SOIL SURVEY OF

Lenoir County, North Carolina

United States Department of Agriculture
Soil Conservation Service
In cooperation with
North Carolina Agricultural Experiment Station and
Lenoir County Board of Commissioners

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in the period 1969–71. Soil names and descriptions were approved in 1971. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1971. This survey was made cooperatively by the Soil Conservation Service, the North Carolina Agricultural Experiment Station, and the Lenoir County Board of Commissioners. It is part of the technical assistance furnished to the Lenoir Soil and Water Conservation District.

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

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY [illegible] soils that have the same limitation or suitability

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SOIL SURVEY OF LENOIR COUNTY, NORTH CAROLINA

BY WILLIAM L. BARNHILL, SOIL CONSERVATION SERVICE

SOILS SURVEYED BY WILLIAM L. BARNHILL, J. A. MEADOWS, JAMES DUNN, J. B. NEWMAN, AND JESSIE F. CAMPBELL

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION AND THE LENOIR COUNTY BOARD OF COMMISSIONERS

LENOIR COUNTY is in the east-central part of North Carolina (fig. 1). The county is 255,936 acres or about 400 square miles in size. According to the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of

drawing boundaries accurately. The soil map at the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series, or of different phases within one series. One such kind of mapping unit, an undifferentiated group, is shown on the soil map of Lenoir County.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils or of two or more. If there is one dominant series represented in the group, the name of the group ordinarily consists of the name of the dominant soil series. Bibb soils is an example.

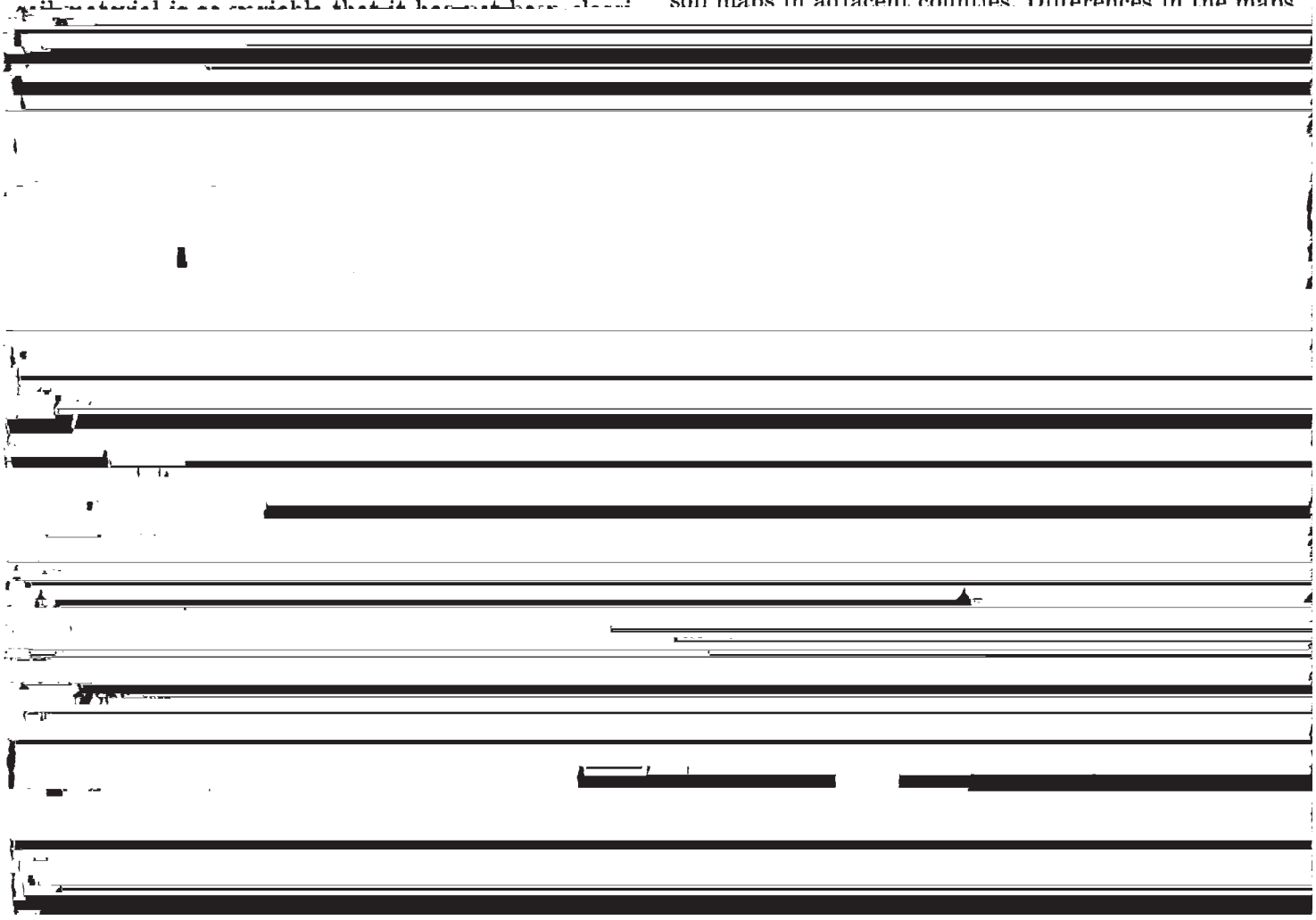
In most areas surveyed there are places where the soil material is so variable that it has not been classi-

