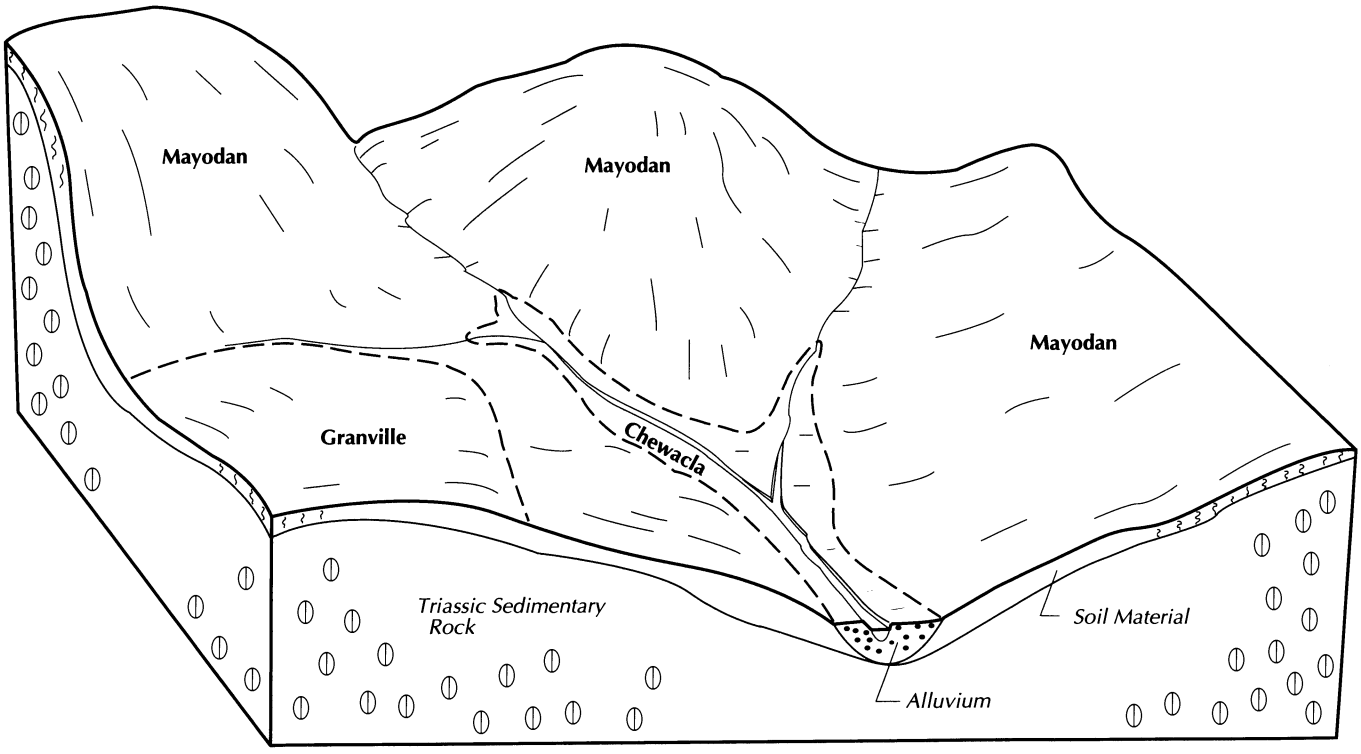

Figure 6.—The relationship of soils, landscape, and parent material in the Mayodan general soil map unit.

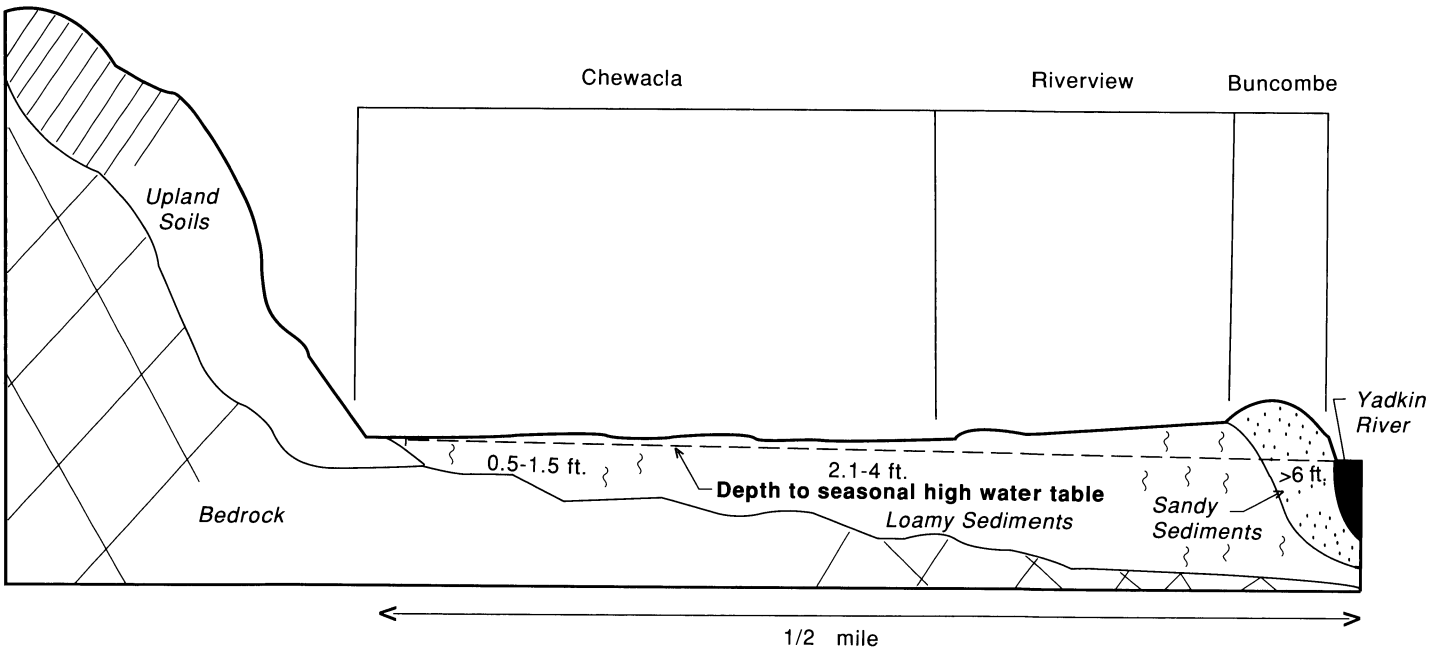

Figure 7.—The relationship of soils, parent material, and the seasonal high water table in the Chewacla-Riverview general soil map unit.

Roanoke soils on flood plains and Masada soils on stream terraces.

Most of the major soils in this map unit are moderately suited to cropland and pasture. Corn, soybeans, and small grain are the main cultivated crops. Tall fescue and ladino clover are the main forage species. The wetness and the flooding are the main limitations.

The soils in this map unit are well suited to woodland. The wooded areas are mostly mixed hardwoods. The wetness and the flooding limit the use of equipment and increase the seedling mortality rate.

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 the dominant soils within the map unit for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit is given under the heading "Use and Management of the Soils."

The map units on the detailed soil maps represent areas on the landscape and consist mainly of the dominant soils for which the units are named.

Symbols identifying the soils precede the map unit names in the map unit descriptions. The descriptions include general facts about the soils and give 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 named as phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Mocksville sandy loam, 2 to 8 percent slopes, is a phase of the Mocksville series.

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 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 may be identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarries, 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 suitabilities for many uses. The "Glossary" defines many of the terms used in describing the soils.

AaA—Altavista fine sandy loam, 0 to 2 percent slopes, occasionally flooded. This map unit consists mainly of moderately well drained Altavista and similar soils on flood plains along creeks and rivers. The soils are occasionally flooded for very brief periods. Individual areas are scattered throughout the county. They are irregular in shape and range from 4 to 25 acres in size.

Typically, the surface layer is brown fine sandy loam 12 inches thick. The subsurface layer is light yellowish brown fine sandy loam 6 inches thick. The subsoil is 28 inches of sandy clay loam. The upper part, to a depth of 39 inches, is light yellowish brown with mottles in shades of red, yellow, and gray. The lower part, to a depth of 46 inches, is mottled in shades of yellow, gray, brown, and red. The underlying material to a depth of 60 inches is mottled reddish yellow, light yellowish brown, yellowish red, and light gray sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The seasonal high water table is at a depth of 1.5 to 2.5 feet. The depth to bedrock is more than 10 feet.

Included in this map unit are small areas of Chewacla, Masada, and Roanoke soils, which are dissimilar to the Altavista soil. The somewhat poorly drained, frequently flooded Chewacla soils are on narrow flood plains. Masada and Roanoke soils have more clay in the subsoil than the Altavista soil. The well drained Masada soils are on the small, slightly higher stream terraces. The poorly drained Roanoke soils are on the low parts of the flood plains, adjacent to the

upland slopes. Also included are areas of poorly drained, loamy soils along the edges of and in depressions. Included soils make up 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used for crops or pasture. The rest is used as woodland.

This map unit is moderately suited to cultivated crops. The wetness and the flooding are the main limitations. The principal crops are corn, soybeans, and small grain. These crops may be damaged by the occasional flooding. A drainage system may be needed, especially in wet years. The soil is well suited to pasture. Tall fescue and ladino clover are the main pasture forage species.

This map unit is well suited to woodland. In forested areas loblolly pine, shortleaf pine, river birch, sweetgum, southern red oak, water oak, hickory, yellow-poplar, white oak, red maple, and American sycamore are the most common trees. The most common understory plants are flowering dogwood, eastern redbud, American holly, and sourwood. The wetness and the flooding limit the use of equipment. Harvesting and other equipment should not be operated during wet periods.

This map unit is poorly suited to urban development because of the wetness and the flooding. It generally is not used as a site for buildings or sanitary facilities. It is poorly suited to camp areas and is moderately suited to most other recreational uses.

The capability subclass is IIw. Based on loblolly pine as the indicator species, the woodland ordination symbol is 9A.

ApB—Appling sandy loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Appling and similar soils on broad ridges in the uplands. Some of the larger areas are in the northeastern and western parts of the county, but individual areas are scattered throughout the county. They are irregular in shape and range from 4 to 300 acres in size.

Typically, the surface layer is yellowish brown sandy loam 12 inches thick. The subsoil is 33 inches thick. The upper part is strong brown clay with mottles in shades of red and yellow. The lower part is brownish yellow clay loam with mottles in shades of red and strong brown. The underlying material to a depth of 60 inches is mottled red, yellow, strong brown, and pale brown saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a moderate hazard in areas of bare or unprotected soils.

Included in this map unit are small areas of Cecil, Pacolet, and Wedowee soils, which are similar to the Appling soil but have a thinner subsoil or are moderately eroded and have a surface layer of sandy clay loam. The moderately eroded Cecil and Pacolet soils have a red subsoil and are on small knolls and ridgetops. Wedowee soils have a thinner subsoil than that of the Appling soil. They are on ridges. Also included are small areas of gravelly soils, wet spots, and large gullies, all of which are identified on the soil maps by a special symbol. Included soils make up as much as 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used mainly as woodland or for urban development.

This map unit is well suited to cultivated crops, hay, and pasture. The major crops are corn, soybeans, tobacco (fig. 8), and small grain. The slope and the susceptibility to erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is well suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, scarlet oak, southern red oak, white oak, hickory, sweetgum, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, sourwood, blackberry, eastern redcedar, running cedar, and red maple. No major limitations affect woodland use and management.

This map unit is moderately suited to urban development and is well suited to recreational development. Low strength in the clayey subsoil and a slope of 4 percent or more are limitations affecting building site development. The moderate permeability, the clayey subsoil, and seepage are the main limitations affecting sanitary facilities. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. No major limitations affect most recreational uses, but the slope is a limitation affecting playgrounds.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

ArA—Armenia loam, 0 to 2 percent slopes, frequently flooded. This map unit consists mainly of poorly drained Armenia and similar soils on small or medium flood plains, along drainageways, and on nearly level flats or in depressions on uplands. The soils on small or medium flood plains are frequently flooded for brief periods. The soils on nearly level flats or in depressions on uplands are ponded for brief

Figure 8.—Tobacco on Appling sandy loam, 2 to 8 percent slopes.

periods. The map unit is mainly in the north-central part of the county. Individual areas generally are long and narrow and range from 4 to 30 acres in size.

Typically, the surface layer is very dark grayish brown loam 3 inches thick. The subsoil is 61 inches thick. The upper part is very dark grayish brown clay loam with reddish yellow mottles. The next part is very dark gray clay with brownish yellow and dark gray mottles. The lower part is gray clay loam with yellowish brown, strong brown, and greenish gray mottles. The underlying material to a depth of 77 inches is gray saprolite that has a texture of clay loam with yellowish brown mottles.

Water and air move through the soil at a slow rate. The shrink-swell potential is high. The seasonal high water table is at a depth of 0.5 foot to 1.5 feet. The depth to hard bedrock is more than 5 feet.

Included in this map unit are small areas of Iredell and Sedgefield soils, which are dissimilar to the Armenia soil. The moderately well drained Iredell and moderately well drained or somewhat poorly drained Sedgefield soils are in the slightly higher areas. They make up less than 10 percent of this map unit.

Most of the acreage in this map unit is used as woodland. The rest is used as pasture or cropland.

This map unit is moderately suited to woodland. In forested areas sweetgum, willow oak, green ash, red maple, shortleaf pine, loblolly pine, white oak, and water oak are the most common trees. The most common understory plants are greenbrier, eastern redcedar, flowering dogwood, American holly, sourwood, and poison ivy. The wetness and the flooding cause

seedling mortality and limit the use of equipment. Operating heavy equipment during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is poorly suited to cropland. In cultivated areas corn, soybeans, and small grain are the major crops. The wetness and the flooding are the main limitations. Because of a poor response to subsurface drainage systems, a surface drainage system that includes grassed waterways and diversions is used to remove surface water from some cultivated fields.

This map unit is moderately suited to pasture. Tall fescue and ladino clover are the main forage species. The wetness and the flooding are the main limitations. Land shaping and grassed waterways are needed to remove surface water.

This map unit is very poorly suited to urban development and recreational development. The slow permeability, the high shrink-swell potential, the clayey subsoil, the wetness, and the flooding are the main limitations.

The capability subclass is VIw. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6W.

BuB—Buncombe loamy sand, 0 to 5 percent slopes, frequently flooded. This map unit consists mainly of excessively drained Buncombe and similar soils on flood plains adjacent to stream channels along the Yadkin and South Yadkin Rivers and most of the major creeks in the county. These soils are frequently flooded for very brief periods. Individual areas generally are long and narrow and sometimes irregular in shape. They range from 10 to 50 acres in size.

Typically, the surface layer is dark yellowish brown loamy sand 12 inches thick. The subsoil is 40 inches thick. The upper part, to a depth of 29 inches, is strong brown loamy sand. The lower part, to a depth of 52 inches, is yellowish brown sand. The underlying material to a depth of 65 inches is very pale brown sand.

Water and air move through the soil at a rapid or very rapid rate. The shrink-swell potential is low. The seasonal high water table is below a depth of 6 feet. The depth to hard bedrock is more than 10 feet.

Included in this map unit are small areas of Chewacla and Riverview soils, which are dissimilar to the Buncombe soil. The somewhat poorly drained Chewacla soils are in small depressions on the side away from the stream channels and in small drainageways. The well drained Riverview soils also are on the side away from the stream channels and on nearly level flood plains. The dissimilar included soils make up about 10 to 15 percent of this map unit.

Most of the acreage in this map unit has been cleared of trees and is used as pasture. Some areas are used as cropland. Other areas adjacent to the river or stream channels are used as woodland.

This map unit is poorly suited to hay, pasture, and cropland. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species. The flooding and droughtiness are the main management concerns. The principal crops are corn and small grain. Crops are subject to damage unless they are protected from flooding.

This map unit is moderately suited to woodland. In forested areas river birch, yellow-poplar, sweetgum, loblolly pine, northern red oak, southern red oak, hickory, elm, and American sycamore are the most common trees. The most common understory plants are switchcane, greenbrier, alder, black willow, and poison ivy. The flooding and the sandy texture of the surface layer cause seedling mortality and limit the use of equipment.

This map unit is very poorly suited to urban development and is poorly suited to most recreational uses. The flooding, the sandy texture, and droughtiness are the main limitations. Because of the sandy texture, seepage also can be a problem affecting sanitary facilities. In some areas the sandy material has been removed for commercial purposes.

The capability subclass is Vw. Based on yellow-poplar as the indicator species, the woodland ordination symbol is 8S.

CeB2—Cecil sandy clay loam, 2 to 8 percent slopes, eroded. This map unit consists mainly of well drained Cecil and similar soils on broad ridges in the uplands. It generally is in the western and south-central parts of the county. Individual areas are irregular in shape and range from 5 to several hundred acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is reddish brown sandy clay loam 10 inches thick. The subsoil is 46 inches thick. The upper part is red clay. The lower part is red clay loam with yellowish red mottles. The underlying material to a depth of 62 inches is mottled red, yellow, and white saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 6.5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Mecklenburg soils, which are dissimilar to the Cecil soil.

These soils have a moderate shrink-swell potential. They are on ridges and side slopes. They make up 5 to 10 percent of this map unit.

Also included are small areas of soils that are similar to the Cecil soil but have a dark red subsoil or a thinner subsoil or are slightly eroded and have a surface layer of sandy loam.

Most of the acreage in this map unit is used as cropland, pasture, or hayland. The rest is used as woodland.

This map unit is moderately suited to cultivated crops, hay, and pasture. In cultivated areas the major crops are corn, soybeans, and small grain. The slope, the texture of the surface layer, and the susceptibility to erosion are the main management concerns. Maintaining good tilth is difficult because of the sandy clay loam surface layer. If vegetation or mulch does not cover the soil, a crust commonly forms as the surface layer dries after a hard rain. If the soil is worked when it is wet, clods form. The cloddiness makes seedbed preparation difficult and can hinder germination and result in uneven stands and poor growth. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, northern red oak, white oak, hickory, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, sourwood, American holly, black cherry, eastern redcedar, and red maple. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban development and is well suited to recreational development. The clayey subsoil, the moderate permeability, and the slope are the main limitations affecting sanitary facilities. The slope also is a limitation on sites for playgrounds. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 7C.

ChA—Chewacla loam, 0 to 2 percent slopes, frequently flooded. This map unit consists mainly of somewhat poorly drained Chewacla and similar soils on flood plains along creeks and rivers throughout the county. The soils are frequently flooded for brief periods. Some of the larger areas are along the Yadkin and South Yadkin Rivers, Hunting Creek, and Dutchman Creek. Individual areas generally are long and narrow and range from 5 to more than 500 acres in size.

Typically, the surface layer is dark yellowish brown loam 5 inches thick. The subsoil is 47 inches thick. The upper part is yellowish brown loam with mottles in shades of brown. The next part is light yellowish brown sandy clay loam with mottles in shades of yellow, gray, and brown. The lower part is very pale brown sandy clay loam and sandy loam with mottles in shades of brown, white, and yellow. The underlying material to a depth of 64 inches is very pale brown sandy loam with mottles in shades of brown.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The seasonal high water table is within a depth of 1.5 feet. The depth to bedrock is more than 5 feet.

Included in this map unit are small areas of Altavista, Buncombe, Riverview, and Roanoke soils, which are dissimilar to the Chewacla soil. The moderately well drained, occasionally flooded Altavista soils are on flood plains. The excessively drained Buncombe soils are adjacent to stream channels. The well drained Riverview soils are in the slightly higher positions, closer to stream channels. The poorly drained, clayey Roanoke soils are at the base of upland slopes. They are occasionally flooded. Also included in mapping are some small areas of poorly drained, loamy soils in depressions. The dissimilar included soils make up 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture or cropland.

This map unit is well suited to woodland. In forested areas yellow-poplar, American sycamore, sweetgum, water oak, willow oak, southern red oak, blackgum, red maple, green ash, and eastern cottonwood are the most common trees. The most common understory plants are black willow, hackberry, river birch, poison ivy, and greenbrier. The wetness and the flooding cause a moderate limitation for the use of equipment.

This map unit is moderately suited to cultivated crops and is well suited to pasture. The major crops are corn, soybeans, and small grain. The wetness and the flooding are the main limitations in cultivated areas. Crops are subject to damage unless they are protected from flooding. In areas used as pasture, tall fescue and ladino clover are the main forage species. A drainage system and flood prevention are needed, but installation is limited by the unavailability of suitable outlets.

This map unit is very poorly suited to urban and recreational development. The wetness and the flooding are the main limitations.

The capability subclass is IVw. Based on sweetgum

as the indicator species, the woodland ordination symbol is 9W.

EnB—Enon fine sandy loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Enon and similar soils on broad to narrow ridges on uplands. Individual areas are scattered throughout the county, but the larger areas are in the north-central part. They are irregular in shape and range from 5 to 300 acres in size.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is 27 inches thick. The upper part is dark yellowish brown clay with mottles in shades of yellow and brown. The lower part is clay loam mottled in shades of brown, yellow, and olive. Pockets of clay are in the lower part of the subsoil. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of fine sandy loam and sandy loam. Black concretions and streaks and fine feldspar crystals are few or common throughout.

Water and air move through the soil at a slow rate. The shrink-swell potential is high. The water table is below a depth of 5 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Gaston, Iredell, Mocksville, and Sedgefield soils, which are dissimilar to the Enon soil. The well drained Gaston soils are dark red and are on small knolls and ridgetops. They have a moderate shrink-swell potential. The moderately well drained Iredell soils are in nearly level and concave areas. The Mocksville soils have less clay in the subsoil than the Enon soil. They have a low shrink-swell potential. They are on narrow ridges and side slopes. The moderately well drained or somewhat poorly drained Sedgefield soils are on flats or in depressions on ridges and in low areas at the head of drainageways. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Enon soil but have a red subsoil, a gravelly surface layer, stones in the surface layer, or are moderately eroded and have a surface layer of clay loam.

Most of the acreage in this map unit is used as pasture, hayland, or cropland. The rest is used mainly as woodland.

This map unit is well suited to hay and pasture and is moderately suited to cultivated crops. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species. In cultivated areas the main crops are corn, soybeans, and small grain. The slope and the hazard of erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is moderately suited to woodland. In forested areas loblolly pine, Virginia pine, hickory, shortleaf pine, southern red oak, white oak, northern red oak, yellow-poplar, and sweetgum are the most common trees. The most common understory plants are flowering dogwood, eastern redcedar, American holly, and sourwood. No major limitations affect woodland use and management, but operating heavy equipment in these areas during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is poorly suited to urban development. The clayey subsoil, the slow permeability, and the high shrink-swell potential are the main limitations affecting building site development. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. The slow permeability is a limitation affecting septic tank absorption fields. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

This map unit is moderately suited to recreational development. The slow permeability is a limitation affecting most recreational uses. The slope and small stones also are limitations on sites for playgrounds.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 7A.

EnC—Enon fine sandy loam, 8 to 15 percent slopes. This map unit consists mainly of well drained Enon and similar soils on narrow ridges and side slopes on uplands. It is scattered throughout the county, but the larger units are in the north-central part. Individual areas are oblong and vary in width. They range from 5 to 50 acres in size.

Typically, the surface layer is dark brown fine sandy loam 9 inches thick. The subsoil is 27 inches thick. The upper part is dark yellowish brown clay with mottles in shades of yellow and brown. The lower part is clay loam mottled in shades of brown, yellow, and olive. Pockets of clay are in the lower part of the subsoil. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of fine sandy loam and sandy loam. Black concretions and streaks and fine feldspar crystals are few or common throughout.

Water and air move through the soil at a slow rate. The shrink-swell potential is high. The water table is below a depth of 5 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the

surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Mocksville soils, which are dissimilar to the Enon soil. These soils have less clay in the subsoil than the Enon soil and a low shrink-swell potential. They are on side slopes. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Enon soil but have a red subsoil, a gravelly surface layer, stones in the surface layer, or are moderately eroded and have a surface layer of clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as cropland or pasture.

This map unit is moderately suited to woodland. In forested areas loblolly pine, Virginia pine, shortleaf pine, white oak, northern red oak, hickory, southern red oak, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, eastern redcedar, American holly, and sourwood. No major limitations affect woodland use and management, but operating heavy equipment in these areas during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is moderately suited to cultivated crops and is well suited to pasture and hay. In cultivated areas the main crops are corn, soybeans, and small grain. Because of the slope and surface runoff, erosion is a severe hazard in cultivated areas. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is poorly suited to urban development and is moderately suited to recreational development. The clayey subsoil, the slow permeability, the high shrink-swell potential, and the slope are the main limitations affecting building site development. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. The slow permeability is a problem affecting septic tank absorption fields. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied. The slope, the slow permeability, and small stones or gravel are the main limitations affecting recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 7A.

EsC—Enon fine sandy loam, 2 to 15 percent slopes, very stony. This map unit consists mainly of well drained Enon and similar soils on ridges and side slopes on uplands. Most areas of this unit are in the north-central part of the county. Individual areas are broad and irregular in shape and range from 5 to 20 acres in size.

Typically, the surface layer is very dark grayish brown fine sandy loam 2 inches thick. The subsurface layer is dark grayish brown fine sandy loam 4 inches thick. The subsoil is 19 inches thick. The upper part is dark yellowish brown clay and the lower part is multicolored clay loam. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of sandy loam. Stones and cobbles on the surface range from 10 to 15 percent. Scattered boulders also are common in some areas.

Water and air move through the soil at a slow rate. The shrink-swell potential is high. The water table is below a depth of 5 feet. The depth to hard bedrock is more than 5 feet.

Included in this map unit are small areas of Iredell and Mocksville soils, which are dissimilar to the Enon soil. The moderately well drained Iredell soils are in level and concave areas. The well drained Mocksville soils have less clay in the subsoil than the Enon soil. They are on narrow ridgetops and side slopes. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Enon soil but have less stones in the surface layer or are eroded and have a surface layer of clay loam.

Most of the acreage in this map unit has been left in woodland, primarily because of the very stony surface layer. A small acreage is used as pasture, and a very small acreage is used as cropland.

This map unit is moderately suited to woodland. In forested areas Virginia pine, loblolly pine, shortleaf pine, southern red oak, hickory, and yellow-poplar are the most common trees. The most common understory plants are American holly, sourwood, eastern redcedar, and flowering dogwood. The stones on the surface limit the use of equipment and increase the seedling mortality rate. Operating heavy equipment during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is poorly suited to cultivated crops and pasture. In the very small cultivated area, the dominant crops are corn, soybeans, and small grain. Stoniness, the slope, and the hazard of erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is poorly suited to urban and recreational development. The very stony surface layer, the slow permeability, the high shrink-swell potential, the clayey subsoil, and the slope are the major limitations affecting building site development and recreational uses. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

The capability subclass is VIs. Based on loblolly pine as the indicator species, the woodland ordination symbol is 7X.

GaD—Gaston loam, 15 to 25 percent slopes. This map unit consists mainly of well drained Gaston and similar soils on side slopes and narrow ridges on uplands in the central part of the county. Individual areas generally are long and vary in width. They range from 5 to 30 acres in size.

Typically, the surface layer is dark reddish brown loam 8 inches thick. The subsoil is 62 inches thick. It is dark red clay in the upper part, red clay in the next part, and red clay loam in the lower part. The underlying material to a depth of 80 inches is red saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a very severe hazard in areas that are not protected by vegetation or mulch.

Included in this map unit are small areas of Mecklenburg, Mocksville, and Rion soils, which are dissimilar to the Gaston soil. These soils are not dark red in the upper part of the subsoil. They are intermingled with areas of the Gaston soil on side slopes. Mecklenburg soils are slowly permeable, and Mocksville and Rion soils have less clay in the subsoil than the Gaston soil. The dissimilar included soils make up 10 to 20 percent of this map unit.

Also included are small areas of soils that are similar to the Gaston soil but have a thinner subsoil or are moderately eroded and have a surface layer of clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture. The unit generally is not used as cropland.

This map unit is well suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, southern red oak, northern red oak, white oak, hickory, yellow-poplar, and sweetgum are the most common trees. The most common understory plants are flowering dogwood, American holly, eastern redcedar, sourwood, eastern hophornbeam, muscadine grape, and brackenfern. The slope limits the use of equipment and causes a moderate hazard of erosion.

This map unit is well suited to pasture. Tall fescue and ladino clover are the main forage species. The slope and a very severe hazard of erosion are the main management concerns. Conservation practices that help to control runoff and erosion are needed in areas that have been cleared of trees.

This map unit is poorly suited to urban and recreational development. The slope is the major limitation on sites for buildings, sanitary facilities, and recreational uses. Removing the plant cover on construction sites causes a very severe hazard of erosion unless erosion control measures are applied.

The capability subclass is VIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 9R.

GnB2—Gaston clay loam, 2 to 8 percent slopes, eroded. This map unit consists mainly of well drained Gaston and similar soils on broad ridges in the uplands that are dissected by intermittent drainageways throughout the central part of the county. Individual areas generally are irregular in shape and range from 10 to 300 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is dark reddish brown clay loam 10 inches thick. The subsoil is 64 inches thick. It is dark red clay in the upper part, red clay and clay loam in the next part, and red loam in the lower part. The underlying material to a depth of 80 inches is yellowish red saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a severe hazard in areas that are not protected by vegetation or mulch.

Included in this map unit are small areas of Enon and Mecklenburg soils, which are dissimilar to the Gaston soil. These soils are slowly permeable. Enon soils are yellower than the Gaston soil. They are on the lower parts of ridges and on side slopes along small drainageways. Mecklenburg soils are intermingled with areas of the Gaston soil on ridges. The dissimilar included soils make up 5 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Gaston soil but have a red subsoil or a thinner subsoil or are slightly eroded and have a surface layer of fine sandy loam or loam.

Most of the acreage in this map unit is used as

Figure 9.—Soybeans planted in crop residue in a no-till seedbed on Gaston clay loam, 2 to 8 percent slopes, eroded.

cropland or pasture. The rest is used mainly as woodland. Some areas are used for urban development.

This map unit is well suited to cropland and pasture. In cultivated areas the main crops are corn, soybeans, and small grain. The slope, the texture of the surface layer, and the susceptibility to erosion are the main management concerns. Maintaining good tilth is difficult because of the clay loam surface layer. If vegetation or mulch does not cover the soil, a crust commonly forms as the surface layer dries after a hard rain. If the soil is worked when it is wet, clods form. The cloddiness makes seedbed preparation difficult and can hinder germination and result in poor or uneven crop growth. Conservation practices, such as no-till planting (fig. 9), that control erosion and help to protect the surface from the impact of raindrops are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, southern red oak, white oak, yellow-poplar, and sweetgum are the most common trees. The most common understory plants are flowering dogwood, sourwood, winged elm, American holly, black cherry, eastern redcedar, and red maple. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban development and is well suited to recreational development. The clayey subsoil, the moderate permeability, and the moderate shrink-swell potential are the main limitations affecting sanitary facilities and building site development. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

This map unit has no major limitations affecting most recreational uses. The slope and small stones are

limitations on sites for playgrounds.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8C.

GnC2—Gaston clay loam, 8 to 15 percent slopes, eroded. This map unit consists mainly of well drained Gaston and similar soils on side slopes and narrow ridges in the uplands throughout the central part of the county. Individual areas generally are long and vary in width. They range from 5 to 50 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is dark reddish brown clay loam 10 inches thick. The subsoil is 64 inches thick. It is dark red clay in the upper part, red clay and clay loam in the next part, and red loam in the lower part. The underlying material to a depth of 80 inches is yellowish red saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Enon and Mecklenburg soils, which are dissimilar to the Gaston soil. These soils are slowly permeable. They are intermingled with some areas of the Gaston soil on side slopes. Enon soils are yellower than the Gaston soil. The dissimilar included soils make up 5 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Gaston soil but have a red subsoil or a thinner subsoil or are slightly eroded and have a surface layer of fine sandy loam or loam.

Most of the acreage in this map unit is used as hayland, pasture, or cropland. The rest is used as woodland.

This map unit is moderately suited to pasture, hay, and cultivated crops. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species. In cultivated areas the major crops are corn, soybeans, and small grain. The slope, the texture of the surface layer, and the hazard of erosion are the main management concerns. Maintaining good tilth is difficult because of the clay loam surface layer. If vegetation or mulch does not cover the soil, a crust commonly forms as the surface layer dries after a hard rain. If the soil is worked when it is wet, clods form. The cloddiness makes seedbed preparation difficult and can hinder germination and result in poor or uneven crop growth. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, southern red oak, white oak, yellow-poplar, and sweetgum are the most common trees. The most common understory plants are flowering dogwood, sourwood, winged elm, American holly, black cherry, eastern redcedar, and red maple. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban and recreational development. The clayey subsoil, the moderate permeability, the moderate shrink-swell potential, and the slope are the main limitations affecting building site development, sanitary facilities, and recreational uses. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8C.

GrB—Granville gravelly sandy loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Granville and similar soils on ridges in the uplands. It is in the northwestern part of the county. Individual areas are irregular in shape and range from 10 to 25 acres in size.

Typically, the surface layer is yellowish brown gravelly sandy loam 10 inches thick. The subsurface layer is yellowish brown sandy loam 4 inches thick. The subsoil is 30 inches of sandy clay loam. The upper part is brownish yellow with yellowish red mottles. The lower part is yellowish brown with yellowish red mottles. The underlying material to a depth of 60 inches is loam saprolite mottled in shades of brown and red.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included with this map unit are areas of the well drained Mayodan soils, which are dissimilar to the Granville soil. These soils have a subsoil that contains more than 35 percent clay. They are somewhat redder than the Granville soil. They are intermingled with areas of the Granville soil on ridges and slopes. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar

to the Granville soil but have less gravel in the surface layer or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used as woodland.

This map unit is moderately suited to cultivated crops, hay, and pasture. In cultivated areas the major crops are corn, small grain, and tobacco. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species. The slope is the main limitation.

This map unit is moderately suited to woodland. In forested areas white oak, southern red oak, hickory, yellow-poplar, sweetgum, black oak, post oak, red maple, loblolly pine, shortleaf pine, Virginia pine, and elm are the most common trees. The most common understory plants are flowering dogwood, eastern redbud, and sourwood. No major limitations affect woodland use and management.

This map unit is moderately suited to urban and recreational development. The slope and small stones are limitations affecting building site development. The moderate permeability, seepage, and the clayey subsoil are the major limitations affecting sanitary facilities. Removing the plant cover on construction sites may cause a moderate hazard of erosion unless erosion control measures are applied. Small stones is the major limitation affecting most recreational uses.

The capability subclass is IIs. Based on loblolly pine as the indicator species, the woodland ordination symbol is 7A.

IrB—Iredell loam, 1 to 6 percent slopes. This map unit consists mainly of moderately well drained Iredell and similar soils on broad, smooth ridges, in depressions, and at the head of drainageways on uplands. It is mainly in the central part of the county. Individual areas are irregular in shape and range from 5 to 50 acres in size.

Typically, the surface layer is dark grayish brown loam 9 inches thick. The subsoil is 19 inches thick. The upper part is dark yellowish brown clay with mottles in shades of brown. The next part is olive brown clay with mottles in shades of gray and brown. The lower part is multicolored sandy clay loam. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of sandy loam.

Water and air move through the soil at a slow rate. The shrink-swell potential is very high. A perched seasonal high water table is at a depth of 1 foot to 2 feet. The depth to bedrock is more than 60 inches. Erosion is a moderate hazard when the surface is not protected by vegetation or mulch.

Included in this map unit are small areas of Armenia, Enon, Mecklenburg, and Mocksville soils, which are dissimilar to the Iredell soil. Armenia soils are poorly drained and are frequently flooded. They are on small or medium flood plains or in depressions on the uplands. Enon, Mecklenburg, and Mocksville soils are well drained. Enon soils are intermingled with areas of the Iredell soil in slightly convex areas. Mecklenburg soils have a red subsoil and are on knolls and ridges. Mocksville soils have less clay in the subsoil than the Iredell soil. They are on narrow ridges and side slopes. Also included are some areas of small depressions that are ponded during the winter. The dissimilar included soils make up 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used as woodland.

This map unit is moderately suited to cultivated crops, hay, and pasture. In cultivated areas the main crops are corn, soybeans, and small grain. The very sticky and very plastic clay, the slow permeability, the wetness, and the erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. Practices that improve drainage and tilth should also be used. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, post oak, white oak, and sweetgum are the most common trees. The most common understory plants are flowering dogwood, eastern redbud, American holly, eastern redcedar, and sourwood. The clayey subsoil increases the seedling mortality rate and limits the use of equipment. Operating heavy equipment during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is poorly suited to urban and recreational development. The slow permeability, the very high shrink-swell potential, the clayey subsoil, and the wetness are the major limitations affecting building site development and sanitary facilities. The slow permeability is a severe problem affecting septic tank absorption fields. Placing footings below the clay layer and properly designing foundations help to prevent the cracking caused by shrinking and swelling. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. The wetness is the main limitation affecting most recreational uses.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

MaB—Masada fine sandy loam, 2 to 6 percent slopes. This map unit consists mainly of well drained Masada and similar soils on low ridges on terraces of the larger streams. The largest areas are in the eastern part of the county, along the Yadkin River. Smaller areas are scattered throughout the county. Individual areas are elongated or irregular in shape and range from 5 to 100 acres in size.

Typically, the surface layer is dark yellowish brown fine sandy loam 8 inches thick. The subsoil is 49 inches thick. The upper part is yellowish red sandy clay loam and clay. The next part is red clay loam. The lower part is yellowish red sandy clay loam. The underlying material to a depth of 62 inches is yellowish red sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Altavista soils, which are dissimilar to the Masada soil. These moderately well drained, occasionally flooded soils are on flood plains. Also included are small areas of soils that are intermingled with areas of the Masada soil and have less clay in the subsoil. The dissimilar included soils make up 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used mainly as woodland.

This map unit is well suited to cultivated crops and pasture. In cultivated areas the major crops are corn, soybeans, and small grain. The slope and the hazard of erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, southern red oak, white oak, hickory, sweetgum, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, sourwood, American holly, eastern redbud, and red maple. No major limitations affect woodland use and management.

This map unit is moderately suited to urban development. The clayey subsoil and the moderate shrink-swell potential are the major limitations affecting building site development. The slow permeability, seepage, the slope, and the clayey subsoil are the main limitations affecting sanitary facilities. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied.

This map unit is well suited to recreational development. No major limitations affect most recreational uses, but the slope may be a limitation on sites for playgrounds.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

MdB—Mayodan silt loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Mayodan and similar soils on broad to narrow ridges in the uplands. It is in the northwestern part of the county. Individual areas are irregular in shape and range from 10 to more than 100 acres in size.

Typically, the surface layer is pale brown silt loam 7 inches thick. The subsurface layer is brownish yellow silt loam 4 inches thick. The subsoil is 23 inches thick. It is reddish yellow silty clay in the upper part and reddish yellow silty clay loam in the lower part. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Granville soils, which are dissimilar to the Mayodan soil. These soils have less clay in the subsoil than the Mayodan soil. They are on ridges. They make up about 5 to 10 percent of this map unit.

Also included are small areas of soils that are similar to the Mayodan soil but are moderately eroded and have a surface layer of silty clay loam or clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used as pasture or cropland.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, southern red oak, black oak, scarlet oak, yellow-poplar, red maple, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, and sassafras. No major limitations affect woodland use and management.

This map unit is well suited to pasture and cultivated crops. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. In cultivated areas the major crops are corn, soybeans, tobacco, and small grain. The susceptibility to erosion is the main management concern. Conservation practices that help to protect the surface from the impact of

raindrops and control erosion are needed.

This map unit is moderately suited to urban development and is well suited to recreational development. The clayey subsoil, the moderate shrink-swell potential, and low strength are the main limitations affecting building site development and sanitary facilities. The moderate permeability is a limitation on sites for septic tank absorption fields. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. No major limitations affect most recreational uses, but the slope may be a limitation on sites for playgrounds.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

MdC—Mayodan silt loam, 8 to 15 percent slopes. This map unit consists mainly of well drained Mayodan and similar soils on side slopes and narrow ridges in the uplands. It is in the northwestern part of the county. Individual areas generally are long and vary in width. They range from 5 to 50 acres in size.

Typically, the surface layer is pale brown silt loam 7 inches thick. The subsurface layer is brownish yellow silt loam 4 inches thick. The subsoil is 23 inches thick. It is reddish yellow silty clay in the upper part and reddish yellow silty clay loam in the lower part. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are similar to the Mayodan soil but have a gravelly surface layer or are moderately eroded and have a surface layer of silty clay loam or clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used as pasture or cropland.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, scarlet oak, yellow-poplar, red maple, sweetgum, Virginia pine, southern red oak, black oak, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, and sassafras. No major limitations affect woodland use and management.

This map unit is moderately suited to pasture and cultivated crops. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. In cultivated areas the major crops are corn, soybeans, and small grain. The slope and the susceptibility to erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is moderately suited to urban and recreational development. The clayey subsoil, the moderate shrink-swell potential, low strength, the moderate permeability, and the slope are the main limitations affecting building site development and sanitary facilities. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. The slope is the main limitation affecting most recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

MdD—Mayodan silt loam, 15 to 25 percent slopes. This map unit consists mainly of well drained Mayodan and similar soils on side slopes in the uplands. It is in the northwestern part of the county. Individual areas generally are long and narrow and range from 5 to 50 acres in size.

Typically, the surface layer is pale brown silt loam 7 inches thick. The subsurface layer is brownish yellow silt loam 4 inches thick. The subsoil is 23 inches thick. It is reddish yellow silty clay in the upper part and reddish yellow silty clay loam in the lower part. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are similar to the Mayodan soil but have a gravelly surface layer or are moderately eroded and have a surface layer of silty clay loam or clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, scarlet oak, yellow-poplar, red maple, Virginia pine, sweetgum, southern red oak, black oak, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood,

eastern redcedar, and sassafras. The slope causes a moderate hazard of erosion and limits the use of equipment.

This map unit is moderately suited to pasture and is poorly suited to cultivated crops. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. The slope and the susceptibility to erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is poorly suited to urban and recreational development. The clayey subsoil, the moderate shrink-swell potential, low strength, and the slope are the main limitations affecting building site development and sanitary facilities. Removing the plant cover may cause a severe hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. The slope is the main limitation affecting most recreational uses.

The capability subclass is VIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8R.

MdE—Mayodan silt loam, 25 to 45 percent slopes. This map unit consists mainly of well drained Mayodan and similar soils on side slopes in the uplands. It is in the northwestern part of the county. Individual areas generally are long and narrow and range from 5 to 50 acres in size.

Typically, the surface layer is pale brown silt loam 7 inches thick. The subsurface layer is brownish yellow silt loam 4 inches thick. The subsoil is 23 inches thick. It is reddish yellow silty clay in the upper part and reddish yellow silty clay loam in the lower part. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a very severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are similar to the Mayodan soil but have a gravelly surface layer or are moderately eroded and have a surface layer of silty clay loam or clay loam.

Most of the acreage in this map unit is used as woodland. Some areas are used as pasture.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, scarlet oak, yellow-poplar, red maple, Virginia pine, sweetgum, southern red oak, black oak, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, and sassafras. The slope causes a severe hazard of erosion and limits the use of equipment.

This map unit is poorly suited to pasture and is very poorly suited to cultivated crops. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. The slope and the susceptibility to erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is very poorly suited to urban development and is poorly suited to recreational development. The clayey subsoil, the moderate shrink-swell potential, low strength, and the slope are the main limitations affecting building site development and sanitary facilities. Removing the plant cover causes a very severe hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. The slope is the main limitation affecting most recreational uses.

The capability subclass is VIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8R.

MnB2—Mayodan silty clay loam, 2 to 8 percent slopes, eroded. This map unit consists mainly of well drained Mayodan and similar soils on narrow to broad ridges in the uplands. It is in the northwestern part of the county. Individual areas are irregular in shape and range from 5 to more than 300 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is yellowish red silty clay loam 7 inches thick. The subsoil is 31 inches thick. The upper part is red clay. The next part is red silty clay with mottles in shades of yellow. The lower part is red silty clay with mottles in shades of yellow and brown. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam that has pockets of clay loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are dissimilar to the Mayodan soil. These soils have less clay in the subsoil than the Mayodan soil. They are on ridges. They make up less than 5 percent of this map unit.

Also included are small areas of soils that are similar

to the Mayodan soil but are slightly eroded and have a gravelly surface layer or a surface layer of silt loam.

Most of the acreage in this map unit is used as cropland. The rest is used as pasture or woodland.

This map unit is moderately suited to cultivated crops and pasture. In cultivated areas the major crops are corn, soybeans, tobacco, and small grain. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. The eroded condition of the soil and the hazard of further erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, scarlet oak, yellow-poplar, red maple, sweetgum, southern red oak, Virginia pine, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, and sassafras. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban development and is well suited to recreational development. The clayey subsoil, the moderate shrink-swell potential, the slope, and low strength are the main limitations affecting building site development and sanitary facilities. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. No major limitations affect most recreational uses, but the slope may be a limitation on sites for playgrounds.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

MnC2—Mayodan silty clay loam, 8 to 15 percent slopes, eroded. This map unit consists mainly of well drained Mayodan and similar soils on narrow to broad side slopes in the northwestern part of the county. Individual areas are irregular in shape and range from 5 to more than 100 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is yellowish red silty clay loam 7 inches thick. The subsoil is 31 inches thick. The upper part is red clay. The next part is red silty clay with mottles in shades of yellow. The lower part is red silty clay with mottles in shades of yellow and brown. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of silt loam that has pockets of clay loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 6 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Also included are small areas of soils that are similar to the Mayodan soil but are slightly eroded and have a gravelly surface layer or a surface layer of silt loam.

Most of the acreage in this map unit is used as woodland. The rest is used as pasture or cropland.

This map unit is moderately suited to woodland. In forested areas loblolly pine, white oak, scarlet oak, yellow-poplar, red maple, Virginia pine, sweetgum, black oak, southern red oak, hickory, and shortleaf pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, and sassafras. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to pasture and is poorly suited to cultivated crops. In areas used as pasture, tall fescue, ladino clover, and alfalfa are the main forage species. In cultivated areas the major crops are corn, soybeans, and small grain. The slope, the eroded condition of the soil, and the susceptibility to further erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed.

This map unit is moderately suited to urban and recreational development. The clayey subsoil, the moderate shrink-swell potential, low strength, the moderate permeability, and the slope are the main limitations affecting building site development and sanitary facilities. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied. Testing for dispersive materials is needed if the soil is used as construction material. The slope is the main limitation affecting most recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

MrB2—Mecklenburg clay loam, 2 to 8 percent slopes, eroded. This map unit consists mainly of well drained Mecklenburg and similar soils on broad ridges dissected by intermittent drainageways on uplands. It is throughout the central part of the county. Individual

areas are generally broad and irregular in shape and range from 10 to 150 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is dark brown clay loam 7 inches thick. The subsoil is 51 inches thick. The upper part is yellowish red clay. The next part is yellowish red clay with mottles in shades of red and yellow. The lower part is yellowish red clay loam with mottles in shades of red and yellow. The underlying material to a depth of 70 inches is loam saprolite mottled in shades of yellow, red, and brown.

Water and air move through the soil at a slow rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Armenia, Enon, Sedgefield, Gaston, and Mocksville soils, which are dissimilar to the Mecklenburg soil. The poorly drained, frequently flooded Armenia soils are on small or medium flood plains or along drainageways. Enon soils are yellower than the Mecklenburg soil. They have a high shrink-swell potential. They are intermingled with areas of the Mecklenburg soil. The moderately well drained Iredell and moderately well drained or somewhat poorly drained Sedgefield soils are on low ridges and broad flats or in the slightly depressed areas. Gaston soils have a dark red subsoil that is thicker than that of the Mecklenburg soil. They are moderately permeable. They are on ridges. Mocksville soils have less clay in the subsoil than the Mecklenburg soil. They are on narrow ridges and side slopes. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Mecklenburg soil but are slightly eroded and have a gravelly surface layer or a surface layer of loam.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used as woodland.

This map unit is moderately suited to cultivated crops and pasture. The major crops are corn, soybeans, and small grain. The slope, the texture of the surface layer, and the susceptibility to erosion are the main management concerns. Maintaining good tilth is difficult because of the clay loam surface layer. If vegetation or mulch does not cover the soil, a crust commonly forms as the surface layer dries after a hard rain. If the soil is worked when it is wet, clods form. The cloddiness makes seedbed preparation difficult and can hinder germination and result in poor or uneven crop growth. Conservation practices that control erosion and help to protect the surface from the impact of raindrops are needed. Practices that add organic matter help to maintain tilth. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, yellow-poplar, white oak, northern red oak, sweetgum, hickory, and Virginia pine are the most common trees. The most common understory plants are eastern redcedar, eastern redbud, sourwood, American holly, and sassafras. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban development and recreational development. The clayey subsoil, low strength, and the moderate shrink-swell potential in the subsoil are the main limitations affecting building site development. Properly designing foundations helps to prevent the cracking caused by shrinking and swelling in the subsoil. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied. The slow permeability, the slope, and the clayey subsoil are limitations on sites for sanitary facilities. The slow permeability is a limitation affecting most recreational uses. The slope may be a limitation on sites for playgrounds.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

MrC2—Mecklenburg clay loam, 8 to 15 percent slopes, eroded. This map unit consists mainly of well drained Mecklenburg and similar soils on narrow side slopes in the uplands. Small, scattered areas are mainly in the central part of the county. Individual areas are generally long and vary in width. They range from 10 to 60 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is dark brown clay loam 7 inches thick. The subsoil is 51 inches thick. The upper part is yellowish red clay. The next part is yellowish red clay with mottles in shades of red and yellow. The lower part is yellowish red clay loam with mottles in shades of red and yellow. The underlying material to a depth of 70 inches is loam saprolite mottled in shades of yellow, red, and brown.

Water and air move through the soil at a slow rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to hard bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Enon, Gaston, and Mocksville soils, which are dissimilar to the Mecklenburg soil. These soils are intermingled with

areas of the Mecklenburg soil on side slopes. Enon soils are yellower than the Mecklenburg soil. They have a high shrink-swell potential. Gaston soils have a dark red subsoil that is thicker than that of the Mecklenburg soil. They are moderately permeable. Mocksville soils have less clay in the subsoil than the Mecklenburg soil. Also included are areas that have a gravelly surface layer or are gullied, which are identified on the soil map by a special symbol. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Mecklenburg soil but are slightly eroded and have a gravelly surface layer or a surface layer of loam.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture or cropland.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, yellow-poplar, white oak, northern red oak, Virginia pine, sweetgum, and hickory are the most common trees. The most common understory plants are American holly, flowering dogwood, eastern redcedar, and sourwood. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to pasture and is poorly suited to cultivated crops. In the areas used for pasture or hay, tall fescue and ladino clover are the main forage species. In cultivated areas the major crops are corn, soybeans, and small grain. The hazard of erosion, the texture of the surface layer, the slope, and slow internal drainage are the main management concerns. Maintaining good tilth is difficult because of the clay loam surface layer. If vegetation or mulch does not cover the soil, a crust commonly forms as the surface layer dries after a hard rain. If the soil is worked when it is wet, clods form. The cloddiness makes seedbed preparation difficult and can hinder germination and result in poor or uneven crop growth. Conservation practices that help to protect the surface from the impact of raindrops and control erosion should be used.

This map unit is moderately suited to urban development and recreational development. The moderate shrink-swell potential, the slope, and low strength are the main limitations affecting building site development. The slow permeability, the slope, and the clayey subsoil are limitations on sites for sanitary facilities. Removing the plant cover on construction sites may cause a severe hazard of erosion unless erosion control measures are applied. The slope is the main limitation affecting most recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

MsB—Mocksville sandy loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Mocksville and similar soils on broad to narrow ridges in the uplands. It is mainly in the northeastern and north-central parts of the county, but individual areas are scattered throughout the county, especially at or near diabase dikes. Individual areas are irregular in shape and range from 10 to more than 100 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The subsoil is 19 inches thick. The upper part is dark yellowish brown clay loam with mottles in shades of strong brown and yellow. The lower part is mottled yellowish brown, yellow, and strong brown sandy loam with pockets of clay loam. The underlying material to a depth of 60 inches is mottled yellowish brown, yellow, and strong brown saprolite that has a texture of loamy sand.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 60 inches. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Enon and Sedgefield soils, which are dissimilar to the Mocksville soil. Enon soils have more clay in the subsoil than the Mocksville soil. They are on broad ridges. Sedgefield soils are moderately well drained or somewhat poorly drained. They are on flats or in the slightly depressed areas. Also included are small areas that are more shallow over bedrock than the Mocksville soil. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Mocksville soil but have a gravelly surface layer or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as pasture or hayland. The rest is used mainly as woodland or cropland.

This map unit is well suited to pasture and hay and is moderately suited to cultivated crops. In the areas used for pasture and hay, tall fescue and ladino clover are the main forage species. In cultivated areas the principal crops are corn, soybeans, and small grain. The moderate hazard of erosion is the main management concern. Conservation practices that control erosion and help to protect the surface from the impact of raindrops are needed.

This map unit is moderately suited to woodland. In forested areas yellow-poplar, loblolly pine, shortleaf

pine, Virginia pine, northern red oak, scarlet oak, white oak, blackgum, hickory, American beech, sweetgum, and black oak are the most common trees. The most common understory plants are eastern redcedar, flowering dogwood, laurel, and American holly. No major limitations affect woodland use and management.

This map unit is moderately suited to urban development and recreational development. The moderate permeability and seepage are the main limitations affecting sanitary facilities. The instability of cutbanks and the slope are limitations affecting building site development. Removing the plant cover on construction sites may cause a moderate hazard of erosion unless erosion control measures are applied. No major limitations affect most recreational uses, but the slope and small stones may be a limitation on sites for playgrounds.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

MsC—Mocksville sandy loam, 8 to 15 percent slopes. This map unit consists mainly of well drained Mocksville and similar soils on narrow ridges and on side slopes in the uplands. It generally is in the northeastern and north-central parts of the county, but it is throughout the county, especially at or near diabase dikes. Individual areas generally are long and narrow or occasionally broad and vary in width. They range from 5 to 100 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The subsoil is 19 inches thick. The upper part is dark yellowish brown clay loam with mottles in shades of strong brown and yellow. The lower part is mottled yellowish brown, yellow, and strong brown sandy loam with pockets of clay loam. The underlying material to a depth of 60 inches is mottled yellowish brown, yellow, and strong brown saprolite that has a texture of loamy sand.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 60 inches. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Enon and Wedowee soils, which are dissimilar to the Mocksville soil. These soils have more clay in the subsoil than the Mocksville soil. Enon soils are on the upper parts of side slopes and on narrow ridges. Wedowee soils are more acid than the Mocksville soil. They are on side slopes. Also included are small areas of soils that are more shallow over bedrock than the Mocksville soil. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Mocksville soil but have a gravelly surface layer, are more acid than the Mocksville soil, or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as woodland. Some areas have been cleared of trees and are used as pasture. The unit generally is not used as cropland.

This map unit is moderately suited to woodland. In forested areas yellow-poplar, American beech, sweetgum, white oak, black oak, scarlet oak, hickory, blackgum, northern red oak, loblolly pine, shortleaf pine, and Virginia pine are the most common trees. The most common understory plants are eastern redcedar, flowering dogwood, laurel, and American holly. No major limitations affect woodland use and management.

This map unit is moderately suited to hay and pasture and is very poorly suited to cultivated crops. In the areas used for hay and pasture, tall fescue and ladino clover are the main forage species.

If this map unit is used as cropland, conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. The slope and the severe hazard of erosion are the main management concerns.

This map unit is moderately suited to urban development and recreational development. The slope, the instability of cutbanks, and the severe hazard of erosion are the main limitations affecting most urban and recreational uses. The moderate permeability, the slope, and seepage are limitations on sites for sanitary facilities. Removing the plant cover on construction sites may cause a severe hazard of erosion unless erosion control measures are applied.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

MsD—Mocksville sandy loam, 15 to 45 percent slopes. This map unit consists mainly of well drained Mocksville and similar soils on side slopes in the uplands. It generally is in the northeastern and north-central parts of the county, but it is throughout the county, especially at or near diabase dikes. Individual areas generally are long and narrow and range from 5 to 50 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 6 inches thick. The subsoil is 19 inches thick. The upper part is dark yellowish brown clay loam with mottles in shades of strong brown and yellow. The lower part is mottled yellowish brown, yellow, and strong brown sandy loam with pockets of clay loam. The underlying material to a depth of 60 inches is

mottled yellowish brown, yellow, and strong brown saprolite that has a texture of loamy sand.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 60 inches. Erosion is a very severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Wedowee soils, which are dissimilar to the Mocksville soil. Wedowee soils have more clay in the subsoil than the Mocksville soil and are more acid. They are on side slopes. Also included are small areas of soils that are more shallow over bedrock than the Mocksville soil. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Mocksville soil but have a gravelly surface layer, are more acid than the Mocksville soil, or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture.

This map unit is moderately suited to woodland. In forested areas yellow-poplar, American beech, sweetgum, white oak, black oak, loblolly pine, shortleaf pine, northern red oak, scarlet oak, hickory, blackgum, Virginia pine, and green ash are the most common trees. The most common understory plants are eastern redcedar, flowering dogwood, laurel, and American holly. The slope causes a moderate hazard of erosion and limits the use of equipment.

This map unit is moderately suited to pasture and is very poorly suited to cultivated crops. In areas used as pasture, tall fescue and ladino clover are the main forage species. The hazard of erosion and the slope are the main management concerns. Conservation practices that control erosion and help to protect the surface from the impact of raindrops are needed.

This map unit is very poorly suited to urban development and is poorly suited to most recreational development. The slope and the very severe hazard of erosion are the main limitations affecting building site development and recreational uses. Removing the plant cover for any use causes a very severe hazard of erosion unless erosion control measures are applied. The moderate permeability, the slope, and seepage are limitations on sites for sanitary facilities.

The capability subclass is VIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8R.

PaD—Pacolet sandy loam, 15 to 40 percent slopes. This map unit consists mainly of well drained Pacolet and similar soils on narrow ridges and on side slopes in the uplands throughout the county. Individual areas are long and vary in width. They range from 5 to 150 acres in size.

Typically, the surface layer is yellowish brown sandy loam 3 inches thick. The subsurface layer is strong brown sandy loam 4 inches thick. The subsoil is 22 inches thick. It is red clay in the upper part and yellowish red clay loam in the lower part. The underlying material to a depth of 60 inches is multicolored saprolite that has a texture of loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a very severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are areas of soils that are similar to the Pacolet soil but have less clay in the subsoil, a higher content of mica, a yellower subsoil, or are moderately eroded and have a surface layer of clay loam.

Most of the acreage in this map unit is used as woodland. A few areas are used as pasture.

This map unit is moderately suited to woodland. In forested areas shortleaf pine, yellow-poplar, American beech, southern red oak, northern red oak, loblolly pine, Virginia pine, white oak, and hickory are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, sassafras, and eastern redbud. The slope causes a moderate hazard of erosion and limits the use of equipment.

This map unit is poorly suited to pasture and is very poorly suited to cultivated crops. In areas used as pasture, tall fescue is the main forage species. The slope and a very severe hazard of erosion are the main management concerns. Maintaining a good growth of sod is needed to prevent excessive erosion.

This map unit is very poorly suited to urban development and is poorly suited to recreational development. The slope is the major limitation on sites for buildings, sanitary facilities, and recreational uses. Removing the plant cover on construction sites causes a very severe hazard of erosion unless erosion control measures are applied.

The capability subclass is VIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8R.

PcB2—Pacolet sandy clay loam, 2 to 8 percent slopes, eroded. This map unit consists mainly of well drained Pacolet and similar soils on ridges in the uplands. It generally is in the eastern part of the county.