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Lenoir County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

Soil associations on the general soil map in this soil survey do not fully agree with those of the general soil maps in adjacent counties. Differences in the maps



The major soils are well suited to all locally grown crops. The main crops are corn, tobacco, soybeans, [redacted]

surface layer is dark-gray sandy loam, and the subsurface layer is light brownish-gray sandy loam. The [redacted]

and brownish-yellow sandy loam.

Johns soils are moderately well drained or somewhat poorly drained. The surface layer is dark-gray sandy loam, and the subsurface layer is pale-brown sandy loam. The subsoil is pale-brown and light yellowish-brown sandy clay loam and gray sandy loam.

Kenansville soils are well drained. The surface layer is grayish-brown loamy sand, and the subsurface layer is light yellowish-brown loamy sand. The subsoil is yellowish-brown sandy loam and loamy sand.

Most of this association is cultivated or in pasture. The rest is wooded or used for nonfarm purposes. The major soils are well suited or fairly well suited to most locally grown crops. The important crops are corn, soybeans, small grain, tobacco, and truck crops. The important tree species are loblolly pine, oak, gum, holly, dogwood, and maple.

Leaching of plant nutrients, the hazard of soil blowing, very low available water capacity, and a seasonal high water table are the main limitations in the use and management of these soils.

6. *Torhunta-Lumbee association*

Very poorly drained and poorly drained soils that have

layer is dark-gray sand, and the subsurface layer is light-gray sand. The subsoil is black and dark-brown sand.

Murville soils are very poorly drained. The surface layer is black fine sand. The subsoil is very dark gray and black fine sand in the upper part and mottled, very dark gray and black fine sand in the lower part.

Nearly all of this association is wooded. The important tree species are loblolly, pond, and longleaf pine. Most of the acreage is poorly suited to locally grown crops. If drained, the rest is suited to a few locally grown crops.

Leaching of plant nutrients, hardpan in the subsoil, water ponding on the surface, and a seasonal high water table are the main limitations in the use and management of these soils.

8. *Leaf-Craven-Lenoir association*

Poorly drained to moderately well drained soils that have a loamy or clayey subsoil; on stream terraces or uplands

This association consists of broad, smooth divides that are slightly rounded and slope gently toward the

the mapping units in that series. Thus, to get full information about any one mapping unit, it is necessary to read both the description of the mapping unit and the description of the soil series to which it belongs.

An important part of the description of each soil series is the soil profile, that is, the sequence of layers

ping unit has been placed. The page for the description of each mapping unit can be learned by referring to the "Guide to Mapping Units" at the back of this survey.