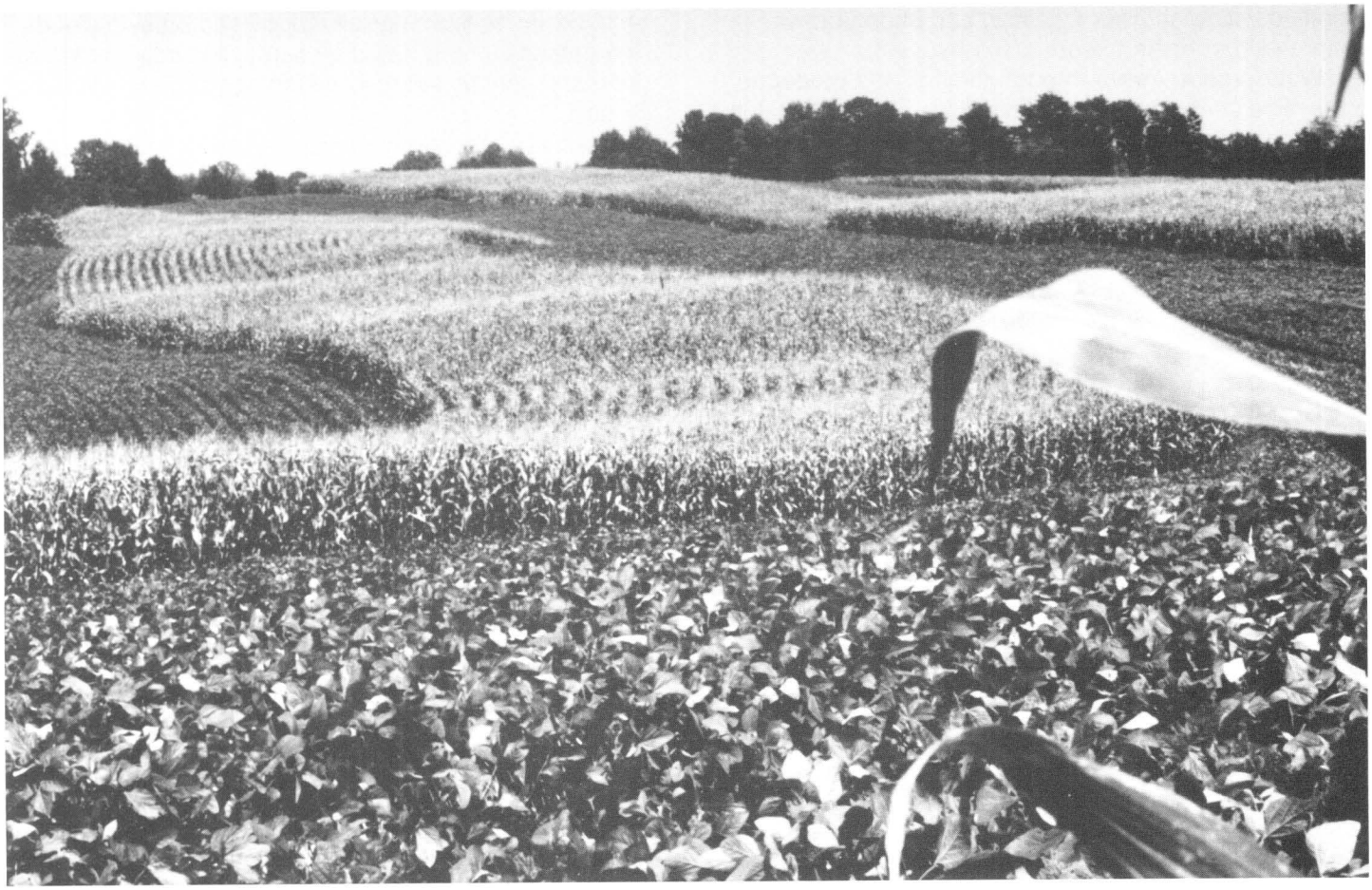

Figure 10.—No-till corn and no-till soybeans on Pacolet sandy clay loam, 2 to 8 percent slopes, eroded.

Individual areas are irregular in shape and range from 4 to 250 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is yellowish red sandy clay loam 7 inches thick. The subsoil is 29 inches thick. The upper part is red clay loam. The next part is red clay that has reddish yellow mottles. The lower part is red sandy clay loam with reddish yellow mottles. The underlying material to a depth of 60 inches is red and yellowish red saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are similar to the Pacolet soil but have a yellower subsoil, a thicker subsoil, more mica, a gravelly surface layer, or are slightly eroded and have a surface layer of sandy loam.

Most of the acreage in this map unit is used for crops, hay, or pasture. The rest is used mainly as woodland.

This map unit is moderately suited to cropland, hay, and pasture. In cultivated areas the major crops are corn, soybeans, and small grain (fig. 10). The slope and the severe hazard of erosion are the main management concerns. Conservation practices that help to control runoff and protect the surface from the impact of raindrops and erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, southern red oak, northern red oak, white oak, hickory, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redbud, black cherry, eastern

redcedar, and sassafras. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is well suited to urban development and recreational development. No major limitations affect building site development and most recreational uses, but the clayey subsoil, the moderate permeability, and the slope are limitations that affect some uses. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied.

The capability subclass is IIIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

PcC2—Pacolet sandy clay loam, 8 to 15 percent slopes, eroded. This map unit consists mainly of well drained Pacolet and similar soils on narrow ridges and on side slopes in the uplands throughout most of the county. Individual areas generally are long and narrow and vary in width. They range from 5 to 100 acres in size.

The soil is moderately eroded, and in most places tillage has mixed subsoil material into the remaining original surface layer. Typically, the surface layer is yellowish red sandy clay loam 7 inches thick. The subsoil is 29 inches thick. The upper part is red clay loam. The next part is red clay with reddish yellow mottles. The lower part is red sandy clay loam with reddish yellow mottles. The underlying material to a depth of 60 inches is red and yellowish red saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of soils that are similar to the Pacolet soil but have a yellower subsoil, less clay in the subsoil, more mica, a gravelly surface layer, or are slightly eroded and have a surface layer of sandy loam.

Most of the acreage in this map unit is used for crops, hay, or pasture. The rest is used mainly as woodland. A few areas are used for urban development.

This map unit is poorly suited to cultivated crops and is moderately suited to pasture and hay. In cultivated areas the main crops are corn, soybeans, and small grain. The slope and the severe hazard of erosion are the main management concerns. Conservation practices that help to control runoff, protect the surface from the impact of raindrops, and control erosion are needed. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, Virginia pine, southern red oak, northern red oak, shortleaf pine, white oak, hickory, and yellow-poplar are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redbud, black cherry, American holly, and sassafras. Erosion results in a high content of clay in the surface layer, which increases the seedling mortality rate and limits the use of equipment.

This map unit is moderately suited to urban development and recreational development. The clayey subsoil, the slope, the severe hazard of erosion, and the moderate permeability are the main limitations affecting building site development, sanitary facilities, and recreational uses. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 6C.

Pt—Pits, quarries. This map unit consists of areas where all of the soil has been removed and the underlying bedrock has been excavated, exposing either rock or other material that supports few or no plants. Most of the quarrying is for gravel or crushed stone for use in roadbuilding or other paving. These areas are 4 acres or more in size.

The quarries range from 4 to more than 100 feet deep. The side slopes are mainly steep to vertical. Water is in the deepest levels of a few areas that are no longer actively quarried. These areas are identified on the soil map.

Included in mapping are small areas of spoil embankments and small areas that have been graded or filled to facilitate the quarrying operations. Small undisturbed areas of soils may be included in a few places.

These areas support very little vegetation and have low potential for reclaim and development of any kind. Onsite investigation is needed before planning the use and management of specific areas in this map unit.

The capability subclass is VIIIs. This map unit has not been assigned a woodland ordination symbol.

RnC—Rion sandy loam, 8 to 15 percent slopes. This map unit consists mainly of well drained Rion and similar soils on side slopes in the uplands throughout most of the county. Individual areas are irregular in shape or are long and vary in width. They range from 3 to 50 acres in size.

Typically, 2 inches of fresh and decomposed hardwood litter is on the surface. The surface layer is yellowish brown sandy loam 6 inches thick. The

subsurface layer is light yellowish brown sandy loam 6 inches thick. The subsoil is 20 inches thick. The upper part is reddish yellow clay loam. The lower part is brownish yellow sandy loam with very pale brown and light yellowish brown mottles. The underlying material to a depth of 60 inches is mottled brownish yellow, very pale brown, and light yellowish brown saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to hard bedrock is more than 5 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Pacolet and Wedowee soils, which are dissimilar to the Rion soil. These soils are intermingled with areas of the Rion soil on side slopes and narrow ridges. They have more clay in the subsoil than the Rion soil. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Rion soil but are less acid or have a gravelly surface layer.

Most of the acreage in this map unit is used as woodland. The rest is used mainly as pasture or hayland. A few areas are used as cropland.

This map unit is moderately suited to woodland. In forested areas American beech, yellow-poplar, loblolly pine, post oak, scarlet oak, shortleaf pine, white oak, hickory, sweetgum, red maple, and southern red oak are the most common trees. The most common understory plants are flowering dogwood, sourwood, sassafras, and black cherry. No major limitations affect woodland use and management.

This map unit is moderately suited to pasture and hay and is poorly suited to cultivated crops. In the areas used for pasture and hay, tall fescue and ladino clover are the main forage species. The slope and the hazard of erosion are the main management concerns.

This map unit is moderately suited to urban development and recreational development. The slope, the hazard of erosion, and seepage are the main limitations affecting building site development and sanitary facilities. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. The slope is the main limitation affecting most recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

RnD—Rion sandy loam, 15 to 40 percent slopes. This map unit consists mainly of well drained Rion and similar soils on side slopes in the uplands throughout the county. Individual areas are irregular in shape or are long and vary in width. They range from 5 to 50 acres in size.

Typically, 2 inches of fresh and decomposed hardwood litter is on the surface. The surface layer is yellowish brown sandy loam 6 inches thick. The subsurface layer is light yellowish brown sandy loam 6 inches thick. The subsoil is 20 inches thick. The upper part is reddish yellow clay loam. The lower part is brownish yellow sandy loam with very pale brown and light yellowish brown mottles. The underlying material to a depth of 60 inches is mottled brownish yellow, very pale brown, and light yellowish brown saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The water table is below a depth of 6 feet. The depth to hard bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Pacolet and Wedowee soils, which are dissimilar to the Rion soil. These soils are intermingled with areas of the Rion soil on side slopes. They have more clay in the subsoil than the Rion soil. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Rion soil but are less acid or have a gravelly surface layer.

Most of the acreage in this map unit is used as woodland. A few areas have been cleared of trees and are used as pasture.

This map unit is moderately suited to woodland. In forested areas shortleaf pine, loblolly pine, post oak, southern red oak, sweetgum, scarlet oak, white oak, yellow-poplar, and hickory are the most common trees. The most common understory plants are flowering dogwood, sourwood, eastern redcedar, American holly, and sassafras. The slope causes a moderate hazard of erosion and limits the use of equipment.

This map unit is very poorly suited to cultivated crops and is poorly suited to pasture. The slope and the hazard of erosion are the main management concerns. In areas used as pasture, tall fescue and ladino clover are the main forage species.

This map unit is very poorly suited to urban development and is poorly suited to recreational development. The slope, the hazard of erosion, and the instability of cutbanks are the main limitations affecting building site development. Removing the plant cover may cause a severe hazard of erosion unless erosion control measures are applied. The slope and seepage are the main limitations affecting sanitary facilities. The slope is the main limitation affecting most recreational uses.

The capability subclass is VIIe. Based on loblolly

pine as the indicator species, the woodland ordination symbol is 8R.

RvA—Riverview loam, 0 to 2 percent slopes, frequently flooded. This map unit consists mainly of well drained Riverview and similar soils on flood plains along rivers and creeks throughout the county. These soils are frequently flooded for brief periods. Large areas are along the Yadkin and South Yadkin Rivers, Hunting Creek, and Dutchman Creek. Individual areas are oblong and vary in width. They range from 5 to 100 acres in size.

Typically, the surface layer is dark yellowish brown loam 10 inches thick. The subsoil is 30 inches thick. It is brown clay loam and silty clay loam. The underlying material to a depth of 60 inches is dark yellowish brown loamy sand and yellowish brown sand that has pockets of brown loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is low. The seasonal high water table is at a depth of 3 to 5 feet. The depth to bedrock is more than 10 feet.

Included in this map unit are small areas of Altavista, Masada, Buncombe, and Chewacla soils, which are dissimilar to the Riverview soil. The moderately well drained Altavista soils are occasionally flooded. The well drained Masada soils are on the higher stream terraces, which are not subject to flooding. They have more clay in the subsoil than the Riverview soil. The excessively drained Buncombe soils are in the slightly higher areas, adjacent to rivers and creeks. The somewhat poorly drained Chewacla soils are in the slightly lower areas, generally away from the major stream channels. The dissimilar included soils make up 10 to 15 percent of this map unit.

Most of the acreage in this map unit is used as cropland or pasture. The rest is used as woodland.

This map unit is moderately suited to cultivated crops and pasture. The principal crops are corn, soybeans, and small grain. These crops may be damaged by the frequent flooding. Tall fescue and ladino clover are the main pasture forage species.

This map unit is well suited to woodland. In forested areas yellow-poplar, American sycamore, water oak, sweetgum, willow oak, eastern cottonwood, and loblolly pine are the most common trees. The most common understory plants are flowering dogwood, sourwood, American holly, and poison ivy. The flooding causes seedling mortality and limits the use of equipment. Operating heavy equipment during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is very poorly suited to urban development and sanitary facilities. The wetness and the flooding are the main limitations.

This map unit is poorly suited to recreational development. The flooding is the main limitation.

The capability subclass is IVw. Based on sweetgum as the indicator species, the woodland ordination symbol is 10A.

RwA—Roanoke loam, 0 to 2 percent slopes, occasionally flooded. This map unit consists mainly of poorly drained Roanoke and similar soils in low, flat, or slightly depressed areas on flood plains, commonly adjacent to the uplands throughout the county. These soils are occasionally flooded for brief periods. Individual areas are irregular in shape and range from 3 to 50 acres in size.

Typically, the surface layer is dark grayish brown loam 11 inches thick. The subsoil is 33 inches thick. The upper part is gray clay with strong brown mottles. The next part is grayish brown clay with gray mottles. The lower part is light brownish gray clay loam with gray mottles. The underlying material to a depth of 72 inches is light brownish gray and grayish brown loam with grayish green and bluish gray mottles.

Water and air move through the soil at a slow or very slow rate. The shrink-swell potential is moderate. The seasonal high water table is within 1 foot of the surface. The depth to bedrock is more than 5 feet.

Included in this map unit are small areas of Altavista and Chewacla soils, which are dissimilar to the Roanoke soil. These soils have less clay in the subsoil than the Roanoke soil. The moderately well drained Altavista soils are in the slightly elevated areas. The somewhat poorly drained, frequently flooded Chewacla soils are on flood plains. The dissimilar included soils make up 10 to 15 percent of this map unit.

About half of the acreage in this map unit is used for pasture, hay, or crops. The rest is used as woodland.

This map unit is poorly suited to pasture, hay, and cultivated crops. If it is used as cropland, the principal crops are corn, soybeans, and small grain. These crops may be damaged by the occasional flooding. A drainage system may be needed during wet years. Tall fescue and ladino clover are the main pasture forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, willow oak, sweetgum, American sycamore, white oak, northern red oak, and southern red oak are the most common trees. The most common understory plants are black willow, alders, and switchcane. The wetness and the flooding cause a severe seedling mortality rate and limit the use of equipment. Operating heavy equipment during wet periods results in compaction, which reduces the rate of

water infiltration and increases the seedling mortality rate.

This map unit is very poorly suited to urban development and recreational development. It generally is not used as a site for buildings or for recreational development because of the wetness, the slow permeability, and the flooding.

The capability subclass is IVw. Based on loblolly pine as the indicator species, the woodland ordination symbol is 9W.

SeB—Sedgefield sandy loam, 1 to 6 percent slopes. This map unit consists mainly of moderately well drained or somewhat poorly drained Sedgefield and similar soils on ridges in the uplands, in shallow depressions, and in concave areas at the head of drainageways. It is throughout the county. Individual areas are elongated or irregular in shape and range from 5 to 30 acres in size.

Typically, the surface layer is brown sandy loam 9 inches thick. The subsoil is 25 inches thick. The upper part is strong brown clay with light brownish gray and olive gray mottles. The lower part is strong brown clay loam with light gray mottles. The underlying material to a depth of 60 inches is mottled strong brown, pale brown, and light gray saprolite that has a texture of sandy clay loam.

Water and air move through the soil at a slow rate. The shrink-swell potential is high. A perched seasonal high water table is at a depth of 1.0 foot to 1.5 feet. The depth to hard bedrock is more than 5 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Enon, Iredell, and Mocksville soils, which are dissimilar to the Sedgefield soil. The well drained Enon soils are intermingled with areas of the Sedgefield soil on ridges. Iredell soils are intermingled with areas of the Sedgefield soil on flats. They have a more sticky and plastic subsoil than the Sedgefield soil. The well drained Mocksville soils are on narrow ridges and the upper side slopes. Also included are small areas of poorly drained soils. The dissimilar included soils make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Sedgefield soil but are more acid or have a gravelly surface layer.

Most of the acreage in this map unit is used for crops or pasture. The rest is used mainly as woodland.

This map unit is moderately suited to cultivated crops, hay, and pasture. In cultivated areas the major crops are corn and soybeans. The slow permeability, the wetness, and the moderate hazard of erosion are the main management concerns. Conservation practices that help to control erosion are needed in the more sloping areas. Practices that improve drainage are needed in the flatter areas. In the areas used for hay or pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas southern red oak, northern red oak, white oak, sweetgum, yellow-poplar, shortleaf pine, loblolly pine, and Virginia pine are the most common trees. The most common understory plants are sourwood, flowering dogwood, American holly, and eastern redcedar. The wetness causes a moderate limitation for the use of equipment. Operating heavy equipment during wet periods results in compaction, which reduces the rate of water infiltration and increases the seedling mortality rate.

This map unit is poorly suited to urban development and recreational development. The slow permeability, the wetness, and the moderate shrink-swell potential are the main limitations affecting building site development and sanitary facilities. The slow permeability is a severe problem affecting septic tank absorption fields. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. The wetness and the slow permeability are the main limitations affecting most recreational uses.

The capability subclass is IIe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8W.

Ud—Udorthents, loamy. This map unit consists of miscellaneous areas where the natural soils have been altered by cutting, filling, and shaping. The surface layer is loamy soil material that varies in composition, depth, slope, and its ability to grow plants. Borrow pits, cut and fill land, and landfills make up most of this map unit. Undisturbed natural soils are included in some small areas. Individual areas are irregular in shape but are commonly rectangular. They range from 4 to 100 acres in size.

Borrow pits are areas where all of the original soil material and much of the underlying material have been removed for use as fill material or construction aggregate. Cuts are 3 to 25 feet deep. Steep side slopes are on one or more sides. The surface generally is uneven, and in many areas bedrock is exposed. These areas support poor plant growth, and most are naturally reseeded in wild grasses, weeds, shortleaf pine, and Virginia pine. Erosion is a severe hazard in unstabilized areas. Major reclamation generally is necessary to prepare these areas for the economic production of plants or for development for other purposes.

Cut and fill land consists of areas where the soil has been altered by grading to achieve a particular land conformation. In cut areas more than 2 feet of soil has been removed, and in fill areas more than 2 feet of fill material has been placed over the natural soil. Most of these areas are in school yards that have athletic fields, major highways and their interchanges, or industrial sites. Several large areas are used for agricultural purposes. Most of these areas are stabilized with grass or are used as cropland. Buildings and pavement cover as much as 15 percent of some areas.

Landfills are excavated areas where deeply graded trenches, as much as 30 feet deep, have been backfilled with alternating layers of solid refuse and soil material. After the final cover has been added, the areas are nearly level or gently sloping. Most areas are seeded to grass or planted in trees. These areas are very poorly suited to most building sites because of subsidence and the danger of methane gas from the decomposition of refuse. Areas of landfills are designated on the soil map.

Onsite investigation is needed before planning the use and management of specific areas of this map unit.

The capability subclass is VIIIe. This map unit has not been assigned a woodland ordination symbol.

Ur—Urban land. This map unit consists of areas where more than 85 percent of the surface is covered by asphalt, concrete, buildings, or other impervious material. The rest is used for lawns, playgrounds, cemeteries, parks, or drainageways. Most areas are in or near the business districts of Mocksville and Cooleemee and at outlying industrial plants. Individual areas range from 5 to 100 acres in size. Slope ranges from 0 to 4 percent.

The original soils have been greatly altered by cutting, filling, grading, and shaping. The original landscape, topography, and commonly the drainage pattern have been altered.

The major problem in this map unit is excessive runoff from roofs, streets, and parking lots, which increases the hazard of flooding in low areas. Onsite investigation is needed before planning the use and management of specific areas of this map unit.

The capability subclass is VIIIs. This map unit has not been assigned a woodland ordination symbol.

WeB—Wedowee sandy loam, 2 to 8 percent slopes. This map unit consists mainly of well drained Wedowee and similar soils on moderately broad to narrow ridges in the uplands. Small areas are scattered across the county, but the larger areas are mainly in the eastern part, along the Yadkin River. Individual areas are irregular in shape and range from 5 to several hundred acres in size.

Typically, the surface layer is dark yellowish brown sandy loam 12 inches thick. The subsoil is 23 inches thick. The upper part is yellowish red clay with red mottles. The lower part is strong brown clay loam with red and yellow mottles. The underlying material to a depth of 60 inches is mottled strong brown, red, and yellow saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a moderate hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Rion soils, which are dissimilar to the Wedowee soil. These soils have less clay in the subsoil than the Wedowee soil. They are in the more sloping areas. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Wedowee soil but have a red subsoil, a thicker subsoil, a gravelly surface layer, or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as cropland. The rest is used as pasture, hayland, or woodland.

This map unit is moderately suited to cultivated crops and pasture. In cultivated areas the major crops are corn, soybeans, and small grain. The slope and the moderate hazard of erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In areas used as pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, Virginia pine, northern red oak, southern red oak, white oak, yellow-poplar, sweetgum, and hickory are the most common trees. The most common understory plants are flowering dogwood, sourwood, American holly, eastern redcedar, and red maple. No major limitations affect woodland use and management.

This map unit is moderately suited to urban development and recreational development. The clayey subsoil, the moderate permeability, the moderate shrink-swell potential, and the slope are the main limitations affecting building site development and sanitary facilities. Removing the plant cover on construction sites causes a moderate hazard of erosion unless erosion control measures are applied. No major limitations affect most recreational uses, but the slope may be a limitation on sites for playgrounds.

The capability subclass is IIe. Based on loblolly pine

as the indicator species, the woodland ordination symbol is 8A.

WeC—Wedowee sandy loam, 8 to 15 percent slopes. This map unit consists mainly of well drained Wedowee and similar soils on narrow ridges and on side slopes in the uplands. It is scattered throughout the county but is mainly in the eastern part, along the Yadkin River. Individual areas generally are oblong and vary in width. They range from 5 to 100 acres in size.

Typically, the surface layer is dark yellowish brown sandy loam 12 inches thick. The subsoil is 23 inches thick. The upper part is yellowish red clay with red mottles. The lower part is strong brown clay loam with red and yellow mottles. The underlying material to a depth of 60 inches is mottled strong brown, red, and yellow saprolite that has a texture of sandy loam.

Water and air move through the soil at a moderate rate. The shrink-swell potential is moderate. The water table is below a depth of 6 feet. The depth to bedrock is more than 5 feet. Erosion is a severe hazard when the surface is not covered with vegetation or mulch.

Included in this map unit are small areas of Rion soils, which are dissimilar to the Wedowee soil. These soils have less clay in the subsoil than the Wedowee soil. They are intermingled with areas of the Wedowee soil on side slopes. They make up 10 to 15 percent of this map unit.

Also included are small areas of soils that are similar to the Wedowee soil but have a red subsoil, a thicker subsoil, a gravelly surface layer, or are moderately eroded and have a surface layer of sandy clay loam.

Most of the acreage in this map unit is used as woodland. The rest is used as cropland or pasture.

This map unit is moderately suited to woodland. In forested areas loblolly pine, shortleaf pine, southern red oak, northern red oak, white oak, yellow-poplar, sweetgum, Virginia pine, and hickory are the most common trees. The most common understory plants are flowering dogwood, sourwood, American holly, eastern redcedar, and red maple. No major limitations affect woodland use and management.

This map unit is poorly suited to cultivated crops and pasture. In cultivated areas the principal crops are corn, soybeans, and small grain. The slope and the severe hazard of erosion are the main management concerns. Conservation practices that help to protect the surface from the impact of raindrops and control erosion are needed. In areas used as pasture, tall fescue and ladino clover are the main forage species.

This map unit is moderately suited to urban development and recreational development. The clayey subsoil, the moderate permeability, the moderate shrink-swell potential, and the slope are the main limitations affecting building site development and sanitary facilities. Removing the plant cover on construction sites causes a severe hazard of erosion unless erosion control measures are applied. The slope is the main limitation affecting most recreational uses.

The capability subclass is IVe. Based on loblolly pine as the indicator species, the woodland ordination symbol is 8A.

Prime Farmland

In this section, prime farmland is defined and the soils in Davie County that are considered prime farmland are listed. About 96,900 acres, or nearly 57 percent of the county, is prime farmland.

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

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

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

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 8 percent.

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

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

The soils identified as prime farmland in Davie County are:

AaA	Altavista fine sandy loam, 0 to 2 percent slopes, occasionally flooded
ApB	Appling sandy loam, 2 to 8 percent slopes
CeB2	Cecil sandy clay loam, 2 to 8 percent slopes, eroded
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded (only drained areas either protected from flooding or not frequently flooded during the season of use)
EnB	Enon fine sandy loam, 2 to 8 percent slopes
GnB2	Gaston clay loam, 2 to 8 percent slopes, eroded
GrB	Granville gravelly sandy loam, 2 to 8 percent slopes
MaB	Masada fine sandy loam, 2 to 6 percent slopes
MdB	Mayodan silt loam, 2 to 8 percent slopes
MnB2	Mayodan silty clay loam, 2 to 8 percent slopes, eroded

MrB2	Mecklenburg clay loam, 2 to 8 percent slopes, eroded
MsB	Mocksville sandy loam, 2 to 8 percent slopes
PcB2	Pacolet sandy clay loam, 2 to 8 percent slopes, eroded
RvA	Riverview loam, 0 to 2 percent slopes, frequently flooded (only areas protected from flooding or not frequently flooded during the season of use)
SeB	Sedgefield sandy loam, 1 to 6 percent slopes
WeB	Wedowee sandy loam, 2 to 8 percent slopes

Use and Management of the Soils

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

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

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

Generally, the soils in Davie County that are well suited to crops are also well suited to urban uses. The data concerning specific soils in the county can be used in planning future land use patterns. The potential for farming should be considered relative to any soil limitations and the potential for nonfarm development.

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

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

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

Crops and Pasture

Russell W. Lyday, district conservationist, and Bobby G. Brock, conservation agronomist, Soil Conservation Service, and Ronnie Thompson, Davie County Director, North Carolina Cooperative Extension Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

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

Agriculture is a major enterprise in Davie County. More than 64,000 acres in the county was used for crops and pasture *(7)*. Of this total, about 44,000 acres was used as pasture and hayland, and nearly 21,000 acres was used for row crops. The major row crops were field corn on 7,300 acres, soybeans on 3,700 acres, corn silage on 3,200 acres, tobacco on 525 acres, and small grain on about 5,900 acres.

More than 107,000 acres in Davie County is used as woodland, urban areas, in water areas, or in other uses. The acreage used as cropland and pasture is gradually decreasing as farmland is converted to urban development.

Cropland Management

Erosion is a hazard on most of the soils used as cropland in Davie County. It would also be a hazard if a large percentage of pasture and woodland is converted to cropland. This is a particular problem on the Mayodan soils in the area of Triassic sedimentary rocks. Erosion is a hazard on all of the sloping soils used as cropland. The hazard of erosion generally increases as the slope increases.

Figure 11.—A conservation tillage system that uses crop residue on Cecil sandy clay loam, 2 to 8 percent slopes, eroded.

Erosion is costly for several reasons. Topsoil, water, pesticides, fertilizers, lime, and organic matter are lost if erosion is not adequately controlled. In addition to reducing productivity, sediments and other pollutants are washed into streams, lakes, and reservoirs. Effectively controlling erosion increases productivity and minimizes the cost of maintaining water quality.

Uncontrolled runoff is the primary cause of erosion in the county. The lack of available water in the soil is the factor that most often limits crop yields. The volume of soil available for rooting volume and soil texture have a great influence on the amount of water held. If resource management systems are properly used, the loss of soil and water can be controlled.

Conservation tillage is perhaps most effective in controlling erosion in any resource management system (fig. 11). Maintaining a year-round cover, such as the stubble left during no-till farming, also helps to conserve soil and water. No-till farming also reduces evaporation during the growing season, thereby leaving more water to be taken in by crops.

Terraces and diversions help to control erosion by intercepting excess surface runoff and safely routing this water to suitable outlets, such as grassed waterways. While these systems are not extensively used in the county, they would be suited to use on many fields.

Stripcropping tends to slow the rate of runoff and allows more water to be absorbed into the soil. This is a good resource management system because it can be used in rotations of crops and grasses, crop residue management, cover crops, and, sometimes, no-till farming. If cover crops and crop residue are properly used, they help to temporarily control erosion and increase the rate of water infiltration by absorbing the energy of rain. Stripcropping, grassed waterways, and field borders are effective resource management practices that are practical on most of the cropland that

has a hazard of erosion. These practices can be adapted to soils that have a wide range of slope.

The various components of resource management systems develop good tilth and increase the content of organic matter. Soils that have good tilth have a granular, porous surface layer. Organic matter promotes the development of desirable soil structure. Such components as conservation tillage, crop residue management, stripcropping, and grass-based rotations increase the content of organic matter. Application of municipal sludge also can increase the content of organic matter; however, heavy metals of other undesirable components need to be monitored.

Most of the soils in the county have a loamy surface layer that is low in content of organic matter. Soils that have a finer textured surface layer, such as Mayodan soils, tend to crust after intense rainfall if they are not protected by vegetation or mulch. Soils that have an eroded surface layer also tend to crust. Adding crop residue, manure, and mulch increases the content of organic matter, thus minimizing crusting and improving soil structure, tilth, and productivity.

Fall plowing is a common conservation practice in the county, but it is generally not recommended because the exposed soils form a crust, which increases runoff and erosion.

Pasture Management

Tall fescue is the major pasture and hayland grass grown in Davie County (fig. 12). Other plants that are better adapted to summer weather include perennial grasses, such as hybrid bermudagrass, common bermudagrass, and switchgrass, and legumes, such as alfalfa and sericea lespedeza. Livestock producers need to plant the species that is best adapted to the soil. Using the adapted species and good management techniques, such as soil fertility tests, proper annual applications of fertilizer, weed control, and rotational grazing, result in better returns from pasture and hayland.

The deep, well drained soils are suitable for all of the major grasses and legumes grown in the county. Fescue, ladino clover, and common bermudagrass produce from 6 to 9 animal unit months of grazing on

Figure 12.—Beef cattle grazing tall fescue on Pacolet sandy clay loam, 2 to 8 percent slopes, eroded.

these soils each year. Hybrid bermudagrass and switchgrass can produce an average of 10 animal unit months of grazing on these soils. An animal unit month is the amount of feed or forage required to feed an animal unit for one month.

A well rounded pasture and hayland management program includes warm-season grasses, such as bermudagrass and cool-season grasses or grass-legume mixtures. Proper fencing for rotation of grazing stock and an intensive fertilizer management program can produce pasture capable of supporting grazing from March through November. Alfalfa, sericea lespedeza, red clover, orchardgrass, and hybrid bermudagrass can then be used during the winter for hay. These combinations provide a successful pasture and hayland program for livestock producers. Using perennials in forage programs is normally preferred because they produce better erosion benefits at lower costs.

Drainage

Drainage is a management need on some of the acreage used for crops and pasture in Davie County. Poor drainage is a limitation on about 18 percent of the cropland and pasture in the county. Seasonal wetness is a limitation on Iredell and Sedgefield soils.

Tillage patterns sometimes aggravate drainage problems by creating low areas and by blocking surface drainage. Grassed waterways and surface shaping can be used to maintain surface drainage. A tile drainage system is difficult to install on soils that have a slowly permeable, clayey subsoil; thus, open ditches are commonly used to remove the water and lower the water table.

Flooding is a hazard on several soils used as cropland or pasture. Armenia, Buncombe, Chewacla, and Riverview soils are on flood plains and are frequently flooded. Altavista and Roanoke soils are on flood plains that are occasionally flooded. Crop production can be improved by providing a drainage system, such as open ditches or subsurface tile, to remove excess surface and subsurface water.

The design of both surface and subsurface drainage systems varies with the kind of soil. Both systems may be needed in areas where poorly drained or somewhat poorly drained soils are used for intensive row cropping. Surface drainage becomes critical for crop production in areas that are briefly flooded. Drains need to be spaced more closely in the slowly permeable soils than in the more permeable soils.

Information concerning the design and applicability of erosion control and drainage practices for each soil type can be obtained from the local office of the Soil Conservation Service and from the office of the Davie Soil and Water Conservation District.

Chemical Weed Control

The use of herbicides for weed control is a common practice on the cropland in Davie County. It decreases the need for tillage and is an integral part of modern farming. Selected soil properties, such as content of organic matter and texture of the surface layer, affect the rate of herbicide application. Estimates of both of these properties were determined for the soils in the county. Table 14 shows a general range of organic matter content in the surface layer of the soils. The texture of the surface layer is shown in the USDA texture column in table 13.

In some areas the content of organic matter projected for the different soils is outside the range shown in the table. The content can be higher in soils that have received high amounts of animal or manmade waste. Soils that have recently been brought into cultivation may have a higher content of organic matter in the surface layer than similar soils that have been cultivated for a long time. Conservation tillage can increase the content of organic matter in the surface layer. A lower content of organic matter is common where the surface layer has been partly or completely removed by erosion or land smoothing. Current soil tests should be used for specific organic matter determinations.

Soil Fertility

The soils in Davie County are low or medium in natural fertility. Most are naturally acid. Additions of lime and fertilizer are needed for the production of most kinds of crops.

Liming requirements are a major concern on cropland. The acidity level in the soil affects the availability of many nutrients to plants and the activity of beneficial bacteria. Lime also neutralizes exchangeable aluminum in the soil and thus counteracts the adverse effects of high levels of aluminum on many crops. Liming adds calcium (from calcitic lime) or calcium and magnesium (from dolomitic lime) to the soil.

A soil test is a guide to what amount and kind of lime should be used. The desired pH levels may differ, depending on the soil properties and the crop to be grown.

Nitrogen fertilizer is required for most crops. It generally is not required, however, for clover, in some rotations of soybeans, or for alfalfa that is established. A reliable soil test is not available for predicting nitrogen requirements. Appropriate rates of nitrogen application

are described in the section "Yields per Acre."

Soil tests can indicate the need for phosphorus and potassium fertilizer. They are needed because phosphorus tends to build up in the soil.

Yields per Acre

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

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

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

A high level of management includes maintaining proper soil reaction and fertility levels as indicated by standard soil tests. The application rate of nitrogen for corn on soils that have a yield potential of 125 to 150 bushels per acre should be 140 to 160 pounds per acre. If the yield potential for corn is only 100 bushels per acre or less, a rate of 100 to 120 pounds of nitrogen per acre should be used. The application of nitrogen in excess of that required for potential yields generally is not recommended. The excess nitrogen fertilizer that is not utilized by a crop is an unnecessary expense and causes a hazard of water pollution. If corn is grown after the harvest of soybeans, nitrogen rates can be reduced by about 20 to 30 pounds per acre. Because nitrogen can be readily leached from sandy soils, applications may be needed on these soils more than once during the growing season.

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 North Carolina 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 *(9)*. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

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

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

Class I soils have few limitations that restrict their use.

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

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

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

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

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

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

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

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e,*

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

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

The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in table 5.

Woodland Management and Productivity

James H. Ware, Jr., forester, Soil Conservation Service, helped prepare this section.

Woodland managers in Davie County are faced with the challenge of producing greater yields from smaller areas. Meeting this challenge requires intensive management and silvicultural practices. Many modern silvicultural techniques resemble those long practiced in agriculture. They include establishing, weeding, and thinning a desirable young stand; propagating the more productive species and genetic varieties; providing short rotations and complete fiber utilization; controlling insects, diseases, and weeds; and improving tree growth by applications of fertilizer and the installation of a drainage system. Even though timber crops require decades to grow, the goal of intensive management is similar to the goal of intensive agriculture. This goal is to produce the greatest yield of the most valuable crop as quickly as possible.

Commercial forests cover 71,063 acres, or about 42 percent of the land area of Davie County *(12).* Commercial forest is land that is producing or is capable of producing crops of industrial wood and that has not been withdrawn from timber production. Loblolly pine is the most important timber species in the county because it grows fast, is adapted to the soil and climate, brings the highest average sale value per acre, and is easy to establish and manage (fig. 13).

One of the first steps in planning intensive woodland management is to determine the potential productivity of the soil for several alternative tree species. The most productive and valued trees are then selected for each soil type. Site and yield information enables a forest manager to estimate future wood supplies. These estimates are the basis of realistic decisions concerning expenses and profits associated with intensive woodland management, land acquisition, or industrial investments.

The potential productivity of woodland depends on physiography, soil properties, climate, and the effects of past management. Specific soil properties and site characteristics, including soil depth, texture, structure, and depth to the water table, affect woodland productivity primarily by influencing available water capacity, aeration, and root development. The net effects of the interaction of these soil properties and site characteristics determine the potential site productivity.

Other site factors are also important. The gradient and length of slopes affect water movement and availability. The amount of rainfall and length of the growing season influence site productivity.

For purposes of forest inventory, the five commercial forest types identified in Davie County are as described in the following paragraphs *(12).*

Loblolly-shortleaf pine. This forest type covers 20,426 acres. It is made up of more than 50 percent loblolly and shortleaf pine. Shortleaf pine generally is the more abundant species. The commonly associated species are Virginia pine, yellow-poplar, white oak, red oak, gum, and hickory.

Oak-pine. This forest type covers 2,531 acres. It is more than 50 percent hardwoods and more than 25 percent pines. The commonly associated species are northern red oak, scarlet oak, black oak, white oak, hickory, gum, shortleaf pine, Virginia pine, and yellow-poplar. If left undisturbed, this forest type develops into a forest of predominantly oak and other upland hardwoods. The understory usually consists of hardwood seedlings and saplings, which are more tolerant of shade than pine seedlings and saplings. In shaded understory, hardwoods compete so vigorously for light and moisture that few pine seedlings are able to survive. As mature stands of pine are harvested, the dense understory of young hardwoods becomes dominant.

Oak-hickory. This forest type covers 35,451 acres. It is more than 50 percent upland oaks, such as white oak, black oak, northern red oak, and scarlet oak, and hickory. The commonly associated species are elm, red maple, yellow-poplar, shortleaf pine, and Virginia pine.

Oak-gum-cypress. This forest type covers 2,531 acres. It is made up mostly of bottom-land species, such as blackgum, sweetgum, oaks, and red maple. The commonly associated species are elm, hackberry, willow, river birch, and loblolly pine.

Elm-ash-cottonwood. This forest type covers 10,124 acres. It is made up mostly of bottom-land species, such as elm and ash. The commonly associated

Figure 13.—A well managed stand of loblolly pine on Pacolet sandy clay loam, 2 to 8 percent slopes, eroded.

species include sweetgum, maple, American sycamore, willow, American beech, and river birch.

This soil survey can be used by woodland managers planning ways to increase the productivity of forest land. Some soils respond better to applications of fertilizer than others, and some are more susceptible to landslides and erosion after roads are built and timber is harvested. Some soils require special reforestation

efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. The common forest understory plants also are listed. Table 6 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.

Table 6 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare per year. 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.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of the slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

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

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

Ratings of *seedling mortality* refer to the probability of the death of the 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 of a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

The *potential productivity* of *common trees* on a soil is expressed as a *site index* and a *volume* number. Common trees are listed in the order of their observed general occurrence. The table lists four to six trees for each applicable map unit. Additional species that commonly occur on the soils may be listed in the

detailed soil map unit descriptions. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

For soils that are commonly used for timber production, the yield is predicted in cubic feet per acre per year. It is predicted at the point where mean annual increment culminates. The productivity of the soils in this survey is based mainly on loblolly pine *(6)*. Productivity is also based on yellow-poplar or sweetgum *(3, 4)*.

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 (50 years in this survey). This index applies to fully stocked, even-aged, unmanaged stands. Productivity of a site can be improved through management practices, such as bedding, ditching, managing water, applying fertilizer, and planting genetically improved species.

The *volume* is the yield likely to be produced by the most important trees, expressed in cubic feet per acre per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation. If hardwoods are desired on a forest site, acceptable species should naturally reproduce from seeds and sprouts. Special site preparation techniques may be required.

Recreation

Davie County offers a variety of recreational activities. Rich Park in the Town of Mocksville offers facilities that include ballfields, tennis courts, outdoor basketball and volleyball courts, playgrounds, a fitness trail, and several picnic shelters.

A variety of facilities for water related recreational activities also exists. The county has about 30 lakes that are 5 acres or more in size and offer opportunities for fishing, swimming, hunting, and boating. Nine of these lakes were built as part of the Dutchman Creek Watershed Project and also aid in controlling flooding. The Yadkin River Trail System and the North Carolina Wildlife Resources Commission also maintain public access areas for canoeing, boating, fishing, hunting, or scenic floating down the Yadkin and South Yadkin Rivers.

Several privately owned campgrounds in the county have facilities that include camping, picnicking, hiking, fishing, swimming, miniature golf, ballfields, tennis courts, and playgrounds. Four golf courses also are in the county.

As public and private recreational facilities continue to be developed, knowledge of the soils and soil properties is needed in planning and developing new facilities and in maintaining existing facilities.

In table 7, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, 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 7 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

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 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

Don Hayes, wildlife biologist, North Carolina Wildlife Resources Commission, and John P. Edwards, biologist, Soil Conservation Service, helped prepare this section.

Davie County provides a diversity of habitat for many wildlife species, including deer, small game, furbearers, waterfowl, and nongame species. Throughout the county, the soils generally are well suited to the establishment and growth of most species of native and introduced food and cover crops for wildlife.

The population of most wildlife species in the county has remained stable in recent years. The most notable exception is the population of deer, which is the only big game species present. The number of deer has increased tremendously over the past ten years. The number of beaver also may increase in the future. The population of small game, such as quail, rabbit, and squirrel, fluctuates from year to year, but no major changes have been noted. Small game animals have suffered somewhat from prime habitat being converted to other land uses.

Application of wildlife management in the county can be divided into three basic categories. These are openland, woodland, and wetland wildlife habitat.

Openland wildlife habitat includes cropland, pastures, meadows, and abandoned fields that are in the early stages of succession. Management usually involves maintaining native plants that provide food or cover. If needed, seed mixtures that provide food or cover may be planted to supplement the existing habitat. Hedges of shrub lespedeza or native shrubs need to be planted to break up large fields. Leaving outside rows or odd corners of unharvested crops during the winter also can provide important food supplies. Some species that use openland wildlife habitat include deer, quail, rabbit, dove, songbirds, and other nongame species.

Woodland wildlife habitat is managed best by properly regulated timber harvests. Harvesting timber can be very beneficial to many species of wildlife. Removing the overstory allows sunlight to penetrate to the ground, resulting in an increased growth of herbaceous plants. Then, the population of insects increases, and this provides food for many species of birds. The low-growing plant material also is an excellent source of food for deer. Some factors that should be considered in cutting timber are keeping clearcuts small and leaving some den trees and snags in clear-cut areas. Deer, squirrel, raccoon, songbirds, and other species are attracted to these areas. Cavity nesting species depend on woodland areas for their survival. Many species also depend on the mast produced in wooded areas for food in winter.

Wetland wildlife habitat includes poorly drained depressions, flood plains, and shallow water areas. These areas are managed best by preserving as many of them as possible. Some potential also exists in the county for the development of waterfowl impoundments. Some species using wetlands include waterfowl, furbearers, songbirds, and many nongame species.

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

of the habitat. The ratings in table 8 are intended to be used as a guide and are not site specific. Onsite investigation is needed for individual management plans.

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

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

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

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, lespedeza, and alfalfa.

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

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, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, 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 loblolly pine and eastern redcedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, cattail, rushes, sedges, and reeds.

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

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

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

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

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, 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. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The

ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

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

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

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

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

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

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

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

Building Site Development

Table 9 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 depth to bedrock, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

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

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a

flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, 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, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established. Soil tests are essential to determine liming and fertilizer needs. Help in making soil tests or in deciding what soil additive, if any, should be used can be obtained from the office of the Davie Soil and Water Conservation District or the local office of the North Carolina Cooperative Extension Service.

Sanitary Facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfill. 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 10 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

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

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

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. Aerobic 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. The animal waste lagoons commonly used in farming operations are not considered in the ratings. They are generally deeper than the lagoons referred to in the table and rely on anaerobic bacteria to decompose waste materials.

Table 10 gives ratings for the natural soil that makes up the lagoon floor. The ratings in this table are for the aerobic type of lagoons and may not reflect the soil suitability for lagoons that are deeper than 5 feet (anaerobic type). The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope or bedrock can cause construction

problems, and large stones can hinder compaction of the lagoon floor.

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

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

The ratings in table 10 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, soil reaction, and content of sodium affect trench 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 sanitary landfill. The soil material may be obtained offsite, transported to the landfill, and spread over the waste.

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

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock 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 11 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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

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

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

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

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 11, 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. Coarse fragments of soft bedrock, such as mudstone, siltstone, and weathered gneiss or porphyritic granite, are not considered to be sand and gravel.

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

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

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

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel 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 gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

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

Water Management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

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

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area. Ponds that are less than about 2 acres in size are not shown on the soil maps because of the scale of mapping.

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

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

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

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or to other layers that affect the rate of water movement, permeability, depth to a high water table or depth of standing water if the soil is subject to ponding, slope, and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, 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 and depth to bedrock. The performance of a system is affected by the availability of suitable irrigation water, the depth of the root zone, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. Maintenance of terraces and diversions is adversely affected by a restricted rooting depth, a severe hazard of soil blowing or water erosion, an excessively coarse texture, and restricted permeability.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A hazard of soil blowing, 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 *(11)*. 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 16.

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

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

Engineering Index Properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

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

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages, by weight, 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, by volume, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

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

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, 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 16.

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

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated content of clay of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

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 and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage 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. It is the difference between the amount of soil water at field moisture capacity and the amount at wilting point.

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 classes are *low,* a change of less than 3 percent; *moderate,* 3 to 6 percent; and *high,* more than 6 percent. *Very high,* more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 14, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

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

Soil and Water Features

Table 15 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep or very 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 to very deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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

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

The Iredell soil listed in table 15 is assigned to two hydrologic groups. The first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary covering of the surface by flowing water, is caused by overflowing streams or by runoff from adjacent slopes. 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 15 gives the frequency and duration of flooding and the time of year when flooding is most likely to occur.

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

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 15 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 15.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or

weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 16 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 North Carolina Department of Transportation and Highway Safety, Materials and Test Unit, Raleigh, North Carolina.

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 Unified classification—D 2487 (ASTM); AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); Plasticity index—T 90 (AASHTO), D 4318 (ASTM); Moisture density—T 99 (AASHTO), D 698 (ASTM).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(10)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 17 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is 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 Udult (*Ud*, meaning humid climate, 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 Kanhapludult (*Kanhapl*, meaning low activity clay, plus *udult*, the suborder of the Ultisols that are moist but not wet).

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 Kanhapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is clayey, kaolinitic, thermic Typic Kanhapludults.

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 underlying material within a series.

Soil Series and Their Morphology

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

Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The location of the typical pedon is described and its location marked on the detailed soil maps. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(13)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(10)*. 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."

Altavista Series

The Altavista series consists of moderately well drained, moderately permeable soils that formed in alluvium on flood plains. Slope ranges from 0 to 2

percent. These soils are fine-loamy, mixed, thermic Aquic Hapludults.

Altavista soils are commonly associated with Chewacla, Masada, Riverview, and Roanoke soils. The somewhat poorly drained Chewacla and well drained Riverview soils are frequently flooded. Masada soils are well drained, have a clayey particle-size control section, and are not subject to flooding. Roanoke soils are poorly drained and have a clayey particle-size control section.

Typical pedon of Altavista fine sandy loam, 0 to 2 percent slopes, occasionally flooded; about 1.5 miles southwest on Interstate Highway 40 from the intersection of Interstate Highway 40 and U.S. Highway 64, and 600 feet north, in a field:

Ap—0 to 12 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and common medium roots; moderately acid; clear smooth boundary.

E—12 to 18 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; few fine distinct light yellowish brown (10YR 6/4) mottles; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bt1—18 to 25 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few fine prominent reddish yellow (7.5YR 6/8) and brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

Bt2—25 to 34 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few fine prominent light gray (10YR 7/1), yellowish red (5YR 5/8), and brownish yellow (10YR 6/8) and common medium prominent reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bt3—34 to 39 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium prominent light gray (10YR 7/1) and reddish yellow (7.5YR 6/8) and common medium distinct light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—39 to 46 inches; mottled reddish yellow (7.5YR 6/8), light gray (10YR 7/1), yellowish red (5YR 5/8), light brownish gray (2.5Y 6/2), and light yellowish brown (2.5Y 6/4) sandy clay loam; weak fine subangular blocky structure; very friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C—46 to 60 inches; mottled reddish yellow (7.5YR 6/8), light yellowish brown (2.5Y 6/4), yellowish red (5YR 5/8), and light gray (10YR 7/1) sandy loam; massive; very friable; few fine flakes of mica; very strongly acid.

The depth to bedrock is more than 10 feet. The thickness of the solum ranges from 30 to more than 60 inches. Reaction ranges from extremely acid to slightly acid in the A and E horizons and from extremely acid to moderately acid in the B and C horizons. The number of mica flakes ranges from none to common.

The A or Ap horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 4. The E horizon has hue of 10YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8. It is fine sandy loam or sandy loam.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 3 to 8. It has mottles with chroma of 2 or less in the upper 24 inches. It is loam, clay loam, or sandy clay loam.

The BC horizon is similar in color to the Bt horizon or is mottled. Some pedons have a BCg horizon, which has a gray matrix. The BC or BCg horizon is sandy clay loam, sandy loam, fine sandy loam, or loam.

The C horizon is typically mottled in shades of yellow, brown, gray, or red. Some pedons have a Cg horizon, which has a gray matrix. The C or Cg horizon is alluvium that varies in texture but typically is sandy or loamy.

Appling Series

The Appling series consists of well drained, moderately permeable soils on ridges in the uplands. These soils formed in material weathered from felsic crystalline rocks, such as granite and biotite gneiss. Slope ranges from 2 to 8 percent. These soils are clayey, kaolinitic, thermic Typic Kanhapludults.

Appling soils are commonly associated with Cecil, Pacolet, Rion, and Wedowee soils. Cecil and Pacolet soils have a redder hue in the Bt horizon than the Appling soils. Rion soils have a fine-loamy particle-size control section. Wedowee soils have a solum that is less than 40 inches thick. Cecil soils are on ridges, and Pacolet, Rion, and Wedowee soils are on side slopes.

Typical pedon of Appling sandy loam, 2 to 8 percent slopes; about 2.9 miles north of Calahaln on Secondary Road 1313, about 0.2 mile south of the junction of Secondary Road 1313 and Secondary Road 1306, and 150 yards east of Secondary Road 1313, in a field:

Ap—0 to 12 inches; yellowish brown (10YR 5/6) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; moderately acid; abrupt smooth boundary.

Bt1—12 to 25 inches; strong brown (7.5YR 5/8) clay;

common fine prominent red (2.5YR 5/8) and few fine prominent yellow (10YR 8/8) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common distinct clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bt2—25 to 36 inches; strong brown (7.5YR 5/6) clay; common medium prominent red (2.5YR 5/8) and yellow (10YR 8/8) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; few fine flakes of mica; strongly acid; gradual wavy boundary.

BC—36 to 45 inches; brownish yellow (10YR 6/6) clay loam; common medium prominent red (2.5YR 5/8) and common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine flakes of mica; strongly acid; gradual wavy boundary.

C—45 to 60 inches; mottled red (2.5YR 5/8), yellow (10YR 7/6), strong brown (7.5YR 5/6), and pale brown (10YR 6/3) saprolite that has a texture of loam; massive; friable; common bodies of clay loam; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The depth to bedrock is more than 6 feet. The content of rock fragments, dominantly of gravel size, ranges from 0 to 15 percent, by volume, in the Ap or A horizon and from 0 to 10 percent, by volume, in the Bt and BC horizons. Flakes of mica range from none to common. Reaction ranges from very strongly acid to slightly acid in the A horizon and is very strongly acid or strongly acid in the B and C horizons.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6. The E horizon, if it occurs, has hue of 10YR and value and chroma of 4 to 6. It is sandy loam.

The Bt horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 6 to 8. It is clay, sandy clay, or clay loam. The number of mottles in shades of red, yellow, or brown ranges from few to many.

The BC horizon is similar in color to the lower part of the Bt horizon. It is sandy clay loam, sandy clay, or clay loam.

The C horizon is similar in color to the lower part of the Bt horizon or is mottled or multicolored. It is saprolite weathered from felsic crystalline rocks. It varies in texture but typically is loamy.

Armenia Series

The Armenia series consists of poorly drained, slowly permeable soils that formed in material weathered from mafic crystalline rocks, such as gabbro and diabase. These soils are on small or medium flood plains, along drainageways, and on flats and in depressions on uplands. Slope ranges from 0 to 2 percent. These soils are fine, montmorillonitic, thermic Typic Argiaquolls.

Armenia soils are commonly associated with Enon, Iredell, Mecklenburg, Mocksville, and Sedgefield soils. The associated soils are on ridges and side slopes. Enon, Mecklenburg, and Mocksville soils are well drained, Iredell soils are moderately well drained, and Sedgefield soils are moderately well drained or somewhat poorly drained.

Typical pedon of Armenia loam, 0 to 2 percent slopes, frequently flooded; about 0.4 mile south of Farmington on Secondary Road 1410, about 0.25 mile east on Secondary Road 1444, and 50 feet north, in a pasture:

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

Bt1—3 to 16 inches; very dark grayish brown (10YR 3/2) clay loam; few fine prominent reddish yellow (7.5YR 6/8) mottles; moderate medium angular blocky structure; very firm, very sticky and very plastic; common fine roots; common distinct clay films on faces of peds; neutral; gradual wavy boundary.

Bt2—16 to 44 inches; very dark gray (10YR 3/1) clay; common fine prominent brownish yellow (10YR 6/6) and common fine faint dark gray (10YR 4/1) mottles; strong coarse angular blocky structure; very firm, very sticky and very plastic; few fine roots; common distinct clay films on faces of peds; mildly alkaline; gradual wavy boundary.

BCg—44 to 64 inches; gray (5Y 6/1) clay loam; many medium prominent yellowish brown (10YR 5/8), common medium prominent strong brown (7.5YR 4/6), and few fine prominent greenish gray (5GY 5/1) mottles; weak medium angular blocky structure; firm, sticky and plastic; mildly alkaline; diffuse wavy boundary.

Cg—64 to 77 inches; gray (5Y 5/1 and 6/1) saprolite that has a texture of clay loam; many medium and coarse prominent yellowish brown (10YR 5/8) mottles; massive; friable; few medium dark concretions; mildly alkaline.

The thickness of the solum ranges from 30 to more than 60 inches. The depth to bedrock is more than 5 feet. The content of rock fragments, dominantly of gravel size, ranges from 0 to 6 percent, by volume. The number of dark concretions ranges from none to common. Reaction ranges from moderately acid to

neutral in the A or Ap horizon and from slightly acid to mildly alkaline in the Bt, BCg, and Cg horizons.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 2 or 3, and chroma of 1 or 2.

The Bt or Btg horizon has hue of 10YR to 5Y, value of 3 to 5, and chroma of 2 or less. The number of mottles in shades of yellow, olive, brown, or gray ranges from none to common. The texture is clay or clay loam.

The BCg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 8. The number of mottles in shades of gray, brown, or yellow ranges from none to common.

The Cg horizon is similar in color to the BCg horizon or is multicolored. It is saprolite that weathered from mafic crystalline rocks. It varies in texture but typically is loamy.

Buncombe Series

The Buncombe series consists of excessively drained, rapidly permeable or very rapidly permeable soils on flood plains. These soils formed in recent alluvium. Slope ranges from 0 to 5 percent. These soils are mixed, thermic Typic Udipsamments.

Buncombe soils are commonly associated with Chewacla and Riverview soils. Chewacla soils are loamy and somewhat poorly drained and are in low areas. Riverview soils are loamy and well drained and are further from the stream channel than the Buncombe soils.

Typical pedon of Buncombe loamy sand, 0 to 5 percent slopes, frequently flooded; about 5.5 miles west of Mocksville, about 3.0 miles west of the junction of U.S. Highway 64 and Interstate Highway 40, 200 feet south of U.S. Highway 64, and 125 feet west of Hunting Creek, in a pasture:

Ap—0 to 12 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; many fine and medium roots; few fine flakes of mica; strongly acid; abrupt smooth boundary.

Bw1—12 to 29 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; common fine and medium roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bw2—29 to 52 inches; yellowish brown (10YR 5/6) sand; single grained; loose; few fine and medium flakes of mica; moderately acid; gradual wavy boundary.

C—52 to 65 inches; very pale brown (10YR 7/4) sand; single grained; loose; common fine and few medium flakes of mica; moderately acid.

The depth to bedrock is more than 10 feet. The number of mica flakes ranges from few to many. Reaction ranges from very strongly acid to slightly acid.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 4 to 6.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 4 to 8. It is sand, loamy sand, or loamy fine sand.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 3 to 6. In pedons in which the upper boundary is within a depth of 40 inches, it is sand, loamy fine sand, or loamy sand. The C horizon varies in texture below a depth of 40 inches.

Cecil Series

The Cecil series consists of well drained, moderately permeable soils on ridges in the uplands. These soils formed in material weathered from felsic crystalline rocks, such as granite and biotite gneiss. Slope ranges from 2 to 8 percent. These soils are clayey, kaolinitic, thermic Typic Kanhapludults.

Cecil soils are commonly associated with Appling, Pacolet, Rion, and Wedowee soils. Appling and Wedowee soils have a yellower Bt horizon than the Cecil soils. Pacolet soils have a solum that is less than 40 inches thick. Rion soils have a fine-loamy particle-size control section. Appling soils are on ridges, and Pacolet, Rion, and Wedowee soils are on side slopes.

Typical pedon of Cecil sandy clay loam, 2 to 8 percent slopes, eroded; about 0.4 mile south of Sheffield on Secondary Road 1306, about 0.8 mile south on Secondary Road 1338, and 50 yards northwest of the junction of Secondary Road 1338 and Secondary Road 1335, in a field:

Ap—0 to 10 inches; reddish brown (5YR 4/4) sandy clay loam; weak medium granular structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

Bt—10 to 42 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm, sticky and plastic; common fine and few medium roots; common distinct clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—42 to 56 inches; red (2.5YR 5/8) clay loam; few fine distinct yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; friable; common fine flakes of mica; few fine pockets of saprolite; very strongly acid; gradual wavy boundary.