The acreage and proportionate extent of each mapping unit are shown in table 1. Many of the terms used

dark-gray and gray sandy loam in the upper part and grayish-brown loamy sand in the lower part.

Bibb soils are low in natural fertility and content of organic matter. Permeability is moderate, and avail-

In a representative profile the surface layer is light brownish-gray sand about 3 inches thick. The subsurface layer is very pale brown sand about 52 inches thick. The subsoil is 43 inches thick. The upper part is

is low. The seasonal high water table is at the surface. These soils flood frequently for brief periods. Flooding

yellowish-brown sandy clay loam that is mottled with brown and gray. The lower part is light yellowish-

This soil is fairly well suited to most locally grown crops, such as Coastal bermudagrass, tobacco, and small grain. Practices are needed to control the hazard of soil blowing in cultivated areas.

Leaching of plant nutrients, moderate permeability, very low available water capacity, and the hazard of soil blowing are the main limitations in the use and management of this soil. Capability unit IIIs–1; woodland suitability group 3s2.

Chewacla Series

The Chewacla series consists of nearly level, somewhat poorly drained soils on flood plains. These soils formed in recent alluvium.

In a representative profile the surface layer is brown clay loam, sandy clay loam, or sandy loam that is mottled with brown or gray. The C horizon is sandy loam, loamy sand, or sand.

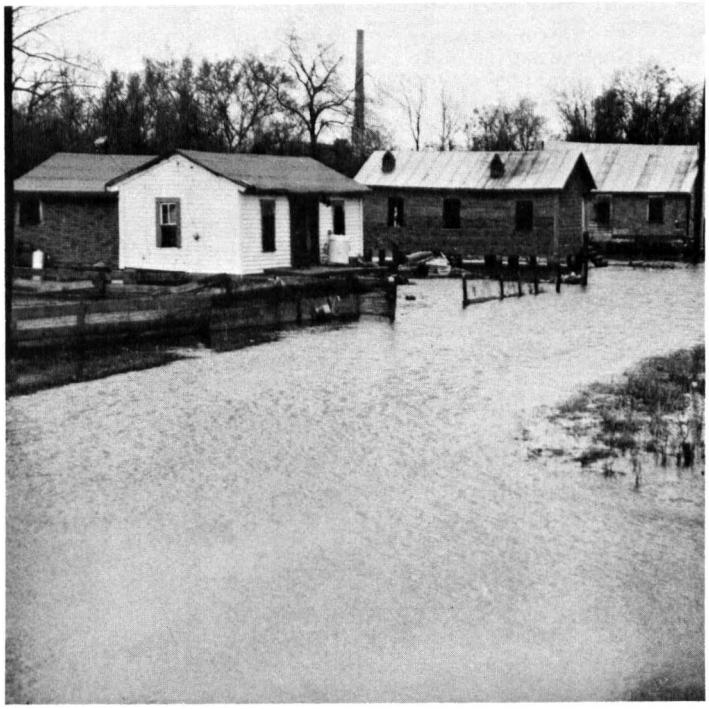
Chewacla loam, frequently flooded (Ch).—This soil is along large streams. Slopes are less than 2 percent. The areas are very long and are 100 feet to about one-eighth of a mile wide.

Included with this soil in mapping are a few areas of soils that are sandy throughout and some areas of soils that are better drained than this soil. Also included are small areas of Kinston soils.

Infiltration is moderate, and runoff is slow.

This soil is well suited to a few locally grown crops, mainly corn and soybeans. Drainage and flood prevention are required for most uses.

Frequent flooding (fig. 2), water ponding on the



erately slow, and available water capacity is medium to high. Shrink-swell potential is moderate. The seasonal high water table is at the surface.

Most of the acreage is wooded. The rest is cultivated and pastured.

Craven Series

The Craven series consists of nearly level to sloping, moderately well drained soils on uplands and stream terraces.