C—56 to 62 inches; mottled red (2.5YR 4/8), yellowish red (5YR 5/8), reddish yellow (7.5YR 7/6), and white (5YR 8/1) saprolite that has a texture of loam; massive; very friable; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The depth to bedrock is more than 6.5 feet. The content of rock fragments, dominantly of gravel size, ranges from 0 to 15 percent, by volume, in the surface layer. Most pedons have few or common flakes of mica in the Bt horizon and few to many flakes of mica in the BC and C horizons. Reaction ranges from very strongly acid to slightly acid in the A horizon and is very strongly acid or strongly acid in the Bt, BC, and C horizons.

The A or Ap horizon has hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 4 to 8.

The Bt horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 to 8. The number of mottles in shades of brown or yellow is none or few.

The BC horizon, if it occurs, has hue of 2.5YR, value of 4 or 5, and chroma of 8. The number of mottles in shades of brown, red, or yellow is none or few. The texture is clay loam or sandy clay loam.

The C horizon is dominantly reddish or multicolored saprolite weathered from felsic crystalline rocks. It varies in texture but typically is loamy.

Chewacla Series

The Chewacla series consists of somewhat poorly drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slope ranges from 0 to 2 percent. These soils are fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts.

Chewacla soils are commonly associated with Altavista, Buncombe, Masada, Riverview, and Roanoke soils. Altavista soils are moderately well drained and are in the slightly higher areas on flood plains. Buncombe soils are excessively drained and are adjacent to creeks and rivers. Masada and Riverview soils are well drained. Masada soils are on stream terraces, and Riverview soils are in the slightly higher areas, generally near the stream channels. Roanoke soils are poorly drained and are on the low parts of flood plains, generally at the base of the upland slopes.

Typical pedon of Chewacla loam, 0 to 2 percent slopes, frequently flooded; about 2.7 miles west of Farmington on North Carolina Highway 801, about 2.1 miles south on Secondary Road 1411, and 1,000 feet west, in a wooded area at the edge of a pasture:

A—0 to 5 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; common fine and medium roots; few fine flakes of mica; strongly acid; clear smooth boundary.

Bw1—5 to 14 inches; yellowish brown (10YR 5/4) loam; common fine faint light yellowish brown (10YR 6/4), common medium distinct yellowish brown (10YR 5/6), and few fine distinct very pale brown (10YR 7/4) mottles; moderate medium granular structure; very friable; common fine and medium roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bw2—14 to 28 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct yellow (10YR 7/6), light gray (10YR 7/2), and yellowish brown (10YR 5/6) and few fine prominent reddish yellow (7.5YR 6/8) mottles; weak fine subangular blocky structure; friable; common fine roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

Bw3—28 to 40 inches; very pale brown (10YR 7/3) sandy clay loam; common fine faint white (10YR 8/2), common fine distinct yellowish brown (10YR 5/6), and common fine prominent yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine flakes of mica; moderately acid; gradual wavy boundary.

BC—40 to 52 inches; very pale brown (10YR 7/3) sandy loam; common fine faint white (10YR 8/2), common fine distinct yellowish brown (10YR 5/6), and common fine prominent yellow (10YR 7/8) mottles; weak fine subangular blocky structure; friable; few fine roots; few fine flakes of mica; slightly acid; gradual wavy boundary.

C—52 to 64 inches; very pale brown (10YR 7/3) sandy loam; common medium prominent dark brown (7.5YR 3/4) and brown (7.5YR 4/4) mottles; massive; friable; few fine flakes of mica; neutral.

The thickness of the solum ranges from 16 to more than 60 inches. The depth to bedrock is more than 5 feet. The number of mica flakes is few or common throughout. Reaction ranges from very strongly acid to slightly acid to a depth of 40 inches and from very strongly acid to mildly alkaline below a depth of 40 inches.

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

The Bw horizon has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8. It has mottles with chroma of 2 or less within a depth of 24 inches. The Bg horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2, or it is neutral in hue and has value of 4 to 7. The Bw and Bg horizons are loam, sandy loam, silt loam, sandy clay loam, or clay loam.

The BC and BCg horizons, if they occur, are similar in color and texture to the Bw and Bg horizons, respectively.

The C or Cg horizon is similar in color to the Bw and Bg horizons, respectively. Typically, it is loamy to a depth of 40 inches and varies in texture below that depth.

Enon Series

The Enon series consists of well drained, slowly permeable soils on ridges and side slopes in the uplands. These soils formed in material weathered from mafic or intermediate crystalline rocks, such as gabbro, diorite, hornblende schist, or diabase. Slope ranges from 2 to 15 percent. These soils are fine, mixed, thermic Ultic Hapludalfs.

Enon soils are commonly associated with Armenia, Gaston, Iredell, Mecklenburg, Mocksville, and Sedgefield soils. Armenia soils are poorly drained and are on flood plains and on flats and in depressions on uplands. Gaston and Mecklenburg soils have a red subsoil and are on ridges and side slopes. Iredell soils are moderately well drained. Sedgefield soils are moderately well drained or somewhat poorly drained and are on ridges and in depressions on uplands or near the head of drainageways. Mocksville soils have a fine-loamy particle-size control section and are on narrow ridges and on side slopes.

Typical pedon of Enon fine sandy loam, 2 to 8 percent slopes; about 2.2 miles south of Farmington on Secondary Road 1410, about 0.8 mile east on Secondary Road 1437, about 0.35 mile south on Secondary Road 1436, and 25 feet east, in a field:

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam; weak medium granular structure; very friable; common fine roots; common fine black concretions; slightly acid; abrupt smooth boundary.

Bt—9 to 23 inches; dark yellowish brown (10YR 4/4) clay; few fine prominent yellowish brown (10YR 5/8), brownish yellow (10YR 6/8), and yellow (10YR 7/8) and few fine distinct light olive brown (2.5Y 5/4) mottles; moderate medium subangular blocky structure; very firm, very sticky and very plastic; few fine roots; many distinct clay films on faces of peds; common fine black concretions; few fine feldspar crystals; slightly acid; gradual wavy boundary.

BC—23 to 36 inches; mottled light olive brown (2.5Y 5/4), dark yellowish brown (10YR 4/4), brownish yellow (10YR 6/8), yellowish brown (10YR 5/8), olive (5Y 4/4), strong brown (7.5YR 4/6), and yellow (10YR 7/8) clay loam; pockets and lenses of clay; moderate medium subangular blocky structure; friable; common fine feldspar crystals; common black concretions; neutral; gradual wavy boundary.

C1—36 to 48 inches; multicolored saprolite that has a texture of fine sandy loam; common black, white, and greenish minerals; massive; friable; common fine feldspar crystals; common black concretions; neutral; gradual wavy boundary.

C2—48 to 60 inches; multicolored saprolite that has a texture of sandy loam; massive; very friable; neutral.

The thickness of the solum ranges from 20 to 44 inches. The depth to bedrock is more than 5 feet. Reaction ranges from strongly acid to slightly acid in the A horizon and from strongly acid to mildly alkaline in the B and C horizons. In most pedons few or common dark concretions are in some horizons. The content of rock fragments is 0 to 15 percent, by volume, in the surface layer of the fine sandy loam phase. It is 35 to 60 percent, by volume, in the very stony phase. The fragments are dominantly of gravel size in the fine sandy loam phase and dominantly stones in the very stony phase.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. The E horizon, if it occurs, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. It is loam, sandy loam, or fine sandy loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. In some pedons it has mottles in shades of brown or yellow.

The BC horizon is similar in color to the Bt horizon or is mottled. It is sandy clay loam or clay loam.

The C horizon is multicolored saprolite that weathered from mafic or intermediate crystalline rocks. It varies in texture but typically is loamy.

Gaston Series

The Gaston series consists of well drained, moderately permeable soils on ridges and side slopes in the uplands. These soils formed in material weathered from mixed intermediate and mafic crystalline rocks, such as gabbro, diorite, and hornblende schist. Slope ranges from 2 to 25 percent. These soils are clayey, mixed, thermic Humic Hapludults.

Gaston soils are commonly associated with Enon, Iredell, Mecklenburg, Mocksville, and Sedgefield soils. The associated soils have a base saturation of more than 35 percent in the C horizon. Enon, Mecklenburg, and Mocksville soils are on ridges and side slopes. Enon soils have a yellow Bt horizon. Mecklenburg soils are slowly permeable and have value of 5 or more in the upper horizons. Mocksville soils have a fine-loamy particle-size control section. Iredell and Sedgefield soils are on ridges, in depressions, and at the head of drainageways.

Typical pedon of Gaston clay loam, 2 to 8 percent slopes, eroded; about 3.3 miles east of Mocksville on U.S. Highway 64, about 2.2 miles north on Secondary Road 1605, 660 feet east on Secondary Road 1610, and 25 feet north, in a field:

Ap—0 to 10 inches; dark reddish brown (2.5YR 3/4) clay loam; moderate fine granular structure; friable; common fine roots; few fine flakes of mica; moderately acid; gradual smooth boundary.
Bt1—10 to 16 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common distinct clay films on faces of peds; few fine flakes of mica; moderately acid; gradual wavy boundary.
Bt2—16 to 41 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common distinct clay films on faces of peds; common fine flakes of mica; slightly acid; gradual wavy boundary.
Bt3—41 to 62 inches; red (2.5YR 4/6) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine flakes of mica; few fine black concretions; moderately acid; gradual wavy boundary.
BC—62 to 74 inches; red (2.5YR 4/8) loam; weak fine subangular blocky structure; friable; common fine flakes of mica; few fine black concretions; strongly acid; gradual wavy boundary.
C—74 to 80 inches; yellowish red (5YR 5/8) saprolite that has a texture of loam; massive; friable; common fine flakes of mica; few medium black concretions; strongly acid.

The thickness of the solum ranges from 40 to more than 80 inches. The depth to bedrock is more than 6 feet. Reaction ranges from strongly acid to slightly acid. Most pedons have few or common flakes of mica in the Bt horizon and few to many flakes of mica in the BC and C horizons.

The Ap or A horizon has hue of 2.5YR or 5YR, value of 3, and chroma of 3 to 6. It is clay loam in the moderately eroded areas, and in other areas it is loam.

The Bt horizon has hue of 10R or 2.5YR, value of 3 or 4, and chroma of 4 to 8. Dark streaks or stains are in some pedons. The texture is clay or clay loam.

The BC horizon, if it occurs, has hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 to 8. It is clay loam, sandy clay loam, or loam.

The C horizon is reddish or multicolored loamy saprolite weathered from intermediate and mafic crystalline rocks.

Granville Series

The Granville series consists of well drained, moderately permeable soils on ridges in the uplands. These soils formed in material weathered from Triassic sedimentary sandstone. Slope ranges from 2 to 8 percent. These soils are fine-loamy, siliceous, thermic Typic Hapludults.

Granville soils are commonly associated with Mayodan soils, which have a clayey particle-size control section and are on ridges and side slopes.

Typical pedon of Granville gravelly sandy loam, 2 to 8 percent slopes; about 1.2 miles northwest of Stanley's Store on Secondary Road 1320, about 3.7 miles north on Secondary Road 1002, about 0.1 mile west on Secondary Road 1342, and 100 feet north, in a field:

Ap—0 to 10 inches; yellowish brown (10YR 5/4) gravelly sandy loam; weak fine granular structure; very friable; common medium and fine roots; about 25 percent, by volume, gravel; slightly acid; clear smooth boundary.
E—10 to 14 inches; yellowish brown (10YR 5/8) sandy loam; moderate fine granular structure; very friable; common medium and fine roots; slightly acid; clear smooth boundary.
Bt—14 to 37 inches; brownish yellow (10YR 6/8) sandy clay loam; few fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few faint clay films on faces of peds; few fine clay lenses; strongly acid; gradual wavy boundary.
BC—37 to 44 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium prominent yellowish red (5YR 5/8) mottles; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; very strongly acid; gradual wavy boundary.
C—44 to 60 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), and yellowish red (5YR 5/8) saprolite that has a texture of loam; massive; very friable; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. The depth to bedrock is more than 5 feet. The content of rock fragments of gravel size ranges from 15 to 35 percent, by volume, in the Ap or A horizon. Reaction ranges from very strongly acid to slightly acid in the A or Ap and E horizons and is very strongly acid or strongly acid in the Bt, BC, and C horizons.

The Ap or A horizon has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. The E horizon, if it occurs, has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It is sandy loam or gravelly sandy loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8. The BC horizon, if it occurs, is similar in color to the Bt horizon. The Bt and BC horizons are clay loam or sandy clay loam.

The C horizon is mottled or multicolored saprolite weathered from Triassic sedimentary rocks. It varies in texture but typically is sandy loam, loam, or sandy clay loam.

Iredell Series

The Iredell series consists of moderately well drained, slowly permeable soils on uplands. These soils formed in material weathered from mafic and intermediate crystalline rocks, such as gabbro, diorite, and diabase. They are on ridges, in depressions, and at the head of drainageways. Slope ranges from 1 to 6 percent. These soils are fine, montmorillonitic, thermic Typic Hapludalfs.

Iredell soils are commonly associated with Armenia, Enon, Gaston, Mecklenburg, Mocksville, and Sedgefield soils. Armenia soils are poorly drained and are on small or medium flood plains and on flats and in depressions on the uplands. Enon, Gaston, Mecklenburg, and Mocksville soils are well drained and are on ridges and side slopes in the uplands. Sedgefield soils are moderately well drained or somewhat poorly drained and are on ridges, in depressions, or in concave areas at the head of drainageways.

Typical pedon of Iredell loam, 1 to 6 percent slopes; about 1.4 miles east of Farmington on North Carolina Highway 801, about 0.5 mile south on Secondary Road 1447, and 95 feet north, in a cultivated field:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; common fine roots; few fine black concretions; neutral; abrupt smooth boundary.

Bt1—9 to 19 inches; dark yellowish brown (10YR 4/4) clay; common fine faint brown (10YR 4/3) and common medium distinct light olive brown (2.5Y 5/3) mottles; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm, very sticky and very plastic; few fine roots; common distinct clay films on faces of peds; common fine black concretions; neutral; gradual wavy boundary.

Bt2—19 to 24 inches; olive brown (2.5Y 4/3) clay; few fine prominent gray (10YR 5/1), common medium distinct grayish brown (2.5Y 5/2), and common medium prominent brown (7.5YR 4/4) mottles; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm, very sticky and very plastic; few fine roots; few fine black concretions; common distinct clay films on faces of peds; neutral; clear wavy boundary.

BC—24 to 28 inches; multicolored sandy clay loam; weak medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine black concretions; mildly alkaline; gradual wavy boundary.

C—28 to 60 inches; multicolored saprolite that has a texture of sandy loam; massive; friable; few thin lenses of clay; few fine black concretions; mildly alkaline.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 60 inches. Reaction ranges from strongly acid to neutral in the A or Ap horizon, from moderately acid to neutral in the Bt horizon, from slightly acid to mildly alkaline in the BC horizon, and from neutral to moderately alkaline in the C horizon. The number of mica flakes ranges from none to common. Most pedons have few to many dark concretions throughout.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4.

The Bt horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6. It has mottles with chroma of 2 or less below the upper 10 inches. It is dominantly very firm, very sticky and very plastic clay.

The BC horizon, if it occurs, is similar in color to the lower part of the Bt horizon or is multicolored. It is sandy clay loam or clay loam.

The C horizon is multicolored saprolite weathered from mafic and intermediate crystalline rocks that are high in ferromagnesian minerals. It varies in texture but typically is loamy.

Masada Series

The Masada series consists of well drained, moderately permeable soils that formed in old alluvium on stream terraces. Slope ranges from 2 to 6 percent. These soils are clayey, mixed, thermic Typic Hapludults.

Masada soils are commonly associated with Altavista, Chewacla, Riverview, and Roanoke soils. Altavista soils are moderately well drained, have a fine-loamy particle-size control section, and are on flood plains. The somewhat poorly drained Chewacla and well drained Riverview soils are on flood plains. Roanoke soils are poorly drained and are in depressions on flood plains, generally at the base of upland slopes.

Typical pedon of Masada fine sandy loam, 2 to 6 percent slopes; about 3.2 miles southwest of Mocksville on Secondary Road 1139, about 0.5 mile north on Secondary Road 1116, about 2.1 miles west on Secondary Road 1147, about 0.6 mile south on Secondary Road 1143, about 0.5 mile southeast on Secondary Road 1144 to the end of the road, and about 0.45 mile north, in a field:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many fine roots; few fine flakes of mica; strongly acid; clear smooth boundary.

BA—8 to 16 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bt1—16 to 22 inches; yellowish red (5YR 4/6) clay; weak medium subangular blocky structure; friable; few fine roots; few fine flakes of mica; very strongly acid; gradual wavy boundary.

Bt2—22 to 36 inches; red (2.5YR 4/6) clay loam; many medium prominent brownish yellow (10YR 6/8), common fine distinct yellowish red (5YR 4/6), and few fine prominent yellow (10YR 7/6) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; very strongly acid; diffuse wavy boundary.

BC—36 to 57 inches; yellowish red (5YR 5/8) sandy clay loam; common medium distinct red (2.5YR 4/8), few fine distinct reddish yellow (7.5YR 6/8), and few fine prominent yellow (10YR 7/8) mottles; weak fine subangular blocky structure; friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C—57 to 62 inches; yellowish red (5YR 5/6) sandy loam; few fine distinct red (2.5YR 4/6) mottles; massive; very friable; common fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. The depth to bedrock is more than 5 feet. Reaction ranges from very strongly acid to slightly acid in the Ap or A and E horizons and is very strongly acid or strongly acid in the BA, Bt, BC, and C horizons. The number of mica flakes is few or common.

The Ap or A horizon has hue of 7.5YR to 2.5Y, value of 3 to 8, and chroma of 3 to 5.

The BA or BE horizon, if it occurs, has hue of 5YR, value of 4 to 6, and chroma of 4 to 8. It is loam, sandy clay loam, or clay loam.

The Bt horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. The uppermost part does not have hue of 2.5YR. The texture is clay loam, clay, or sandy clay.

The BC horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 to 8. The number of mottles in shades of red, yellow, or brown is few or common. The texture is clay loam or sandy clay loam.

The C horizon is similar in color to the BC horizon or is multicolored in shades of yellow, brown, or red. It is sandy loam, clay loam, or sandy clay loam.

Mayodan Series

The Mayodan series consists of well drained, moderately permeable soils on ridges and side slopes in the uplands. These soils formed in material weathered from Triassic sedimentary rocks, such as sandstone, shale, mudstone, and siltstone. Slope ranges from 2 to 45 percent. These soils are clayey, mixed, thermic Typic Hapludults.

Mayodan soils are commonly associated with Granville soils, which have less clay in the Bt horizon than the Mayodan soils and are on ridges.

Typical pedon of Mayodan silty clay loam, 2 to 8 percent slopes, eroded; about 2.3 miles northwest from Ijames Crossroads on Secondary Road 1306, about 0.2 mile north on Secondary Road 1314, about 1.2 miles north on Secondary Road 1313, and 170 feet east, in a cultivated field:

Ap—0 to 7 inches; yellowish red (5YR 5/6) silty clay loam; moderate medium granular structure; firm; common fine roots; strongly acid; abrupt smooth boundary.

Bt1—7 to 21 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm; few fine roots; very strongly acid; gradual wavy boundary.

Bt2—21 to 30 inches; red (2.5YR 4/8) silty clay; few fine prominent yellow (10YR 7/8) and reddish yellow (5YR 7/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; very strongly acid; gradual wavy boundary.

BC—30 to 38 inches; red (2.5YR 4/6) silty clay; few fine prominent reddish yellow (5YR 7/6), strong brown (7.5YR 4/6), very pale brown (10YR 8/4), and yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual irregular boundary.

C—38 to 60 inches; multicolored saprolite that has a texture of silt loam; few pockets of clay loam; massive; very friable; very strongly acid.

The thickness of the solum ranges from 30 to 50 inches. The depth to bedrock is more than 6 feet. The content of rock fragments of gravel size ranges from 0 to 10 percent, by volume, in the A or Ap horizon. Reaction ranges from very strongly acid to slightly acid in the A and E horizons and is very strongly acid or strongly acid in the B and C horizons. Some pedons have few or common flakes of mica in the Bt horizon.

The Ap or A horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It is silty clay loam in the moderately eroded areas, and in other areas it is silt loam.

The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 6. It is silt loam.

The Bt horizon has hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 6 to 8. The number of mottles in shades of red, yellow, or brown ranges from none to

common. The texture is clay, silty clay, or silty clay loam.

The BC horizon is similar in color to the Bt horizon. It is silty clay, silty clay loam, or clay loam.

The C horizon is multicolored saprolite weathered from Triassic sedimentary rocks. It varies in texture but typically is loamy.

Mecklenburg Series

The Mecklenburg series consists of well drained, slowly permeable soils that formed in material weathered from intermediate or mafic crystalline rocks, such as diorite, gabbro, and hornblende gneiss. These soils are on ridges and side slopes in the uplands. Slope ranges from 2 to 15 percent. These soils are fine, mixed, thermic Ultic Hapludalfs.

Mecklenburg soils are commonly associated with Armenia, Enon, Gaston, Iredell, Mocksville, and Sedgefield soils. The poorly drained Armenia soils are on small or medium flood plains, on flats, and in depressions. Enon soils have a brown Bt horizon and are on low ridges and side slopes. Gaston soils have value of 4 or less in the upper horizons that are 6 or more inches thick and are on ridges and side slopes. Iredell soils are moderately well drained and are in nearly level or depressed areas or at the head of drainageways. Mocksville soils have a fine-loamy particle-size control section and are on narrow ridges and on side slopes. Sedgefield soils are moderately well drained or somewhat poorly drained and are in depressions or in concave areas at the head of drainageways.

Typical pedon of Mecklenburg clay loam, 2 to 8 percent slopes, eroded; about 1.3 miles north of Smith Grove on U.S. Highway 64, about 0.5 mile north on Secondary Road 1441, about 0.75 mile southwest on Secondary Road 1463, and 15 feet north, in a field:

Ap—0 to 7 inches; dark brown (7.5YR 3/4) clay loam; moderate fine granular structure; friable; common fine and medium roots; few fine black concretions; moderately acid; clear smooth boundary.

Bt1—7 to 15 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common fine and few medium black concretions; common distinct clay films on faces of peds; neutral; gradual wavy boundary.

Bt2—15 to 39 inches; yellowish red (5YR 4/6) clay; common medium distinct brownish yellow (10YR 6/8), few fine distinct red (2.5YR 4/6), and few fine prominent yellow (10YR 7/6) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; few fine and medium black concretions; common distinct clay films on faces of peds; slightly acid; gradual wavy boundary.

BC—39 to 58 inches; yellowish red (5YR 4/6) clay loam; common medium prominent brownish yellow (10YR 6/8), few fine distinct red (2.5YR 4/6), and few fine prominent yellow (10YR 7/6) mottles; weak medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine and medium black concretions; few fine flakes of mica; moderately acid; gradual wavy boundary.

C—58 to 70 inches; mottled yellowish red (5YR 4/6), brownish yellow (10YR 6/8), red (2.5YR 4/6), yellow (10YR 7/6), and very pale brown (10YR 7/4) saprolite that has a texture of loam; massive; friable; few fine and medium black minerals; few fine flakes of mica; moderately acid.

The thickness of the solum ranges from 30 to 58 inches. The depth to bedrock is more than 5 feet. Reaction ranges from moderately acid to neutral. The content of black concretions ranges from few to many throughout the solum. The number of mica flakes is none or few.

The Ap or A horizon has hue of 5YR or 7.5YR, value of 3 to 6, and chroma of 2 to 6.

The Bt horizon has hue of 2.5YR or 5YR. In the upper part value is 3 to 6 and chroma is 4 to 8. In the lower part value is 4 to 6 and chroma is 4 to 8. Most pedons have few or common mottles in shades of brown, yellow, or red in the Bt horizon.

The BC horizon has hue of 2.5YR to 7.5YR, value of 4 to 7, and chroma of 4 to 8 and is often mottled in these colors. It is sandy clay loam, loam, or clay loam. Pockets of saprolite are in some pedons.

The C horizon is mottled or multicolored saprolite weathered from mafic or intermediate crystalline rocks. It varies in texture but typically is loamy.

Mocksville Series

The Mocksville series consists of well drained, moderately permeable soils that formed in material weathered from mafic and intermediate crystalline rocks, such as diorite, gabbro, and hornblende gneiss. These soils are on ridges and side slopes in the uplands. Slope ranges from 2 to 45 percent. These soils are fine-loamy, mixed, thermic Typic Hapludalfs.

Mocksville soils are commonly associated with Armenia, Enon, Gaston, Iredell, Mecklenburg, and Sedgefield soils. The associated soils have a clayey particle-size control section. Armenia soils are poorly drained and are on small or medium flood plains and on flats and in depressions on the uplands. Enon, Gaston, and Mecklenburg soils are on ridges and side slopes. Iredell soils are moderately well drained. Sedgefield

soils are moderately well drained or somewhat poorly drained. Iredell and Sedgefield soils are on ridges, in depressions, and at the head of drainageways.

Typical pedon of Mocksville sandy loam, 15 to 45 percent slopes; about 2.0 miles east of Farmington on North Carolina Highway 801, about 1.1 miles north on Secondary Road 1458, about 1.25 miles east on Secondary Road 1455, and 200 feet north, in a wooded area:

A—0 to 6 inches; dark grayish brown (2.5Y 4/2) sandy loam; weak fine and medium granular structure; very friable; common fine and medium roots; few fine grains of dark minerals; strongly acid; clear wavy boundary.

Bt—6 to 20 inches; dark yellowish brown (10YR 4/4) clay loam; common fine prominent strong brown (7.5YR 5/8) and yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable; common fine roots; common fine grains of dark minerals; moderately acid; gradual wavy boundary.

BC—20 to 25 inches; mottled yellowish brown (10YR 5/8), yellow (10YR 7/8), and strong brown (7.5YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few fine roots; common seams and pockets of clay loam; many fine grains of dark minerals; moderately acid; gradual wavy boundary.

C1—25 to 42 inches; mottled yellowish brown (10YR 5/4), yellow (10YR 7/8), and strong brown (7.5YR 5/8) saprolite that has a texture of loamy sand; massive; very friable; common fine grains of dark minerals; slightly acid; clear wavy boundary.

C2—42 to 60 inches; multicolored saprolite that has a texture of loamy sand; massive; very friable; many fine grains of dark minerals; neutral.

The thickness of the solum ranges from 18 to 40 inches. The depth to hard bedrock is more than 5 feet. Reaction ranges from strongly acid to neutral in the A and E horizons, from moderately acid to neutral in the Bt and BC horizons, and from slightly acid to mildly alkaline in the C horizon. The content of dark minerals ranges from few to many. The number of mica flakes ranges from none to common.

The Ap or A horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4. The E horizon, if it occurs, has hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 2 to 8. It is loam, sandy loam, or fine sandy loam.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 8. It is clay loam, sandy clay loam, or loam. Some pedons have thin or discontinuous layers of clayey material.

The BC horizon, if it occurs, is similar in color to the Bt horizon or is mottled. It is loam, sandy loam, or fine sandy loam.

The C horizon is similar in color to the BC horizon or is multicolored saprolite weathered from mafic and intermediate crystalline rocks. It is loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam.

Pacolet Series

The Pacolet series consists of well drained, moderately permeable soils on ridges and side slopes in the uplands. These soils formed in material weathered from felsic crystalline rocks, such as granite, biotite gneiss, and porphyritic granite. Slope ranges from 2 to 40 percent. These soils are clayey, kaolinitic, thermic Typic Kanhapludults.

Pacolet soils are commonly associated with Appling, Cecil, Rion, and Wedowee soils. Appling and Wedowee soils have a yellower Bt horizon than the Pacolet soil and are on ridges and side slopes. Cecil soils have a solum that is more than 40 inches thick and are on ridges. Rion soils have a fine-loamy particle-size control section and are on side slopes.

Typical pedon of Pacolet sandy clay loam, 2 to 8 percent slopes, eroded; about 3.1 miles south of Davie Crossroads on U.S. Highway 601, about 0.4 mile northwest on Secondary Road 1819, about 0.2 mile south on Secondary Road 1822, and 400 feet east, in a field:

Ap—0 to 7 inches; yellowish red (5YR 4/6) sandy clay loam; weak fine granular structure; very friable; many fine roots; common fine flakes of mica; slightly acid; clear smooth boundary.

Bt1—7 to 16 inches; red (2.5YR 4/8) clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; common fine feldspar crystals; common fine flakes of mica; slightly acid; gradual wavy boundary.

Bt2—16 to 26 inches; red (2.5YR 4/8) clay; few fine prominent reddish yellow (5YR 6/8) mottles; weak fine subangular blocky structure; friable, sticky and plastic; few fine roots; common fine and medium feldspar crystals; common fine flakes of mica; moderately acid; gradual wavy boundary.

BC—26 to 36 inches; red (2.5YR 4/8) sandy clay loam; few fine prominent reddish yellow (5YR 6/8) mottles; weak fine subangular blocky structure; friable; common fine and medium feldspar crystals; common fine flakes of mica; strongly acid; gradual wavy boundary.

C1—36 to 48 inches; red (2.5YR 5/8) saprolite that has a texture of sandy loam; massive; very friable; common fine and medium feldspar crystals;

common fine flakes of mica; strongly acid; gradual wavy boundary.

C2—48 to 60 inches; yellowish red (5YR 5/8) saprolite that has a texture of sandy loam; massive; very friable; common fine and medium feldspar crystals; common fine flakes of mica; strongly acid.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 5 feet. The content of rock fragments of gravel size ranges from 0 to 15 percent, by volume, in the surface layer. The number of mica flakes ranges from none to common. Reaction ranges from very strongly acid to slightly acid in the surface layer and from very strongly acid to moderately acid in the lower horizons.

The Ap or A horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 8. It is sandy clay loam in the moderately eroded areas, and in other areas it is sandy loam.

The E horizon, if it occurs, has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. It is sandy loam.

The BA or BE horizon, if it occurs, has hue of 5YR to 10YR, value of 5, and chroma of 3 to 8. The texture is clay loam or sandy clay loam.

The Bt horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 to 8. It is clay loam, sandy clay, or clay.

The BC horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8 but is commonly mottled. It is clay loam, sandy clay loam, or loam.

The C horizon is reddish or multicolored saprolite weathered from felsic crystalline rocks. It is typically sandy loam, fine sandy loam, or loam.

Rion Series

The Rion series consists of well drained, moderately permeable soils on side slopes in the uplands. These soils formed in material weathered from felsic crystalline rocks, such as granite, biotite gneiss, and porphyritic granite. Slope ranges from 8 to 40 percent. These soils are fine-loamy, mixed, thermic Typic Hapludults.

Rion soils are commonly associated with Appling, Cecil, Pacolet, and Wedowee soils. The associated soils have a clayey particle-size control section. Appling and Cecil soils are on ridges, and Pacolet and Wedowee soils are on ridges and side slopes.

Typical pedon of Rion sandy loam, 15 to 40 percent slopes; about 0.2 mile east of Calahaln, 200 yards southwest of the junction of U.S. Highway 64 and Secondary Road 1307, and 100 yards southwest of Beaver Creek, in a wooded area:

Oi—2 inches to 0; mixture of undecomposed hardwood leaves and slightly decomposed organic material.

A—0 to 6 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; common fine and medium roots; few fine flakes of mica; strongly acid; abrupt smooth boundary.

E—6 to 12 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; few fine flakes of mica; very strongly acid; abrupt smooth boundary.

Bt—12 to 24 inches; reddish yellow (7.5YR 6/6) clay loam; weak fine subangular blocky structure; friable; few fine roots; few fine flakes of mica; very strongly acid; gradual wavy boundary.

BC—24 to 32 inches; brownish yellow (10YR 6/8) sandy loam; few fine prominent very pale brown (10YR 8/4) and light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; very friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C—32 to 60 inches; mottled brownish yellow (10YR 6/8), very pale brown (10YR 8/4), and light yellowish brown (10YR 6/4) saprolite that has a texture of sandy loam; massive; very friable; few fine flakes of mica; very strongly acid.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 5 feet. The content of rock fragments of gravel size ranges from 0 to 15 percent, by volume, in the surface layer. The number of mica flakes ranges from none to common in the A and Bt horizons and from few to many in the BC and C horizons. Reaction ranges from very strongly acid to slightly acid.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 6. The E horizon, if it occurs, has hue of 10YR, value of 4 to 6, and chroma of 4 to 8.

The Bt horizon has hue of 2.5YR to 10YR, value of 5 or 6, and chroma of 4 to 8. It is clay loam, sandy clay loam, or sandy loam. The number of mottles in shades of yellow, red, or brown ranges from none to common.

The BC horizon, if it occurs, has hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 to 8. The number of mottles in shades of red or brown ranges from none to common. The texture is clay loam, sandy clay loam, loam, or sandy loam.

The C horizon is mottled or multicolored saprolite that weathered from felsic crystalline rocks. It is sandy clay loam, sandy loam, or loamy sand.

Riverview Series

The Riverview series consists of well drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slope ranges from 0 to 2

percent. These soils are fine-loamy, mixed, thermic Fluventic Dystrochrepts.

Riverview soils are adjacent to Altavista, Buncombe, Chewacla, Masada, and Roanoke soils. Altavista soils are moderately well drained and are on low ridges on flood plains. Buncombe soils are excessively drained and are adjacent to creeks and rivers. Chewacla soils are somewhat poorly drained and are on the lower parts of flood plains. Masada soils are well drained and are on stream terraces. Roanoke soils are poorly drained and are on the low parts of flood plains, generally at the base of upland slopes.

Typical pedon of Riverview loam, 0 to 2 percent slopes, frequently flooded; about 4.3 miles north of Fork Church on North Carolina Highway 801, about 0.9 mile east on Secondary Road 1650, about 1.6 miles south on Secondary Road 1646 to the end of a paved road, about 0.9 mile south on a farm road, and 300 feet south, in a field:

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) loam; few fine prominent strong brown (7.5YR 4/6) mottles; moderate medium granular structure; very friable; common fine and medium roots; common fine flakes of mica; very strongly acid; abrupt smooth boundary.

Bw1—10 to 22 inches; brown (7.5YR 4/4) clay loam; weak medium subangular blocky structure; friable; common fine roots; common fine flakes of mica; strongly acid; gradual wavy boundary.

Bw2—22 to 40 inches; brown (7.5YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; common fine flakes of mica; strongly acid; gradual wavy boundary.

C1—40 to 48 inches; dark yellowish brown (10YR 4/6) loamy sand; massive; friable; few fine roots; common fine flakes of mica; moderately acid; gradual wavy boundary.

C2—48 to 60 inches; yellowish brown (10YR 5/6) sand; common medium prominent brown (7.5YR 4/4) pockets of loam; massive; friable; common fine and medium flakes of mica; moderately acid.

The thickness of the solum ranges from 24 to 60 inches. The depth to bedrock is more than 10 feet. Most pedons have few or common flakes of mica. Reaction ranges from very strongly acid to slightly acid in the A horizon and from very strongly acid to moderately acid in the lower horizons.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. It is less than 7 inches thick in pedons that have value of 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8. In some pedons mottles with chroma of 2 or less are below a depth of 24 inches. The texture is clay loam, sandy clay loam, silty clay loam, silt loam, or loam.

The BC horizon, if it occurs, is similar in color to the lower part of the Bw horizon. It is sandy clay loam, loam, sandy loam, or fine sandy loam.

The Ab and Bb horizons, if they occur, are below a depth of 25 inches. The Ab horizon is similar in color to the A horizon. It is loam, sandy loam, fine sandy loam, or silt loam. The Bb horizon is similar in color to the Bw horizon. It is silty clay loam, sandy clay loam, loam, or clay loam.

The C horizon is alluvium that has hue of 7.5YR or 10YR and value and chroma of 4 to 8. In some pedons it has mottles with chroma of 2 or less. The texture typically is loamy sand or sand but may be loam or sandy loam.

Roanoke Series

The Roanoke series consists of poorly drained, slowly permeable or very slowly permeable soils that formed in alluvium on flood plains. Slope ranges from 0 to 2 percent. These soils are clayey, mixed, thermic Typic Endoaquults.

Roanoke soils are commonly associated with Altavista, Chewacla, Masada, and Riverview soils. The moderately well drained Altavista soils are in the slightly higher areas on flood plains. The somewhat poorly drained Chewacla and well drained Riverview soils are on the frequently flooded parts of the flood plains. The well drained Masada soils are on stream terraces.

Typical pedon of Roanoke loam, 0 to 2 percent slopes, occasionally flooded; about 5.0 miles east of Mocksville on U.S. Highway 64, about 1.0 mile south on Secondary Road 1808, about 0.6 mile south to the end of a farm road, and 800 feet south, in a field:

Ap—0 to 11 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; many fine roots; about 10 percent, by volume, gravel; few fine flakes of mica; slightly acid; clear smooth boundary.

Btg1—11 to 28 inches; gray (10YR 5/1) clay; common fine prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; very firm, very sticky and very plastic; common fine roots; few faint clay films on faces of peds; few fine flakes of mica; moderately acid; gradual wavy boundary.

Btg2—28 to 38 inches; grayish brown (2.5Y 5/2) clay; common fine prominent gray (10YR 5/1) mottles; moderate medium subangular blocky structure; very firm, very sticky and very plastic; few fine roots; few faint clay films on faces of peds; few fine flakes of mica; neutral; gradual smooth boundary.

BCg—38 to 44 inches; light brownish gray (2.5Y 6/2) clay loam; few fine faint gray (N 6/0) mottles; weak medium subangular blocky structure; firm, sticky and plastic; few fine flakes of mica; neutral; gradual smooth boundary.

Cg1—44 to 58 inches; light brownish gray (2.5Y 6/2) loam; few fine prominent grayish green (5G 5/2) and bluish gray (5B 6/1) mottles; massive; firm, slightly sticky and slightly plastic; few fine lenses of sandy clay loam; common fine flakes of mica; slightly acid; gradual smooth boundary.

Cg2—58 to 72 inches; grayish brown (2.5Y 5/2) loam; common fine prominent grayish green (5G 5/2) and few fine prominent bluish gray (5B 6/1) mottles; massive; firm, slightly sticky and slightly plastic; few fine lenses of sandy clay loam; common fine flakes of mica; neutral.

The thickness of the solum ranges from 40 to 60 inches. The depth to bedrock is more than 5 feet. The content of rock fragments of gravel size in the surface layer ranges from 0 to 10 percent, by volume. In most pedons the number of mica flakes is few or common. Reaction ranges from very strongly acid to slightly acid in the A or Ap horizon, from strongly acid to neutral in the Btg and BCg horizons, and from slightly acid to mildly alkaline in the C horizon.

The Ap or A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is less than 6 inches thick in pedons that have value of 2 or 3.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. The number of mottles in shades of brown, gray, or yellow is few or common. The texture is clay, silty clay, or clay loam.

The BCg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. The number of mottles in shades of brown, yellow, or gray is few or common. The texture is clay loam, sandy clay loam, or clay.

The Cg horizon is similar in color to the BCg horizon and varies in texture. It may be stratified and ranges from sand to clay.

The Roanoke soils in Davie County differ from the Roanoke series because reaction is typically neutral or mildly alkaline below the Ap horizon and the upper part of the Btg horizon. However, this difference does not affect the overall use, management, and behavior of these soils.

Sedgefield Series

The Sedgefield series consists of moderately well drained or somewhat poorly drained, slowly permeable soils that formed in material weathered from intermediate and mafic crystalline rocks, such as diorite, gabbro, and hornblende gneiss. These soils are on ridges and in depressions on uplands or in concave areas at the head of drainageways. Slope ranges from 1 to 6 percent. These soils are fine, mixed, thermic Aquultic Hapludalfs.

Sedgefield soils are commonly associated with Armenia, Enon, Gaston, Iredell, Mecklenburg, and Mocksville soils. Armenia soils are poorly drained and are on small or medium flood plains and on flats and in depressions on uplands. Enon, Gaston, Mecklenburg, and Mocksville soils are well drained and are on ridges and side slopes in the uplands. Iredell soils are moderately well drained and are in broad, smooth, nearly level areas.

Typical pedon of Sedgefield sandy loam, 1 to 6 percent slopes; about 2.8 miles north of Cana on Secondary Road 1411, about 0.8 mile west on Secondary Road 1420, and 600 feet south, in a field:

Ap—0 to 9 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine and medium roots; moderately acid; clear smooth boundary.

Bt1—9 to 19 inches; strong brown (7.5YR 5/8) clay; few medium prominent light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; firm, sticky and plastic; common fine and medium roots; common fine and medium and few coarse black concretions; few distinct clay films on faces of peds; slightly acid; gradual wavy boundary.

Bt2—19 to 29 inches; strong brown (7.5YR 5/8) clay; common coarse prominent olive gray (5Y 5/2) mottles; moderate medium subangular blocky structure; very firm, very sticky and very plastic; common fine and few medium roots; few coarse and common fine and medium black concretions; few distinct clay films on faces of peds; neutral; clear smooth boundary.

BC—29 to 34 inches; strong brown (7.5YR 5/8) clay loam; common medium prominent light gray (10YR 6/1) mottles; weak fine subangular blocky structure; firm, slightly sticky and slightly plastic; common fine and medium black concretions; neutral; clear smooth boundary.

C—34 to 60 inches; mottled strong brown (7.5YR 5/8), pale brown (10YR 6/3), and light gray (10YR 6/1) saprolite that has a texture of sandy clay loam; massive; friable; few fine black concretions; neutral.

The thickness of the solum ranges from 20 to 40 inches. The depth to hard bedrock is more than 5 feet. Reaction ranges from very strongly acid to slightly acid in the A or Ap horizon and the upper part of the Bt horizon and from moderately acid to moderately alkaline in the lower part of the Bt horizon and the BC and C horizons.

The Ap or A horizon has hue of 10YR, value of 4 to 6, and chroma of 1 to 4.

The Bt horizon has hue of 7.5YR to 5Y, value of 5 or 6, and chroma of 4 to 8. The number of mottles with chroma of 2 or less is few or common in the upper 10 inches. The texture is clay, sandy clay, or clay loam.

The BC horizon is similar in color to the Bt horizon or has matrix colors in shades of gray. It is sandy clay loam or clay loam.

The C horizon is mottled or multicolored saprolite weathered from intermediate or mafic crystalline rocks. It varies in texture but typically is loamy.

Udorthents

Udorthents consists of areas where the natural soil has been altered by excavation or covered by earthy fill material. The areas are well drained or moderately well drained. The excavated areas are mainly borrow pits from which the soil has been removed and used as foundation material for roads or buildings. In most areas the exposed underlying material of the excavated soil is loam, sandy loam, or sandy clay loam. The fill areas are sites, such as borrow pits, landfills, natural drainageways, or low areas, where at least 20 inches of loamy earthy fill material covers the natural soil. Slopes range from nearly level to steep, and some areas are undulating. These soils are in the Udorthents great group.

A typical pedon is not given for these soils because they vary. The fill areas are more than 20 inches deep and are as thick as 30 feet in places. Landfills have layers of non-soil material covered by loamy soil material.

Udorthents have colors in shades of red, brown, yellow, or gray. It varies in texture but typically is loamy. Reaction ranges from extremely acid to slightly acid.

Wedowee Series

The Wedowee series consists of well drained, moderately permeable soils on ridges and side slopes in the uplands. These soils formed in material weathered from felsic crystalline rocks, such as granite, biotite gneiss, and porphyritic granite. Slope ranges from 2 to 15 percent. These soils are clayey, kaolinitic, thermic Typic Hapludults.

Wedowee soils are commonly associated with Appling, Cecil, and Pacolet soils. Appling and Cecil soils have a solum that is 40 or more inches thick and are on ridges. Cecil and Pacolet soils have a redder hue in the Bt horizon than the Wedowee soils. Pacolet soils are on ridges and side slopes.

Typical pedon of Wedowee sandy loam, 2 to 8 percent slopes; about 0.9 mile north of Fork Church on Secondary Road 1611, about 0.3 mile west on a farm road, and 100 feet north, in a field:

Ap—0 to 12 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; common medium and many fine roots; about 10 percent, by volume, gravel; moderately acid; abrupt smooth boundary.

Bt—12 to 27 inches; yellowish red (5YR 5/8) clay; common medium distinct red (2.5YR 4/8) and common medium prominent yellow (10YR 7/8) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; common fine roots; common fine flakes of mica; few faint clay films on faces of peds; strongly acid; gradual wavy boundary.

BC—27 to 35 inches; strong brown (7.5YR 5/8) clay loam; common medium prominent red (2.5YR 4/8) and yellow (10YR 7/8) mottles; weak fine subangular blocky structure; friable; common fine and few medium flakes of mica; strongly acid; gradual wavy boundary.

C—35 to 60 inches; mottled strong brown (7.5YR 5/6), red (2.5YR 4/8), and yellow (10YR 7/8) saprolite that has a texture of sandy loam; massive; very friable; common fine and medium flakes of mica; very strongly acid.

The thickness of the solum ranges from 20 to 40 inches. The depth to bedrock is more than 5 feet. The content of rock fragments of gravel size ranges from 0 to 15 percent, by volume, in the surface layer. Reaction ranges from very strongly acid to slightly acid in the Ap or A horizon and from very strongly acid to moderately acid in the lower horizons. The number of flakes of mica ranges from none to common.

The Ap or A horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4. The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 3 to 6. It is sandy loam.

The Bt horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 6 to 8. The number of mottles in shades of red, yellow, or brown is few or common. It is clay, sandy clay, or clay loam.

The BC horizon is similar in color to the Bt horizon. It is sandy clay loam or clay loam.

The C horizon is mottled or multicolored saprolite weathered from felsic crystalline rocks. It is typically sandy loam, sandy clay loam, or clay loam.

Formation of the Soils

Soils are formed by processes of the environment acting on geologic materials, such as metamorphic, igneous, and sedimentary rocks and fluvial stream sediments. The combined influence of parent material, climate, plant and animal life, relief, and time determine the characteristics of a soil. These five factors of soil formation are responsible for the profile development and the chemical properties that make soils different *(5)*.

Parent Material

Parent material is the unconsolidated mass from which a soil forms. The character of this mass affects the kind of profile that develops and the degree of development. In Davie County, the parent material is a major factor in determining what kind of soil forms and can be correlated to some degree with geologic formations. The general soil map can serve as an approximate guide to the geology of the county.

The general soil map units and the major rock types from which their parent material weathered are as follows.

The Gaston-Mocksville-Mecklenburg and Enon-Mocksville general soil map units formed in material weathered from intermingled areas of intermediate and mafic igneous and metamorphic rocks (diorite, diabase, gabbro, hornblende schist, and hornblende gneiss).

The Cecil-Pacolet-Rion and Pacolet-Wedowee general soil map units formed in material weathered from felsic igneous and metamorphic rocks (granite, biotite gneiss, and porphyritic granite).

The Mayodan general soil map unit formed in material weathered from Triassic sedimentary rocks (sandstone, shale, mudstone, and siltstone).

The Chewacla-Riverview general soil map unit formed in material weathered from recent alluvium.

Parent material is largely responsible for the chemical and mineralogical composition of soils and for the major differences among the soils in the county. Major differences in properties of parent material, such as texture, can be observed in the field. Less distinct differences, such as mineralogical composition, can be determined only by careful laboratory analysis.

Climate

Climate affects the physical, chemical, and biological relationships in the soil, primarily through precipitation and temperature, which greatly influence the rates of weathering of rocks and decomposition of organic matter. The amount of leaching in a soil also is related to the amount of rainfall and its movement through the soil. The effects of climate also control the kinds of plants and animals that can thrive in a region. Temperature influences the kind and growth of organisms and the speed of chemical and physical reactions in the soil.

Davie County has a warm humid climate. It is on a moderate plateau that ranges in elevation from about 630 feet to 1,010 feet. The climate favors rapid chemical processes, resulting in decomposition of organic matter and weathering of rocks. The mild temperature and abundant rainfall cause intense leaching and oxidizing.

The effects of climate are reflected in the soils of the county. The mild temperatures throughout the year and the abundant rainfall have depleted the organic matter and considerably leached the soluble bases. Because variations in climate are small, the climate in the county has probably not caused major local differences among the soils. The most important effects of climate on the formation of soils in the county are the alteration of parent material through changes in temperature and the amount of precipitation, and influences on plant and animal life.

Plant and Animal Life

Plant and animal life influences the formation and differentiation of horizons. The type and number of organisms on and in the soil are determined in part by the climate and in part by the nature of the soil material, the relief, and the age of the soil. Bacteria, fungi, and other micro-organisms aid in weathering rocks and in decomposing organic matter. The plants and animals that live on a soil are the primary source of organic material.

Plants generally determine the kinds and amounts of

organic matter that enter a soil under normal conditions, as well as how the organic matter is added. Because of the nutrient cycle, plants also are important in changing the base status and in the leaching process.

Animals convert complex compounds into simpler forms and add their own bodies to the organic matter. In addition to adding organic matter, organisms modify certain chemical and physical properties. In Davie County most of the organic material accumulates on the surface where it is acted on by micro-organisms, fungi, earthworms, and other forms of life and by direct chemical reaction. The material is mixed with the uppermost mineral part of the soil by the activities of earthworms and other small invertebrates. Rodents have had little effect on the formation of soils in the county.

In areas of native forest in the county, not enough bases are brought to the surface by plants to counteract the effects of leaching. The soils of the county generally developed under a hardwood forest. Trees take up elements from the subsoil and add organic matter by depositing leaves, roots, twigs, and eventually the whole tree on the surface. The material is acted on by organisms and undergoes chemical reaction.

Organic materials decompose rapidly in the county because of the moderate temperature, the abundant supply of moisture, and the character of the organic material. Because of this rapid decomposition, little organic matter accumulates in the soil.

Relief

Relief causes differences in free drainage, surface runoff, soil temperature, and the extent of geologic erosion. In Davie County, relief generally is determined by the kind of underlying bedrock, the geology of the area, and the degree to which the landscape is dissected by streams.

The percolation of water through the profile is affected by relief. Because the movement of water aids chemical reactions and is necessary for leaching, it is important in soil development.

The slopes in the county range from 0 to 45 percent. The soils on the uplands in areas where the slope is less than 10 percent generally have profiles that are deeper and better defined than those on the steeper soils. Examples are the well developed Appling, Cecil, and Gaston soils. Relief also is important in soil formation because it can affect the depth of the soils. Geologic erosion removes soil material almost as fast as it forms on some soils that have a slope of 15 percent. As a result, most of the strongly sloping to steep soils have a thinner solum than that of the less sloping soils. Examples are Pacolet and Mocksville soils, which are not so deep to saprolite nor so well developed as the less sloping soils.

Drainage also can be affected by relief. A high water table generally is related to nearly level and gently sloping relief. The Sedgefield soils on uplands are moderately well drained or somewhat poorly drained because they are gently sloping and have slow internal movement of water.

The soils on the lower elevations are less sloping and receive runoff from the adjacent higher areas. This water accumulates in the nearly level to slightly concave areas. Examples are the somewhat poorly drained Chewacla and poorly drained Roanoke soils on the flood plains.

Time

The length of time that the soil material has been exposed to the soil-forming processes accounts for some differences in the soils. The time required for a well defined soil profile to form depends on the other factors of soil formation. Less time is required for development of a soil profile in coarse textured material than in similar, but finer textured, material in similar environments. Less time is required for profile development in a warm, humid area that has a dense plant cover, such as Davie County, than in a cold, dry area that has a sparse plant cover.

The age of the soils varies considerably, and the length of time that a soil has been developing is generally reflected in the profile. The older soils generally have better defined horizons than the younger soils. In Davie County, the effects of time as a soil-forming factor are more apparent in the older soils, such as Cecil and Appling soils, which are on the broader parts of the uplands. These soils have well defined horizons. In contrast, the younger soils, such as Chewacla and Riverview soils, formed in recent alluvium on flood plains. They have not been in place long enough to have developed distinct horizons as completely as the Cecil and Appling soils.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

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

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Atterberg limits. Atterberg limits are measured for soil materials passing the No. 40 sieve. They include the liquid limit (LL), which is the moisture content at which the soil passes from a plastic to a liquid state and the plastic limit (PL), which is the water content corresponding to an arbitrary limit between the plastic and semisolid states of consistency of a soil.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

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

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

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.

Clayey. A general textural term that includes sandy clay, silty clay, and clay. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) containing 35 percent or more clay, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

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.

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.

Crop residue management. Use of that portion of the plant or crop left in the field after harvest for protection or improvement of the soil.

Delineation. The process of drawing or plotting features on a map with lines and symbols.

Depth class. Refers to the depth to a root-restricting layer. Unless otherwise stated, this layer is understood to be consolidated bedrock. The depth classes in this survey are:

Very shallow	less than 10 inches
Shallow	10 to 20 inches
Moderately deep	20 to 40 inches
Deep	40 to 60 inches
Very deep	more than 60 inches

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diorite. A coarse grained igneous rock with the composition of andesite (no quartz or orthoclase). It is composed of about 75 percent plagioclase feldspars with the balance being ferromagnesian silicates.

Dispersion (soils). The breakup of compound particles, such as soil aggregates or saprolite, into single grains, resulting in a highly erosive condition. This phenomenon results from the failure of grains to adhere or bond to one another and generally is associated with a high content of water in soil containing high levels of sodium.

Dispersive material. Soil material generally associated with high levels of sodium that causes a breakup of compound particles, such as soil aggregates or saprolite, into single grains, resulting in a highly erosive condition.

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

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.
Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops

unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

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

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

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

Engineering index test data. Laboratory test and mechanical analysis of selected soils in the county.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as fire, that exposes the surface.

Erosion classes. Classes based on estimates of past erosion. The classes are as follows:

Class 1.—Soils that have lost some of the original A horizon but on the average less than 25 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most of the area, the thickness of the surface layer is within the normal range of variability of the uneroded soil. Class 1 erosion typically is not designated in the name of the map unit or in the map symbol.

Class 2.—Soils that have lost an average of 25 to 75 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most cultivated areas of class 2 erosion, the surface layer consists of a mixture of the original A horizon and material from below. Some areas may have intricate patterns ranging from uneroded spots to spots where all of the original A horizon has been removed.

Class 3.—Soils that have lost an average of 75 percent or more of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most areas of class 3 erosion, material that was below the original A horizon is exposed. The plow layer consists entirely or largely of this material.

Class 4.—Soils that have lost all of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick) plus some or all of the deeper horizons throughout most of the area. The original soil can be identified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

Erosion hazard. Terms describing the potential for future erosion, inherent in the soil itself, in inadequately protected areas. The following definitions are based on estimated annual soil loss in tons per acre (values determined by the Universal Soil Loss Equation assuming bare soil conditions and using rainfall and climate factors for North Carolina):

0 tons per acre	None
Less than 1 ton per acre	Slight
1 to 5 tons per acre	Moderate
5 to 10 tons per acre	Severe
More than 10 tons per acre	Very Severe

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

Felsic rock. A general term for light-colored, igneous and metamorphic crystalline rock.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity,*

normal moisture capacity, or *capillary capacity.*

Flooding. The temporary covering of the surface by flowing water from any source, such as overflowing streams, runoff from adjacent or surrounding slopes, and inflow from high tides. The frequency of flooding generally is expressed as none, rare, occasional, or frequent. *None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). The duration of flooding 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).

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

Forest type. A classification of forest land based on the species forming the majority of live-tree stocking.

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

Gneiss. A coarse grained metamorphic rock in which bands rich in granular minerals alternate with bands in which schistose minerals predominate. It is commonly formed by the metamorphism of granite.

Granite. A coarse grained igneous rock dominated by light colored minerals, consisting of about 50 percent orthoclase and 25 percent quartz with the balance being plagioclase feldspars and ferromagnesian silicates. Granites and granodiorites comprise 95 percent of all intrusive rocks.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

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

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

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

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

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

Hornblende. A rock-forming ferromagnesian silicate mineral of the amphibole group.

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.

Igneous rock. Rock formed by solidification of molten rock, generally crystalline in nature.

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

Intermediate rock. Igneous or metamorphic crystalline rock that is intermediate in composition between mafic and felsic rock.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

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

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loamy. A general textural term that includes coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam. According to family level criteria in the soil taxonomy system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of loamy very fine sand or finer textured material that contains less than 35 percent clay, by weight, within the particle-size control section. The content of rock fragments is less than 35 percent, by volume.

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

Mafic rock. A dark rock composed predominantly of magnesium silicates. It contains little quartz, feldspar, or muscovite mica.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Micas. A group of silicate minerals characterized by sheet or scale cleavage. Biotite is the ferromagnesian black mica. Muscovite is the potassic white mica.

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

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

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).

Mudstone. Fine grained, detrital sedimentary rock made up of silt- and clay-sized particles. Distinguished from shale by lack of fissility.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

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

No-till planting. A method of planting crops in which there is virtually no seedbed preparation. A thin slice of the soil is opened, and the seed is planted at the desired depth.

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.

Overstory. The portion of the trees in a forest stand forming the upper crown cover.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

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

Permeability. The quality of the soil that enables water to move downward 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.)

Piedmont. The physiographic region of central North Carolina characterized by rolling landscapes formed from the weathering of residual rock material.

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

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

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

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

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Porphyritic. A textural term for igneous rocks in which the larger crystals, called phenocrysts, are set in a finer-textured groundmass. The groundmass may be crystalline or glassy, or both.

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 acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	below 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

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

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

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). There is a shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Runoff class (surface). Refers to the rate at which water flows away from the soil over the surface without infiltrating. Six classes of rate of runoff are recognized:

Ponded.—Little of the precipitation and water that runs onto the soil escapes as runoff, and free water stands on the surface for significant periods. The amount of water that is removed from ponded areas by movement through the soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs on level or nearly level soils in depressions. The depth may fluctuate greatly.

Very slow.—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. The soils are commonly level or nearly level or are very open and porous.
Slow.—Surface water flows away so slowly that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes through the soil, is used by plants, or evaporates. The soils are nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.
Medium.—Surface water flows away so rapidly that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils are nearly level or gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.
Rapid.—Surface water flows away so rapidly that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly moderately steep or steep and have moderate or slow rates of absorption.
Very rapid.—Surface water flows away so rapidly that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soil. The soils are mainly steep or very steep and absorb precipitation slowly.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil texture class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy. A general textural term that includes coarse sand, sand, fine sand, very fine sand, loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand. According to family level criteria in the soil taxonomic system, a specific textural name referring to fine earth (particles less than 2 millimeters in size) of sand or loamy sand that contains less than 50 percent very fine sand, by weight, within the control section. The content of rock fragments is less than 35 percent, by volume.

Saprolite (soil science). Unconsolidated, residual material underlying the soil and grading to hard bedrock below.

Schist. A metamorphic rock dominated by fibrous or platy minerals. It has schistose cleavage and is a product of regional metamorphism.

Seasonal high water table. The highest level of a saturated zone (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

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

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

Shale. Sedimentary rock formed by the hardening of a clay deposit.

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.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

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. In this survey area slope classes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 45 percent

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 (7.6 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.

Soil compaction. An alteration of soil structure that ultimately can affect the biological and chemical properties of the soil. Soil compaction decreases the extent of voids and increases bulk density.

Soil map unit. A kind of soil or miscellaneous area or a combination of two or more soils or one or more soils and one or more miscellaneous areas that can be shown at the scale of mapping for the defined purposes and objectives of the soil survey. They are generally designed to reflect significant differences in use and management.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Soil strength. Load supporting capacity of a soil at specific moisture and density conditions.

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 if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to soil blowing and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single 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 soil blowing 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.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Suitability ratings. Ratings for the degree of suitability of soils for pasture, crops, woodland, and engineering uses. The ratings and the general criteria used for their selection are as follows:

Well suited.—The intended use may be initiated and maintained by using only the standard materials and methods typically required for that use. Good results can be expected.

Moderately suited.—The limitations affecting the intended use make special planning, design, or maintenance necessary.

Poorly suited.—The intended use is difficult or costly to initiate and maintain because of certain soil properties, such as steep slopes, a high hazard of erosion, a high water table, low fertility, or a hazard of flooding. Major soil reclamation, special design, or intensive management practices are needed.

Very poorly suited.—The intended use is very difficult or costly to initiate and maintain, and thus it generally should not be undertaken.

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."

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." The textural classes are defined as follows:

Sands (coarse sand, sand, fine sand, and very fine sand).—Soil material in which the content of sand is 85 or more percent and the percentage of silt plus 1.5 times the percentage of clay does not exceed 15.

Loamy sands (loamy coarse sand, loamy sand, loamy fine sand, and loamy very fine sand).—Soil material in which, at the upper limit, the content of sand is 85 to 90 percent and the percentage of silt plus 1.5 times the percentage of clay is not less than 15; at the lower limit, the content of sand is 70 to 85 percent and the percentage of silt plus twice the percentage of clay does not exceed 30.

Sandy loams (coarse sandy loam, sandy loam, fine sandy loam, and very fine sandy loam).—Soil material in which the content of clay is 20 percent or less, the percentage of silt plus twice the percentage of clay exceeds 30, and the content of sand is 52 percent or more or soil material in which the content of clay is less than 7 percent, the content of silt is less than 50 percent, and the content of sand is 43 to 52 percent.

Loam.—Soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

Silt loam.—Soil material that contains 50 or more percent silt and 12 to 27 percent clay or 50 to 80 percent silt and less than 12 percent clay.

Silt.—Soil material that contains 80 or more percent silt and less than 12 percent clay.

Sandy clay loam.—Soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 or more percent sand.

Clay loam.—Soil material that contains 27 to 40 percent clay and 20 to 45 percent sand.

Silty clay loam.—Soil material that contains 27 to 40 percent clay and less than 20 percent sand.

Sandy clay.—Soil material that contains 35 or more percent clay and 45 or more percent sand.

Silty clay.—Soil material that contains 40 or more percent clay and 40 or more percent silt.

Clay.—Soil material that contains 40 or more percent clay, less than 45 percent sand, and less than 40 percent silt.

Thin layer (in tables). An otherwise suitable soil material that is too thin for the specified use.

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

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topography. The relative positions and elevations of the natural or manmade features of an area that describe the configuration of its surface.

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.

Underlying material. Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

Understory. The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portions of adjacent trees and other woody growth.

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

Water table (apparent). A thick zone of free water in the soil. The apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table (perched). A saturated zone of water in the soil standing above an unsaturated zone.

Water table (seasonal high). The highest level of a saturated zone in the soil (the apparent or perched water table) over a continuous period of more than 2 weeks in most years, but not a permanent water table.

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.

Wetness. A general term applied to soils that hold water at or near the surface long enough to be a common management problem.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-81 at Statesville, North Carolina)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	50.5	26.3	38.4	74	-2	36	3.71	1.75	5.30	7	4.4
February	54.2	28.1	41.2	74	5	39	3.87	2.19	5.35	7	2.8
March	62.4	34.7	48.6	83	15	109	4.75	3.02	6.30	9	2.0
April	73.2	44.1	58.7	90	24	268	3.44	1.90	4.80	7	.0
May	79.6	53.1	66.4	93	32	508	3.85	2.14	5.36	7	.0
June	85.5	60.7	73.1	98	44	693	4.69	2.88	6.31	8	.0
July	88.5	64.7	76.6	98	51	825	3.64	1.97	5.11	7	.0
August	87.5	63.8	75.7	98	50	797	4.29	2.51	5.86	7	.0
September	81.8	57.1	69.5	95	39	585	4.13	1.37	6.40	5	.0
October	72.3	44.6	58.5	88	23	281	3.18	.98	4.97	5	.0
November	62.1	35.0	48.6	80	14	62	2.92	1.51	4.14	5	.2
December	52.5	28.0	40.3	73	7	21	3.90	1.85	5.66	7	.6
Yearly:											
Average	70.8	45.0	58.0	---	---	---	---	---	---	---	---
Extreme	---	---	---	100	-2	---	---	---	---	---	---
Total	---	---	---	---	---	4,224	46.37	40.97	51.53	81	10.0

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

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1951-81 at Statesville, North 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--	Apr. 13	May 1	May 11
2 years in 10 later than--	Apr. 5	Apr. 24	May 5
5 years in 10 later than--	Mar. 22	Apr. 11	Apr. 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 22	Oct. 12	Oct. 3
2 years in 10 earlier than--	Oct. 29	Oct. 16	Oct. 8
5 years in 10 earlier than--	Nov. 10	Oct. 25	Oct. 18

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-81 at Statesville, North 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	198	170	150
8 years in 10	210	179	159
5 years in 10	233	197	178
2 years in 10	256	215	196
1 year in 10	268	224	206

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

Map symbol	Soil name	Acres	Percent
AaA	Altavista fine sandy loam, 0 to 2 percent slopes, occasionally flooded	736	0.4
ApB	Appling sandy loam, 2 to 8 percent slopes	1,526	0.9
ArA	Armenia loam, 0 to 2 percent slopes, frequently flooded	759	0.4
BuB	Buncombe loamy sand, 0 to 5 percent slopes, frequently flooded	939	0.6
CeB2	Cecil sandy clay loam, 2 to 8 percent slopes, eroded	13,159	7.7
ChA	Chewacla loam, 0 to 2 percent slopes, frequently flooded	16,068	9.4
EnB	Enon fine sandy loam, 2 to 8 percent slopes	15,552	9.1
EnC	Enon fine sandy loam, 8 to 15 percent slopes	1,554	0.9
EsC	Enon fine sandy loam, 2 to 15 percent slopes, very stony	416	0.2
GaD	Gaston loam, 15 to 25 percent slopes	1,773	1.0
GnB2	Gaston clay loam, 2 to 8 percent slopes, eroded	17,098	10.0
GnC2	Gaston clay loam, 8 to 15 percent slopes, eroded	5,635	3.3
GrB	Granville gravelly sandy loam, 2 to 8 percent slopes	194	0.1
IrB	Iredell loam, 1 to 6 percent slopes	1,005	0.6
MaB	Masada fine sandy loam, 2 to 6 percent slopes	771	0.5
MdB	Mayodan silt loam, 2 to 8 percent slopes	916	0.5
MdC	Mayodan silt loam, 8 to 15 percent slopes	240	0.1
MdD	Mayodan silt loam, 15 to 25 percent slopes	1,902	1.1
MdE	Mayodan silt loam, 25 to 45 percent slopes	982	0.6
MnB2	Mayodan silty clay loam, 2 to 8 percent slopes, eroded	5,886	3.5
MnC2	Mayodan silty clay loam, 8 to 15 percent slopes, eroded	5,131	3.0
MrB2	Mecklenburg clay loam, 2 to 8 percent slopes, eroded	5,173	3.0
MrC2	Mecklenburg clay loam, 8 to 15 percent slopes, eroded	2,316	1.4
MsB	Mocksville sandy loam, 2 to 8 percent slopes	1,364	0.8
MsC	Mocksville sandy loam, 8 to 15 percent slopes	7,520	4.4
MsD	Mocksville sandy loam, 15 to 45 percent slopes	5,181	3.1
PaD	Pacolet sandy loam, 15 to 40 percent slopes	8,228	4.8
PcB2	Pacolet sandy clay loam, 2 to 8 percent slopes, eroded	11,792	6.9
PcC2	Pacolet sandy clay loam, 8 to 15 percent slopes, eroded	16,591	9.7
Pt	Pits, quarries	92	0.1
RnC	Rion sandy loam, 8 to 15 percent slopes	1,451	0.8
RnD	Rion sandy loam, 15 to 40 percent slopes	5,422	3.2
RvA	Riverview loam, 0 to 2 percent slopes, frequently flooded	2,382	1.4
RwA	Roanoke loam, 0 to 2 percent slopes, occasionally flooded	546	0.3
SeB	Sedgefield sandy loam, 1 to 6 percent slopes	997	0.6
Ud	Udorthents, loamy	718	0.4
Ur	Urban land	510	0.3
WeB	Wedowee sandy loam, 2 to 8 percent slopes	3,325	2.0
WeC	Wedowee sandy loam, 8 to 15 percent slopes	3,686	2.2
	Water areas less than 40 acres	1,082	0.6
	Water areas more than 40 acres	179	0.1
	Total	170,797	100.0

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

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Corn silage	Soybeans	Tobacco	Wheat	Grass-legume hay	Pasture
		Bu	Tons	Bu	Lbs	Bu	Tons	AUM*
AaA--Altavista	IIw	125	25	45	2,800	55	---	11.5
ApB--Appling	IIe	95	19	30	2,500	45	4.6	6.0
ArA--Armenia	VIw	---	---	---	---	---	---	6.0
BuB--Buncombe	Vw	---	---	---	---	---	---	3.0
CeB2--Cecil	IIIe	115	23	35	2,200	45	4.5	7.5
ChA--Chewacla	IVw	130	26	30	2,000	30	5.4	9.0
EnB--Enon	IIIe	110	---	30	---	40	5.1	8.5
EnC--Enon	IVe	85	17	25	---	---	4.8	8.0
EsC--Enon	VIs	---	---	---	---	---	---	4.5
GaD--Gaston	VIe	---	---	---	---	---	---	7.5
GnB2--Gaston	IIIe	130	25	35	---	50	5.5	8.3
GnC2--Gaston	IVe	115	23	25	---	40	5.0	7.6
GrB--Granville	IIs	75	---	---	2,000	35	4.6	6.0
IrB--Iredell	IIe	110	22	---	---	30	3.6	8.0
MaB--Masada	IIe	120	24	35	---	45	4.8	8.5
MdB--Mayodan	IIe	95	---	30	2,600	40	5.1	8.0
MdC--Mayodan	IVe	75	---	25	---	30	4.2	7.0
MdD--Mayodan	VIe	---	---	---	---	---	---	6.0
MdE--Mayodan	VIIe	---	---	---	---	---	---	6.0

See footnote at end of table.

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

Map symbol and soil name	Land capability	Corn	Corn silage	Soybeans	Tobacco	Wheat	Grass-legume hay	Pasture
		Bu	Tons	Bu	Lbs	Bu	Tons	AUM*
MnB2--Mayodan	IIIe	85	---	25	2,400	35	4.2	7.0
MnC2--Mayodan	IVe	75	---	20	2,100	30	3.6	6.0
MrB2--Mecklenburg	IIIe	115	23	30	1,800	45	4.4	7.3
MrC2--Mecklenburg	IVe	100	20	---	---	35	---	6.5
MsB--Mocksville	IIe	95	19	25	---	40	3.6	6.0
MsC--Mocksville	IVe	70	---	20	---	35	3.3	5.5
MsD--Mocksville	VIIe	---	---	---	---	---	---	5.0
PaD--Pacolet	VIIe	---	---	---	---	---	---	5.0
PcB2--Pacolet	IIIe	105	21	30	2,200	45	3.9	6.5
PcC2--Pacolet	IVe	95	19	25	1,900	35	3.6	6.0
Pt--Pits	VIIIs	---	---	---	---	---	---	---
RnC--Rion	IVe	---	---	---	---	---	---	4.0
RnD--Rion	VIIe	---	---	---	---	---	---	3.0
RvA--Riverview	IVw	140	28	40	2,200	---	4.8	8.0
RwA--Roanoke	IVw	100	18	35	---	40	2.5	8.0
SeB--Sedgefield	IIe	100	20	25	---	---	3.3	5.5
Ud--Udorthents	VIIIe	---	---	---	---	---	---	---
Ur--Urban land	VIIIs	---	---	---	---	---	---	---
WeB--Wedowee	IIe	95	19	30	2,000	35	3.6	6.0
WeC--Wedowee	IVe	85	17	---	---	---	3.3	5.5

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--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	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Potential productivity: Common trees	Site index	Volume*	Trees to plant
AaA---- Altavista	9A	Slight	Slight	Slight	Loblolly pine	91	133	Loblolly pine.
					Shortleaf pine	---	---	
					Sweetgum	---	---	
					White oak	57	59	
					Red maple	---	---	
					Yellow-poplar	---	---	
					Southern red oak	---	---	
					Water oak	---	---	
					American sycamore	---	---	
					River birch	---	---	
ApB---- Appling	8A	Slight	Slight	Slight	Loblolly pine	81	112	Loblolly pine.
					Shortleaf pine	65	99	
					Virginia pine	74	114	
					Southern red oak	---	---	
					White oak	90	72	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Hickory	---	---	
ArA---- Armenia	6W	Slight	Moderate	Moderate	Loblolly pine	67	88	Loblolly pine.
					Shortleaf pine	58	84	
					White oak	47	32	
					Water oak	---	---	
					Sweetgum	---	---	
					Willow oak	---	---	
					Green ash	---	---	
					Red maple	---	---	
BuB---- Buncombe	8S	Slight	Moderate	Moderate	Yellow-poplar	100	107	Loblolly pine.
					Eastern cottonwood	100	---	
					American sycamore	90	---	
					Sweetgum	90	106	
					Loblolly pine	90	90	
CeB2---- Cecil	7C	Slight	Moderate	Moderate	Loblolly pine	72	96	Loblolly pine.
					Shortleaf pine	63	95	
					Virginia pine	65	100	
					Northern red oak	---	---	
					White oak	64	47	
					Hickory	---	---	
					Yellow-poplar	---	---	
ChA---- Chewacla	9W	Slight	Moderate	Slight	Sweetgum	95	128	Yellow-poplar,
					Yellow-poplar	95	98	sweetgum,
					American sycamore	---	---	American
					Water oak	80	74	sycamore.
					Eastern cottonwood	---	---	
					Green ash	---	---	
					Blackgum	---	---	
					Red maple	---	---	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Potential productivity: Common trees	Site index	Volume*	Trees to plant
EnB, EnC Enon	7A	Slight	Slight	Slight	Loblolly pine Shortleaf pine Virginia pine Northern red oak Sweetgum White oak Yellow-poplar Hickory Southern red oak	73 63 --- --- 87 --- 88 --- ---	98 95 --- --- 98 --- 86 --- ---	Loblolly pine.
EsC Enon	7X	Slight	Moderate	Severe	Loblolly pine Shortleaf pine Virginia pine Northern red oak Sweetgum White oak Yellow-poplar Hickory Southern red oak	73 63 --- --- 87 --- 88 --- ---	98 96 --- --- 98 --- 96 --- ---	Loblolly pine.
GaD Gaston	9R	Moderate	Moderate	Slight	Loblolly pine Shortleaf pine Virginia pine Yellow-poplar White oak Southern red oak Sweetgum Hickory Northern red oak	90 --- --- --- --- --- --- --- ---	131 --- --- --- --- --- --- --- ---	Loblolly pine.
GnB2, GnC2 Gaston	8C	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine Yellow-poplar White oak Southern red oak Sweetgum Shortleaf pine Virginia pine	85 --- --- --- --- --- --- ---	120 --- --- --- --- --- --- ---	
GrB Granville	7A	Slight	Slight	Slight	Loblolly pine Shortleaf pine Virginia pine Southern red oak White oak Black oak Post oak Hickory Red maple Sweetgum Yellow-poplar Elm	77 --- --- --- --- --- --- --- --- --- --- ---	105 --- --- --- --- --- --- --- --- --- --- ---	Loblolly pine.
IrB Iredell	6C	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine Post oak White oak Sweetgum	67 58 44 47 ---	88 84 29 32 ---	Loblolly pine, eastern redcedar.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Potential productivity: Common trees	Site index	Volume*	Trees to plant
MaB---- Masada	8A	Slight	Slight	Slight	Loblolly pine	80	110	Loblolly pine, yellow-poplar, eastern white pine.
					Southern red oak	70	52	
					Virginia pine	70	109	
					Shortleaf pine	85	140	
					Yellow-poplar	80	71	
					White oak	---	---	
					Hickory	---	---	
					Sweetgum	---	---	
MdB, MdC---- Mayodan	8A	Slight	Slight	Slight	Loblolly pine	82	114	Loblolly pine.
					Shortleaf pine	70	110	
					Virginia pine	60	91	
					White oak	54	38	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Southern red oak	---	---	
					Black oak	---	---	
					Hickory	---	---	
					Scarlet oak	---	---	
					Red maple	---	---	
MdD---- Mayodan	8R	Moderate	Moderate	Slight	Loblolly pine	82	114	Loblolly pine.
					Shortleaf pine	70	110	
					Virginia pine	60	91	
					White oak	54	38	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Southern red oak	---	---	
					Black oak	---	---	
					Hickory	---	---	
					Scarlet oak	---	---	
					Red maple	---	---	
MdE---- Mayodan	8R	Severe	Severe	Slight	Loblolly pine	82	114	Loblolly pine.
					Shortleaf pine	70	110	
					Virginia pine	60	91	
					White oak	54	38	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Southern red oak	---	---	
					Black oak	---	---	
					Hickory	---	---	
					Scarlet oak	---	---	
					Red maple	---	---	
MnB2, MnC2---- Mayodan	6C	Slight	Moderate	Moderate	Loblolly pine	70	93	Loblolly pine, Virginia pine.
					Shortleaf pine	---	---	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Southern red oak	---	---	
					Virginia pine	---	---	
					Hickory	---	---	
					Scarlet oak	---	---	
					Red oak	---	---	
					White oak	---	---	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	Volume*	
MrB2, MrC2 Mecklenburg	6C	Slight	Moderate	Moderate	Loblolly pine Northern red oak Shortleaf pine Virginia pine Sweetgum White oak Hickory Yellow-poplar	66 --- 59 --- --- --- --- ---	86 --- 86 --- --- --- --- ---	Loblolly pine, Virginia pine.
MsB, MsC Mocksville	8A	Slight	Slight	Slight	Loblolly pine Virginia pine Shortleaf pine Northern red oak Black oak Scarlet oak Hickory White oak American beech Sweetgum Blackgum Yellow-poplar	82 80 78 83 --- --- --- --- --- --- --- ---	114 122 126 65 --- --- --- --- --- --- --- ---	Loblolly pine.
MsD Mocksville	8R	Moderate	Moderate	Slight	Loblolly pine Virginia pine Shortleaf pine Northern red oak Black oak Scarlet oak Hickory White oak American beech Sweetgum Blackgum Yellow-poplar	82 80 78 83 --- --- --- --- --- --- --- ---	114 122 126 65 --- --- --- --- --- --- --- ---	Loblolly pine.
PaD Pacolet	8R	Moderate	Moderate	Slight	Loblolly pine Shortleaf pine Yellow-poplar Virginia pine Northern red oak Hickory White oak American beech Southern red oak	78 70 90 --- --- --- --- --- ---	107 110 90 --- --- --- --- --- ---	Loblolly pine.
PcB2, PcC2 Pacolet	6C	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine Yellow-poplar Southern red oak Northern red oak White oak Hickory Virginia pine	70 60 80 --- --- --- --- ---	93 88 71 --- --- --- --- ---	Loblolly pine.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	Volume*	
RnC---------- Rion	8A	Slight	Slight	Slight	Loblolly pine	80	110	Loblolly pine.
					Post oak	65	48	
					Shortleaf pine	70	110	
					Southern red oak	80	62	
					Sweetgum	80	79	
					White oak	70	52	
					Yellow-poplar	90	90	
					American beech	---	---	
					Hickory	---	---	
					Red maple	---	---	
RnD---------- Rion	8R	Moderate	Moderate	Slight	Loblolly pine	80	110	Loblolly pine.
					Post oak	65	48	
					Shortleaf pine	70	110	
					Southern red oak	80	62	
					Sweetgum	80	79	
					White oak	70	52	
					Yellow-poplar	90	90	
					American beech	---	---	
					Scarlet oak	---	---	
					Hickory	---	---	
RvA---------- Riverview	10A	Slight	Slight	Slight	Sweetgum	100	138	Loblolly pine.
					Loblolly pine	90	131	
					Yellow-poplar	110	124	
					Eastern cottonwood	---	---	
					American sycamore	---	---	
					White oak	---	---	
					Willow oak	---	---	
RwA---------- Roanoke	9W	Slight	Severe	Severe	Loblolly pine	86	123	Sweetgum.
					Willow oak	76	68	
					Sweetgum	90	106	
					White oak	75	57	
					American sycamore	---	---	
					Northern red oak	---	---	
					Southern red oak	---	---	
SeB---------- Sedgefield	8W	Slight	Moderate	Slight	Loblolly pine	80	110	Loblolly pine, shortleaf pine.
					Shortleaf pine	---	---	
					Virginia pine	---	---	
					Southern red oak	---	---	
					Northern red oak	---	---	
					Sweetgum	---	---	
					Yellow-poplar	---	---	
					White oak	---	---	
WeB, WeC---------- Wedowee	8A	Slight	Slight	Slight	Loblolly pine	80	110	Loblolly pine.
					Virginia pine	70	109	
					Shortleaf pine	70	110	
					Southern red oak	70	52	
					Northern red oak	70	52	
					White oak	65	48	
					Yellow-poplar	---	---	
					Sweetgum	---	---	
					Hickory	---	---	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

TABLE 7.--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
AaA Altavista	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
ApB Appling	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
ArA Armenia	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BuB Buncombe	Severe: flooding.	Moderate: flooding, too sandy.	Severe: flooding.	Severe: flooding.	Severe: flooding, droughty.
CeB2 Cecil	Slight	Slight	Moderate: slope.	Slight	Slight.
ChA Chewacla	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
EnB Enon	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Slight	Slight.
EnC Enon	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight	Moderate: slope.
EsC Enon	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: small stones, large stones.
GaD Gaston	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
GnB2 Gaston	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
GnC2 Gaston	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
GrB Granville	Moderate: small stones.	Moderate: small stones.	Severe: small stones.	Slight	Moderate: small stones.
IrB Iredell	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
MaB Masada	Slight	Slight	Moderate: slope.	Slight	Slight.
MdB Mayodan	Slight	Slight	Moderate: slope.	Slight	Slight.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
MdC--Mayodan	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MdD--Mayodan	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MdE--Mayodan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MnB2--Mayodan	Slight	Slight	Moderate: slope.	Slight	Slight.
MnC2--Mayodan	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MrB2--Mecklenburg	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
MrC2--Mecklenburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MsB--Mocksville	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
MsC--Mocksville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
MsD--Mocksville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PaD--Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PcB2--Pacolet	Slight	Slight	Moderate: slope.	Slight	Slight.
PcC2--Pacolet	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Pt*. Pits					
RnC--Rion	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: droughty, slope.
RnD--Rion	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
RvA--Riverview	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
RwA--Roanoke	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
SeB--Sedgefield	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Ud*. Udorthents					
Ur*. Urban land					
WeB---------- Wedowee	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
WeC---------- Wedowee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--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
AaA---- Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ApB---- Appling	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ArA---- Armenia	Fair	Good	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair.
BuB---- Buncombe	Very poor.	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CeB2---- Cecil	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ChA---- Chewacla	Very poor.	Poor	Poor	Good	Good	Fair	Fair	Poor	Good	Fair.
EnB---- Enon	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EnC---- Enon	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
EsC---- Enon	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
GaD---- Gaston	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
GnB2---- Gaston	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
GnC2---- Gaston	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GrB---- Granville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
IrB---- Iredell	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MaB---- Masada	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MdB---- Mayodan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MdC---- Mayodan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MdD---- Mayodan	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MdE---- Mayodan	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

TABLE 8.--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
MnB2---------- Mayodan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MnC2---------- Mayodan	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MrB2---------- Mecklenburg	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
MrC2---------- Mecklenburg	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
MsB---------- Mocksville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MsC---------- Mocksville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MsD---------- Mocksville	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
PaD---------- Pacolet	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
PcB2---------- Pacolet	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
PcC2---------- Pacolet	Very poor.	Poor	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Pt*. Pits										
RnC---------- Rion	Poor	Fair	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
RnD---------- Rion	Very poor.	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
RvA---------- Riverview	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor.
RwA---------- Roanoke	Poor	Poor	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
SeB---------- Sedgefield	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Ud*. Udorthents										
Ur*. Urban land										
WeB, WeC---------- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaA--Altavista	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
ApB--Appling	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
ArA--Armenia	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, wetness, low strength.	Severe: wetness, flooding.
BuB--Buncombe	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, droughty.
CeB2--Cecil	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
ChA--Chewacla	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
EnB--Enon	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, shrink-swell.	Slight.
EnC--Enon	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: slope.
EsC--Enon	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: low strength, shrink-swell.	Severe: small stones, large stones.
GaD--Gaston	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
GnB2--Gaston	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
GnC2--Gaston	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
GrB--Granville	Slight	Slight	Slight	Moderate: slope.	Slight	Moderate: small stones.
IrB--Iredell	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.

TABLE 9.--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
MaB---------- Masada	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
MdB---------- Mayodan	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
MdC---------- Mayodan	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MdD, MdE---------- Mayodan	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
MnB2---------- Mayodan	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.
MnC2---------- Mayodan	Moderate: too clayey, slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MrB2---------- Mecklenburg	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
MrC2---------- Mecklenburg	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
MsB---------- Mocksville	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
MsC---------- Mocksville	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
MsD---------- Mocksville	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PaD---------- Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
PcB2---------- Pacolet	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
PcC2---------- Pacolet	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: low strength, slope.	Moderate: slope.
Pt*. Pits						
RnC---------- Rion	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.

See footnote at end of table.

TABLE 9.--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
RnD---------- Rion	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
RvA---------- Riverview	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
RwA---------- Roanoke	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
SeB---------- Sedgefield	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
Ud*. Udorthents						
Ur*. Urban land						
WeB---------- Wedowee	Moderate: too clayey.	Moderate: shrink-swell.	Slight---------	Moderate: shrink-swell, slope.	Moderate: low strength, shrink-swell.	Slight.
WeC---------- Wedowee	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Moderate: shrink-swell, low strength, slope.	Moderate: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaA Altavista	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness, too clayey.
ApB Appling	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
ArA Armenia	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
BuB Buncombe	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
CeB2 Cecil	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
ChA Chewacla	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: hard to pack, wetness.
EnB Enon	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
EnC, EsC Enon	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
GaD Gaston	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
GnB2 Gaston	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
GnC2 Gaston	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
GrB Granville	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
IrB Iredell	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Moderate: wetness.	Poor: too clayey, hard to pack.

TABLE 10.--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
MaB Masada	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
MdB Mayodan	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
MdC Mayodan	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MdD, MdE Mayodan	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: slope, too clayey, hard to pack.
MnB2 Mayodan	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
MnC2 Mayodan	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MrB2 Mecklenburg	Severe: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
MrC2 Mecklenburg	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
MsB Mocksville	Moderate: percs slowly.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
MsC Mocksville	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too sandy, slope.
MsD Mocksville	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
PaD Pacolet	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
PcB2 Pacolet	Moderate: percs slowly.	Moderate: seepage, slope.	Slight	Slight	Fair: too clayey.
PcC2 Pacolet	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: too clayey, slope.
Pt*. Pits					
RnC Rion	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.

See footnote at end of table.

TABLE 10.--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
RnD Rion	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
RvA Riverview	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
RwA Roanoke	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
SeB Sedgefield	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Ud*. Udorthents					
Ur*. Urban land					
WeB Wedowee	Moderate: percs slowly.	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
WeC Wedowee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AaA Altavista	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ApB Appling	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ArA Armenia	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, too clayey.
BuB Buncombe	Good	Probable	Improbable: too sandy.	Fair: too sandy.
CeB2 Cecil	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ChA Chewacla	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
EnB, EnC Enon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
EsC Enon	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
GaD Gaston	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
GnB2, GnC2 Gaston	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
GrB Granville	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
IrB Iredell	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
MaB Masada	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, too clayey.
MdB, MdC Mayodan	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MdD Mayodan	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
MdE---- Mayodan	Poor: slope, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
MnB2, MnC2---- Mayodan	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MrB2, MrC2---- Mecklenburg	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MsB---- Mocksville	Good----	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
MsC---- Mocksville	Good----	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, slope.
MsD---- Mocksville	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
PaD---- Pacolet	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
PcB2, PcC2---- Pacolet	Good----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Pt*. Pits				
RnC---- Rion	Good----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
RnD---- Rion	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
RvA---- Riverview	Good----	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
RwA---- Roanoke	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
SeB---- Sedgefield	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ud*. Udorthents				
Ur*. Urban land				
WeB, WeC---- Wedowee	Good----	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AaA---Altavista	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness	Wetness	Favorable.
ApB---Appling	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Favorable	Favorable.
ArA---Armenia	Slight	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
BuB---Buncombe	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy	Droughty, rooting depth.
CeB2---Cecil	Moderate: seepage, slope.	Severe: piping, hard to pack.	Deep to water	Slope	Favorable	Favorable.
ChA---Chewacla	Moderate: seepage.	Severe: piping, hard to pack, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
EnB---Enon	Moderate: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly	Percs slowly.
EnC---Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
EsC---Enon	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, large stones, percs slowly.	Large stones, slope, percs slowly.
GaD---Gaston	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope	Slope.
GnB2---Gaston	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water	Slope	Favorable	Favorable.
GnC2---Gaston	Severe: slope.	Severe: hard to pack.	Deep to water	Slope	Slope	Slope.
GrB---Granville	Moderate: seepage, slope.	Slight	Deep to water	Droughty, slope, rooting depth.	Favorable	Droughty, rooting depth.
IrB---Iredell	Moderate: slope.	Severe: hard to pack.	Percs slowly, slope.	Slope, wetness.	Wetness	Wetness, percs slowly.
MaB---Masada	Moderate: seepage, slope.	Moderate: thin layer, hard to pack.	Deep to water	Slope	Favorable	Favorable.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
MdB---------- Mayodan	Moderate: seepage.	Severe: hard to pack.	Deep to water	Slope----------	Favorable------	Favorable.
MdC, MdD, MdE----- Mayodan	Severe: slope.	Severe: hard to pack.	Deep to water	Slope----------	Slope----------	Slope.
MnB2---------- Mayodan	Moderate: seepage.	Severe: hard to pack.	Deep to water	Slope----------	Favorable------	Favorable.
MnC2---------- Mayodan	Severe: slope.	Severe: hard to pack.	Deep to water	Slope----------	Slope----------	Slope.
MrB2---------- Mecklenburg	Moderate: slope, seepage.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Percs slowly---	Percs slowly.
MrC2---------- Mecklenburg	Severe: slope.	Severe: hard to pack.	Deep to water	Percs slowly, slope.	Slope, percs slowly.	Slope, percs slowly.
MsB---------- Mocksville	Severe: seepage.	Severe: seepage, piping.	Deep to water	Slope----------	Favorable------	Favorable.
MsC, MsD---------- Mocksville	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Slope----------	Slope----------	Slope.
PaD---------- Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope----------	Soil blowing, slope.	Slope.
PcB2---------- Pacolet	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope----------	Favorable------	Favorable.
PcC2---------- Pacolet	Severe: slope.	Severe: piping.	Deep to water	Slope----------	Slope----------	Slope.
Pt*. Pits						
RnC, RnD---------- Rion	Severe: seepage, slope.	Severe: piping.	Deep to water	Droughty, slope.	Soil blowing, slope.	Slope, droughty.
RvA---------- Riverview	Severe: seepage.	Severe: piping.	Deep to water	Flooding-------	Favorable------	Favorable.
RwA---------- Roanoke	Severe: seepage.	Severe: wetness.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
SeB---------- Sedgefield	Moderate: seepage, slope.	Severe: hard to pack.	Percs slowly, slope.	Slope, wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Ud*. Udorthents						
Ur*. Urban land						

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
WeB---------- Wedowee	Moderate: slope, seepage.	Severe: piping.	Deep to water	Slope----------	Favorable------	Favorable.
WeC---------- Wedowee	Severe: slope.	Severe: piping.	Deep to water	Slope----------	Slope----------	Slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--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		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
AaA--- Altavista	0-18	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	95-100	90-100	65-99	35-60	<23	NP-7
	18-46	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	46-60	Variable---	---	---	---	---	---	---	---	---	---
ApB--- Appling	0-12	Sandy loam---	SM	A-2	0-5	86-100	80-100	55-91	15-35	<27	NP-5
	12-36	Sandy clay, clay loam, clay.	MH, ML, CL	A-7	0-5	95-100	90-100	70-95	51-80	41-74	15-30
	36-45	Sandy clay, clay loam, sandy clay loam.	SC, CL	A-4, A-6, A-7	0-5	95-100	85-100	70-90	40-75	25-45	8-22
	45-60	Variable---	---	---	---	---	---	---	---	---	---
ArA--- Armenia	0-3	Loam---	CL-ML, CL, ML	A-4, A-6, A-7-6	0-1	95-100	90-100	75-95	51-80	20-50	5-20
	3-64	Clay, clay loam	CH	A-7	0-1	95-100	95-100	85-100	65-95	55-100	30-70
	64-77	Sandy loam, sandy clay loam, clay loam.	SC, CL	A-2, A-4, A-6	0-5	85-100	75-100	55-90	30-70	25-40	7-20
BuB--- Buncombe	0-12	Loamy sand---	SM, SP-SM	A-2, A-3	0	98-100	98-100	90-97	7-32	---	NP
	12-52	Loamy sand, loamy fine sand, sand.	SM, SP-SM	A-2, A-3	0	98-100	98-100	98-100	7-32	---	NP
	52-65	Variable---	---	---	---	---	---	---	---	---	---
CeB2--- Cecil	0-10	Sandy clay loam	SM, SC, CL, ML	A-4, A-6	0-5	75-100	75-100	68-95	38-81	21-40	3-18
	10-56	Clay, clay loam	MH, ML	A-7, A-5	0-5	97-100	92-100	72-99	55-95	41-80	9-37
	56-62	Variable---	---	---	---	---	---	---	---	---	---
ChA--- Chewacla	0-5	Loam---	ML, CL, CL-ML	A-4, A-6, A-7	0	98-100	95-100	70-100	55-90	25-49	4-20
	5-52	Sandy clay loam, loam, sandy loam.	SM, SM-SC, ML, CL	A-4, A-7-6, A-6	0	96-100	95-100	60-100	36-70	20-45	NP-15
	52-64	Variable---	---	---	---	---	---	---	---	---	---
EnB, EnC--- Enon	0-9	Fine sandy loam	SM, SM-SC, SC	A-2-4, A-4	0-5	80-100	80-100	60-85	25-49	<30	NP-10
	9-36	Clay loam, clay	CH, CL	A-7-6	0-5	85-100	80-100	75-98	65-95	40-75	25-49
	36-60	Variable---	---	---	---	---	---	---	---	---	---
EsC--- Enon	0-6	Fine sandy loam	GM, GC, SM, SC	A-1, A-2-4	25-50	45-85	35-75	25-55	10-35	<30	NP-10
	6-25	Clay, clay loam	CH, CL	A-7-6	0-10	85-100	80-100	65-98	55-95	40-75	25-49
	25-60	Variable---	---	---	---	---	---	---	---	---	---
GaD--- Gaston	0-8	Loam---	SM, ML, CL-ML	A-2, A-4	0-5	90-100	84-100	80-95	30-75	<30	NP-7
	8-55	Clay, clay loam	CL, CH, ML, MH	A-7	0-5	95-100	90-100	80-99	65-97	40-82	12-37
	55-70	Clay loam, sandy clay loam, loam.	CL, SC	A-4, A-6, A-7	0-5	90-100	84-100	75-95	36-75	25-50	7-23
	70-80	Variable---	---	---	---	---	---	---	---	---	---

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
GnB2, GnC2--- Gaston	0-10	Clay loam---	CL, SC, CL-ML, SM-SC	A-4, A-6	0-5	90-100	84-100	75-96	36-88	25-40	5-20
	10-62	Clay, clay loam	CL, CH, ML, MH	A-7	0-5	95-100	90-100	80-99	65-90	40-75	12-37
	62-74	Clay loam, sandy clay loam, loam.	CL, SC	A-4, A-6, A-7	0-5	90-100	84-100	75-95	36-75	25-50	7-23
	74-80	Variable---	---	---	---	---	---	---	---	---	---
GrB--- Granville	0-14	Gravelly sandy loam, sandy loam.	SM, GM	A-2, A-1-b	0-5	60-95	60-80	40-60	12-35	<25	NP-3
	14-44	Clay loam, sandy clay loam.	SC	A-4, A-6, A-7	0-3	99-100	96-100	57-69	36-49	25-48	9-25
	44-60	Sandy loam, loam, sandy clay loam.	SM, SM-SC	A-2, A-4, A-1-b	0-3	95-100	80-98	45-65	20-49	<30	NP-7
IrB--- Iredell	0-9	Loam---	ML, CL-ML, CL	A-4, A-6	0-1	99-100	95-100	80-95	51-70	25-38	5-12
	9-24	Clay---	CH	A-7	0	99-100	60-100	60-100	55-95	54-100	29-85
	24-28	Sandy clay loam, clay loam.	CL, CH, SC	A-7	0-1	98-100	85-100	70-95	40-75	41-60	20-39
	28-60	Variable---	---	---	---	---	---	---	---	---	---
MaB--- Masada	0-8	Fine sandy loam	ML, SM, SC, CL	A-4, A-6	0-5	90-100	90-98	60-95	35-75	<30	NP-15
	8-36	Clay loam, clay, sandy clay.	CH, CL	A-7, A-6	0-10	80-100	90-100	65-95	50-80	35-60	15-35
	36-62	Sandy loam, clay loam, gravelly sandy clay loam.	CL, ML	A-6, A-7, A-4	0-10	80-100	90-100	65-95	50-80	30-45	7-20
MdB, MdC, MdD, MdE--- Mayodan	0-11	Silt loam---	SM, ML	A-2, A-4	0-5	92-100	83-100	49-98	30-70	<36	NP-8
	11-34	Clay, silty clay loam, silty clay.	MH, CH, CL, ML	A-7	0-2	95-100	90-100	80-100	50-98	41-80	15-45
	34-60	Variable---	---	---	---	---	---	---	---	---	---
MnB2, MnC2--- Mayodan	0-7	Silty clay loam	CL, ML	A-4, A-6, A-7-6	0-5	95-100	95-100	90-100	40-90	25-50	7-26
	7-38	Clay, silty clay loam, silty clay.	MH, CH, CL, ML	A-7	0-2	95-100	90-100	80-100	50-98	41-80	15-45
	38-60	Variable---	---	---	---	---	---	---	---	---	---
MrB2, MrC2--- Mecklenburg	0-7	Clay loam---	CL	A-6, A-7-6	0-5	90-100	90-100	80-100	50-80	25-49	11-25
	7-39	Clay---	CH, MH	A-7	0-5	90-100	85-100	80-100	75-95	51-75	20-43
	39-58	Loam, sandy clay loam, clay loam.	CL	A-4, A-6, A-7	0-5	90-100	85-100	80-100	50-80	25-49	8-25
	58-70	Variable---	---	---	---	---	---	---	---	---	---
MsB, MsC, MsD--- Mocksville	0-6	Sandy loam---	SM, SM-SC, ML, CL-ML	A-2-4, A-4	0-3	90-100	85-100	50-100	30-60	<25	NP-7
	6-20	Loam, sandy clay loam, clay loam.	SC, CL	A-6, A-7-6	0-3	90-100	85-100	80-100	35-70	29-45	11-20
	20-25	Sandy loam, fine sandy loam, loam.	SC, ML, CL, SM-SC	A-2-4, A-4, A-6	0-3	90-100	85-100	50-100	30-60	<35	NP-12
	25-60	Loamy sand, sandy loam, loam.	SM, SC, ML, CL-ML	A-2-4, A-4, A-6	0-5	85-100	80-100	50-100	15-60	<35	NP-12

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
PaD--- Pacolet	0-7	Sandy loam---	SM, SM-SC	A-2, A-1-b, A-4	0-2	85-100	80-100	42-90	16-42	<28	NP-7
	7-21	Sandy clay, clay loam, clay.	ML, MH, CH	A-6, A-7	0-1	80-100	80-100	60-95	51-75	38-65	11-32
	21-29	Clay loam, sandy clay loam, loam.	CL, CL-ML, SM-SC, SC	A-2, A-4, A-6	0-2	80-100	70-100	60-80	30-60	20-35	5-15
	29-60	Sandy loam, fine sandy loam, loam.	SM, SM-SC	A-4, A-2	0-2	80-100	70-100	60-80	30-50	25-50	NP-11
PcB2, PcC2--- Pacolet	0-7	Sandy clay loam	SM-SC, SC, CL	A-4, A-6	0-1	95-100	90-100	65-85	36-51	20-40	4-17
	7-26	Sandy clay, clay loam, clay.	ML, MH	A-6, A-7	0-1	80-100	80-100	60-95	51-75	38-65	11-33
	26-36	Clay loam, sandy clay loam, loam.	CL, CL-ML, SM-SC, SC	A-2, A-4, A-6	0-2	80-100	70-100	60-80	30-60	20-35	5-15
	36-60	Sandy loam, fine sandy loam, loam.	SM, SM-SC	A-4, A-2	0-2	80-100	70-100	60-80	30-50	25-50	NP-11
Pt*. Pits											
RnC, RnD--- Rion	0-12	Sandy loam---	SM	A-2, A-4	0-2	90-100	85-100	60-80	20-45	<35	NP-7
	12-32	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL-ML, CL	A-2, A-4, A-6	0-2	90-100	85-100	60-85	30-60	20-35	5-15
	32-60	Sandy loam, sandy clay loam, loamy sand.	SC, SM, SM-SC	A-2, A-4, A-6	0-2	90-100	80-100	60-85	15-50	<36	NP-12
RvA--- Riverview	0-10	Loam---	CL, CL-ML, ML	A-4, A-6	0	100	100	90-100	60-80	15-30	3-14
	10-36	Clay loam, silty clay loam, loam.	CL, ML, CL-ML	A-4, A-6	0	100	100	90-100	60-95	20-40	3-20
	36-60	Loamy fine sand, sandy loam, sand.	SM, SM-SC	A-2, A-4	0	100	100	50-95	15-45	<20	NP-7
RwA--- Roanoke	0-11	Loam---	SM-SC, CL-ML, CL, SC	A-4, A-6	0	95-100	85-100	60-100	35-90	20-35	5-16
	11-44	Clay, silty clay, clay loam.	CH, CL	A-7	0	90-100	85-100	85-100	65-95	45-70	22-40
	44-72	Stratified sand to clay.	CL-ML, GM-GC, CH, SM	A-1, A-2, A-4	0-5	40-100	35-100	25-95	15-90	10-60	NP-40
SeB--- Sedgefield	0-9	Sandy loam---	SM, SC, ML, CL	A-2, A-4, A-6	0-5	90-100	85-100	50-100	30-60	<35	NP-12
	9-29	Sandy clay, clay loam, clay.	CL, CH	A-7	0-5	95-100	95-100	73-93	60-85	45-85	25-60
	29-34	Sandy clay loam, clay loam.	SC, CL	A-6, A-7, A-4	0-5	95-100	90-100	60-90	36-65	20-45	8-25
	34-60	Variable---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
Ud*. Udorthents											
Ur*. Urban land											
WeB, WeC---------- Wedowee	0-12	Sandy loam-------	SM, SM-SC	A-4, A-2-4	0	95-100	80-100	60-99	23-50	<30	NP-6
	12-35	Sandy clay, clay loam, clay.	SC, CH, CL, MH	A-6, A-7	0	95-100	95-100	65-97	45-75	30-62	10-32
	35-60	Sandy clay loam, clay loam, sandy loam.	SC, SM, CL, CL-ML	A-2, A-4, A-6, A-7	0	80-100	70-100	60-80	30-60	20-54	5-18

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--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 "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	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
AaA---------- Altavista	0-18	10-20	2.0-6.0	0.12-0.20	3.6-6.0	Low----------	0.24	5	.5-3
	18-46	18-35	0.6-2.0	0.12-0.20	3.6-6.0	Low----------	0.24		
	46-60	---	---	---	---	----------	----		
ApB---------- Appling	0-12	5-20	2.0-6.0	0.10-0.15	4.5-5.5	Low----------	0.24	4	.5-2
	12-36	35-60	0.6-2.0	0.15-0.17	4.5-5.5	Low----------	0.28		
	36-45	20-50	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	0.28		
	45-60	---	---	---	---	----------	----		
ArA---------- Armenia	0-3	10-27	0.6-2.0	0.16-0.24	5.6-7.3	Low----------	0.37	5	1-4
	3-64	35-60	0.06-0.2	0.12-0.20	6.1-7.8	High----------	0.20		
	64-77	15-30	0.2-0.6	0.10-0.18	6.1-7.8	Low----------	0.28		
BuB---------- Buncombe	0-12	3-12	>6.0	0.06-0.10	6.1-6.5	Low----------	0.10	5	.5-1
	12-52	3-12	>6.0	0.03-0.07	4.5-6.0	Low----------	0.10		
	52-65	---	---	---	---	----------	----		
CeB2---------- Cecil	0-10	20-35	0.6-2.0	0.13-0.15	4.5-6.0	Low----------	0.28	3	.5-1
	10-56	35-70	0.6-2.0	0.13-0.15	4.5-5.5	Low----------	0.28		
	56-62	---	---	---	---	----------	----		
ChA---------- Chewacla	0-5	10-27	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	5	1-4
	5-52	18-35	0.6-2.0	0.12-0.20	4.5-7.8	Low----------	0.28		
	52-64	---	---	---	---	----------	----		
EnB, EnC---------- Enon	0-9	5-20	2.0-6.0	0.11-0.15	5.1-6.5	Low----------	0.28	3	.5-2
	9-36	35-60	0.06-0.2	0.12-0.16	5.1-7.8	High----------	0.28		
	36-60	---	---	---	---	----------	----		
EsC---------- Enon	0-6	5-20	2.0-6.0	0.06-0.11	5.1-6.5	Low----------	0.10	3	.5-2
	6-25	35-60	0.06-0.2	0.12-0.16	5.1-7.8	High----------	0.28		
	25-60	---	---	---	---	----------	----		
GaD---------- Gaston	0-8	15-27	2.0-6.0	0.14-0.18	5.1-6.5	Low----------	0.32	4	.5-3
	8-55	35-70	0.6-2.0	0.12-0.16	5.1-6.5	Moderate-------	0.24		
	55-70	20-40	0.6-2.0	0.10-0.15	5.1-6.5	Low----------	0.28		
	70-80	---	---	---	---	----------	----		
GnB2, GnC2------- Gaston	0-10	27-40	0.6-2.0	0.12-0.16	5.1-6.5	Low----------	0.28	4	.5-3
	10-62	35-70	0.6-2.0	0.12-0.16	5.1-6.5	Moderate-------	0.24		
	62-74	20-40	0.6-2.0	0.10-0.15	5.1-6.5	Low----------	0.28		
	74-80	---	---	---	---	----------	----		
GrB---------- Granville	0-14	4-20	2.0-6.0	0.04-0.09	4.5-6.5	Low----------	0.10	3	.5-1
	14-44	18-35	0.6-2.0	0.12-0.17	4.5-5.5	Low----------	0.20		
	44-60	8-25	0.6-2.0	0.06-0.10	4.5-5.5	Low----------	0.17		
IrB---------- Iredell	0-9	7-27	0.6-2.0	0.14-0.17	5.1-7.3	Low----------	0.32	3	.5-2
	9-24	40-60	0.06-0.2	0.16-0.22	5.6-7.3	Very high------	0.20		
	24-28	15-35	0.06-0.2	0.14-0.18	6.1-7.8	High----------	0.28		
	28-60	---	---	---	---	----------	----		
MaB---------- Masada	0-8	10-20	2.0-6.0	0.10-0.17	4.5-6.5	Low----------	0.32	4	1-3
	8-36	35-55	0.6-2.0	0.10-0.17	4.5-5.5	Moderate-------	0.24		
	36-62	25-40	0.6-2.0	0.10-0.17	4.5-5.5	Moderate-------	0.24		

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
MdB, MdC, MdD, MdE	0-11	5-27	2.0-6.0	0.11-0.17	4.5-6.5	Low	0.24	4	.5-2
Mayodan	11-34	35-60	0.6-2.0	0.12-0.18	4.5-5.5	Moderate	0.28		
	34-60	---	---	---	---	---	----		
MnB2, MnC2	0-7	27-35	0.6-2.0	0.12-0.22	4.5-6.5	Low	0.32	3	.5-2
Mayodan	7-38	35-60	0.6-2.0	0.12-0.18	4.5-5.5	Moderate	0.28		
	38-60	---	---	---	---	---	----		
MrB2, MrC2	0-7	27-40	0.6-2.0	0.12-0.14	5.6-7.3	Low	0.28	2	.5-1
Mecklenburg	7-39	40-60	0.06-0.2	0.12-0.14	5.6-7.3	Moderate	0.28		
	39-58	20-35	0.6-2.0	0.12-0.14	5.6-7.3	Low	0.32		
	58-70	---	---	---	---	---	----		
MsB, MsC, MsD	0-6	8-20	2.0-6.0	0.12-0.18	5.1-7.3	Low	0.28	3	0-2
Mocksville	6-20	18-35	0.6-2.0	0.15-0.20	5.6-7.3	Low	0.24		
	20-25	15-25	0.6-2.0	0.10-0.18	5.6-7.3	Low	0.28		
	25-60	3-20	2.0-6.0	0.05-0.15	6.1-7.8	Low	0.20		
PaD	0-7	8-20	2.0-6.0	0.08-0.12	4.5-6.5	Low	0.20	3	.5-2
Pacolet	7-21	35-65	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.28		
	21-29	15-30	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28		
	29-60	10-25	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28		
PcB2, PcC2	0-7	20-35	0.6-2.0	0.10-0.14	4.5-6.5	Low	0.24	2	.5-1
Pacolet	7-26	35-65	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.28		
	26-36	15-30	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28		
	36-60	10-25	0.6-2.0	0.08-0.15	4.5-6.0	Low	0.28		
Pt*.									
Pits									
RnC, RnD	0-12	5-20	2.0-6.0	0.08-0.12	4.5-6.5	Low	0.24	3	.5-2
Rion	12-32	18-35	0.6-2.0	0.08-0.15	4.5-6.5	Low	0.20		
	32-60	2-20	2.0-6.0	0.06-0.12	4.5-6.5	Low	0.20		
RvA	0-10	10-27	0.6-2.0	0.16-0.24	4.5-6.5	Low	0.32	5	.5-2
Riverview	10-36	18-35	0.6-2.0	0.15-0.22	4.5-6.0	Low	0.24		
	36-60	4-18	2.0-6.0	0.07-0.11	4.5-6.0	Low	0.17		
RwA	0-11	10-27	0.6-2.0	0.14-0.20	4.5-6.5	Low	0.37	4	.5-2
Roanoke	11-44	35-60	0.06-0.2	0.10-0.19	5.0-7.3	Moderate	0.24		
	44-72	5-50	0.06-20	0.04-0.14	6.1-7.8	Moderate	0.24		
SeB	0-9	8-20	2.0-6.0	0.10-0.15	4.5-6.5	Low	0.28	3	.5-2
Sedgefield	9-29	35-60	0.06-0.2	0.14-0.18	4.5-6.5	High	0.28		
	29-34	10-35	0.6-2.0	0.12-0.15	5.6-8.4	Moderate	0.28		
	34-60	---	---	---	---	---	----		
Ud*.									
Udorthents									
Ur*.									
Urban land									
WeB, WeC	0-12	6-20	2.0-6.0	0.10-0.18	4.5-6.5	Low	0.24	3	<1
Wedowee	12-35	35-45	0.6-2.0	0.12-0.18	4.5-5.5	Moderate	0.28		
	35-60	15-30	0.6-2.0	0.08-0.15	4.5-5.5	Low	0.28		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AaA---- Altavista	C	Occasional	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	Moderate	Moderate.
ApB---- Appling	B	None	---	---	>6.0	---	---	Moderate	Moderate.
ArA---- Armenia	D	Frequent	Brief	Dec-Apr	0.5-1.5	Apparent	Dec-Apr	High	Low.
BuB---- Buncombe	A	Frequent	Very brief	Feb-Jun	>6.0	---	---	Low	Moderate.
CeB2---- Cecil	B	None	---	---	>6.0	---	---	Moderate	Moderate.
ChA---- Chewacla	C	Frequent	Brief	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	High	Moderate.
EnB, EnC, EsC---- Enon	C	None	---	---	>6.0	---	---	High	Moderate.
GaD, GnB2, GnC2--- Gaston	C	None	---	---	>6.0	---	---	High	Moderate.
GrB---- Granville	B	None	---	---	>6.0	---	---	Moderate	Moderate.
IrB---- Iredell	C/D	None	---	---	1.0-2.0	Perched	Dec-Apr	High	Low.
MaB---- Masada	C	None	---	---	>6.0	---	---	High	High.
MdB, MdC, MdD, MdE, MnB2, MnC2-- Mayodan	B	None	---	---	>6.0	---	---	High	Moderate.
MrB2, MrC2---- Mecklenburg	C	None	---	---	>6.0	---	---	High	Moderate.
MsB, MsC, MsD---- Mocksville	B	None	---	---	>6.0	---	---	Moderate	Moderate.
PaD, PcB2, PcC2--- Pacolet	B	None	---	---	>6.0	---	---	High	High.
Pt*. Pits									
RnC, RnD---- Rion	B	None	---	---	>6.0	---	---	Moderate	High.
RvA---- Riverview	B	Frequent	Brief	Dec-Mar	3.0-5.0	Apparent	Dec-Mar	Low	Moderate.

See footnote at end of table.

TABLE 15.--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				
RwA Roanoke	D	Occasional	Brief	Nov-Jun	0-1.0	Apparent	Nov-May	High	High.
SeB Sedgefield	C	None	---	---	1.0-1.5	Perched	Jan-Mar	High	Moderate.
Ud*. Udorthents									
Ur*. Urban land									
WeB, WeC Wedowee	B	None	---	---	>6.0	---	---	Moderate	High.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--ENGINEERING INDEX TEST DATA

(NP means nonplastic. The soils are the typical pedons for the soil series in the survey area unless otherwise noted. For the location of the pedons, see "Soil Series and Their Morphology")

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution											Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--								Percentage smaller than--						
	AASHTO	Unified	3 in.	2 in.	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum dry density	Optimum moisture
														Pct		Lb/ft^3	Pct
Cecil sandy clay loam:[1] (S85NC-59-1)																	
Ap---- 0 to 10	A-6(9)	CL	100	100	98	98	97	96	88	66	53	45	38	40	18	98.0	26.9
Bt---- 10 to 42	A-7-5(20)	MH	100	100	100	100	100	100	93	79	71	58	51	65	30	88.4	28.3
C----- 56 to 62	A-6-5(9)	MH	100	100	100	100	100	99	84	64	42	26	20	55	13	95.9	22.8
Enon fine sandy loam:[2] (S85NC-59-2)																	
Ap---- 0 to 9	A-4(10)	SC-SM	100	100	98	97	97	97	63	42	27	16	10	28	6	122.8	15.6
Bt---- 9 to 23	A-7-5(20)	CH	100	100	100	100	100	100	91	76	60	47	38	61	31	93.9	27.1
C1---- 36 to 48	A-6(2)	SC	100	100	100	100	100	99	80	46	25	15	11	32	12	114.6	16.7
Gaston clay loam:[3] (S85NC-59-7)																	
Ap---- 0 to 10	A-6(11)	CL	100	100	100	100	100	100	96	74	59	42	26	38	16	101.3	21.8
Bt2--- 16 to 41	A-7-6(20)	CH	100	100	100	100	100	100	99	85	73	62	53	65	36	91.9	29.1
C----- 74 to 105	A-7-5(20)	MH	100	100	100	100	100	100	95	79	57	36	23	58	21	89.9	27.6
Mayodan silty clay loam: (S85NC-59-3)																	
Ap---- 0 to 7	A-7-6(15)	ML	100	100	98	97	95	95	93	88	68	40	27	43	15	96.5	22.0
Bt1--- 7 to 21	A-7-5(20)	CH	100	100	100	100	100	100	99	97	85	64	52	73	40	89.2	30.4
C----- 38 to 60	A-5(12)	ML	100	100	100	100	100	100	98	91	61	25	16	45	9	92.2	25.1
Mocksville sandy loam:[4] (S85NC-59-6)																	
A----- 0 to 6	A-2-4(0)	SM	100	100	100	98	97	95	75	35	18	11	6	21	NP	115.8	13.1
Bt---- 6 to 20	A-6(3)	SC	100	100	100	100	100	100	90	47	34	25	19	29	11	111.3	16.5
C2---- 35 to 60	A-6(1)	SC	100	100	100	100	100	100	87	36	22	16	12	30	12	113.1	17.0

See footnotes at end of table.

TABLE 16.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution											Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--								Percentage smaller than--					Maximum dry density	Optimum moisture
	AASHTO	Unified	3 in.	2 in.	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm				
														Pct		Lb/ft^3	Pct
Pacolet sandy clay loam: (S85NC-59-4)																	
Ap---- 0 to 7	A-6(5)	CL	100	100	100	100	100	100	80	51	42	34	27	39	16	106.5	17.8
Bt2--- 16 to 26	A-7-5(20)	CH	100	100	100	100	100	100	86	69	59	54	49	65	33	94.3	22.5
C2---- 35 to 60	A-2-7(0)	SM	100	100	100	100	100	100	68	35	22	17	13	50	11	103.0	19.6
Wedowee sandy loam: (S85NC-59-5)																	
Ap---- 0 to 12	A-4(0)	SC-SM	100	100	100	100	100	100	76	38	25	18	13	23	6	118.9	11.2
Bt---- 12 to 27	A-7-5(20)	CH	100	100	100	100	100	100	86	66	58	50	45	62	32	93.9	24.1
C----- 35 to 60	A-7-5(6)	SM	100	100	100	100	100	100	77	48	32	28	25	54	18	100.4	19.2

[1] The texture of the Ap horizon is clay loam with 39 percent clay. Because additional particle-size analysis of this pedon and seven other pedons indicates that a sandy clay loam texture is dominant, the texture of the typical pedon is classified as sandy clay loam.

[2] The texture of the Bt horizon is clay loam with 38 percent clay. Because additional particle-size analysis of the same horizon indicates 53 percent clay, the texture of the typical pedon is classified as clay.

[3] The texture of the Ap horizon is loam with 26 percent clay. Because additional particle-size data of the same horizon indicate that a clay loam texture is dominant, the texture of the typical pedon is classified as clay loam.

[4] The texture of the Bt horizon is fine sandy loam with 19 percent clay. Additional particle-size analysis of the same horizon indicates a clay loam texture with 32 or 33 percent clay. The difference between the values is attributed to inadequate dispersion of the clay during analysis. Therefore, the texture of the Bt horizon will be classified as clay loam in the typical pedon. The data also indicate a sandy loam texture in the C horizon. Because additional particle-size data from the same horizon indicate a loamy sand texture, the texture of the typical pedon is classified as loamy sand.

TABLE 17.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, thermic Aquic Hapludults
Appling	Clayey, kaolinitic, thermic Typic Kanhapludults
Armenia	Fine, montmorillonitic, thermic Typic Argiaquolls
Buncombe	Mixed, thermic Typic Udipsamments
Cecil	Clayey, kaolinitic, thermic Typic Kanhapludults
Chewacla	Fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts
Enon	Fine, mixed, thermic Ultic Hapludalfs
Gaston	Clayey, mixed, thermic Humic Hapludults
Granville	Fine-loamy, siliceous, thermic Typic Hapludults
Iredell	Fine, montmorillonitic, thermic Typic Hapludalfs
Masada	Clayey, mixed, thermic Typic Hapludults
Mayodan	Clayey, mixed, thermic Typic Hapludults
Mecklenburg	Fine, mixed, thermic Ultic Hapludalfs
Mocksville	Fine-loamy, mixed, thermic Typic Hapludalfs
Pacolet	Clayey, kaolinitic, thermic Typic Kanhapludults
Rion	Fine-loamy, mixed, thermic Typic Hapludults
Riverview	Fine-loamy, mixed, thermic Fluventic Dystrochrepts
*Roanoke	Clayey, mixed, thermic Typic Endoaquults
Sedgefield	Fine, mixed, thermic Aquultic Hapludalfs
Udorthents	Udorthents
Wedowee	Clayey, kaolinitic, thermic Typic Hapludults

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