In a representative profile the surface layer is

gray, and red in the lower part. The gray mottles are between 18 and 30 inches below the surface. The C horizon

tential is low. The seasonal high water table is at a depth of about 30 inches

Figure 3.—Tobacco growing on Goldsboro loamy sand.

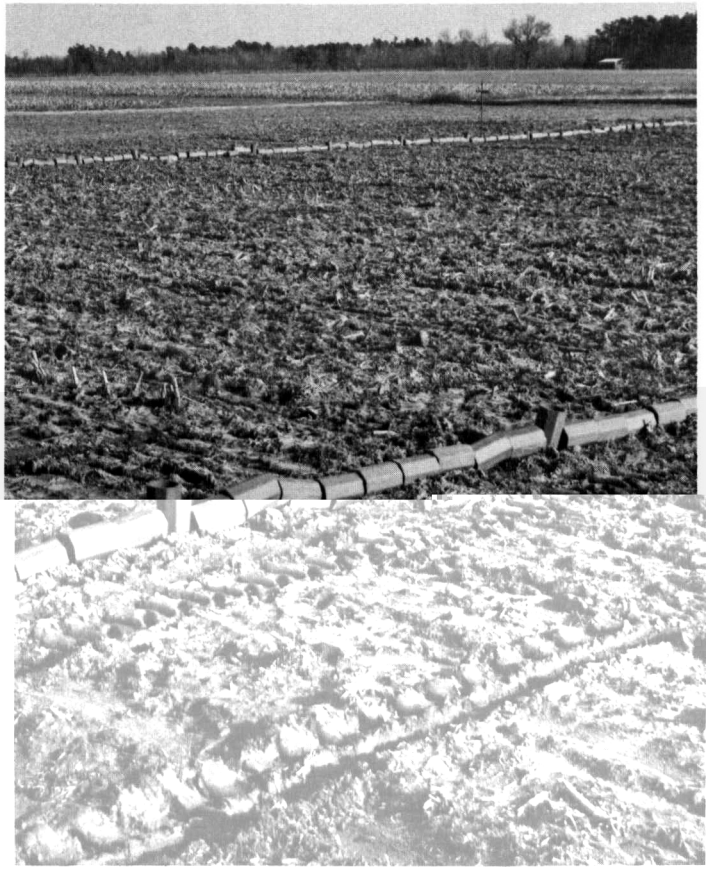


Figure 4.—Tile laid out for installation on Goldsboro loamy sand.

the use and management of this soil. Capability unit IIw–1; woodland suitability group 2w8.

Grifton Series

The Grifton series consists of nearly level, poorly drained soils on uplands and stream terraces.

Ap—0 to 8 inches, dark-gray (10YR 4/1) sandy loam; weak, medium, granular structure; very friable; common fine roots; strongly acid; abrupt, smooth boundary.

A2—8 to 12 inches, grayish-brown (10YR 5/2) sandy loam; weak, medium, granular structure; very friable; common fine roots; strongly acid; clear, wavy boundary.

B1g—12 to 15 inches, light brownish-gray (10YR 6/2)

The solum is 40 to 70 inches thick. Reaction is strongly [illegible] in the upper part of the B horizon to moderately alka-

B1—14 to 16 inches, pale-brown (10YR 6/3) sandy clay loam; few, fine, yellowish brown mottles;

dium in content of organic matter. Permeability is moderately rapid, and available water capacity is high. Shrink-swell potential is low. The seasonal high water table is at the surface. There soils flood very frequently for long periods.

Most of the acreage is wooded. The rest is pastured and cultivated.

Representative profile of Johnston mucky loam in pasture in an area of Johnston soils, 3 miles north of LaGrange in a pasture, 1.2 miles northeast of intersection of State Roads 1504 and 1002, 50 feet south of State Road 1504, and 30 feet east of bridge:

A11—0 to 8 inches, black (10YR 2/1) mucky loam; moderate, medium, granular structure; friable; common fine and medium roots; very strongly acid; gradual, smooth boundary.

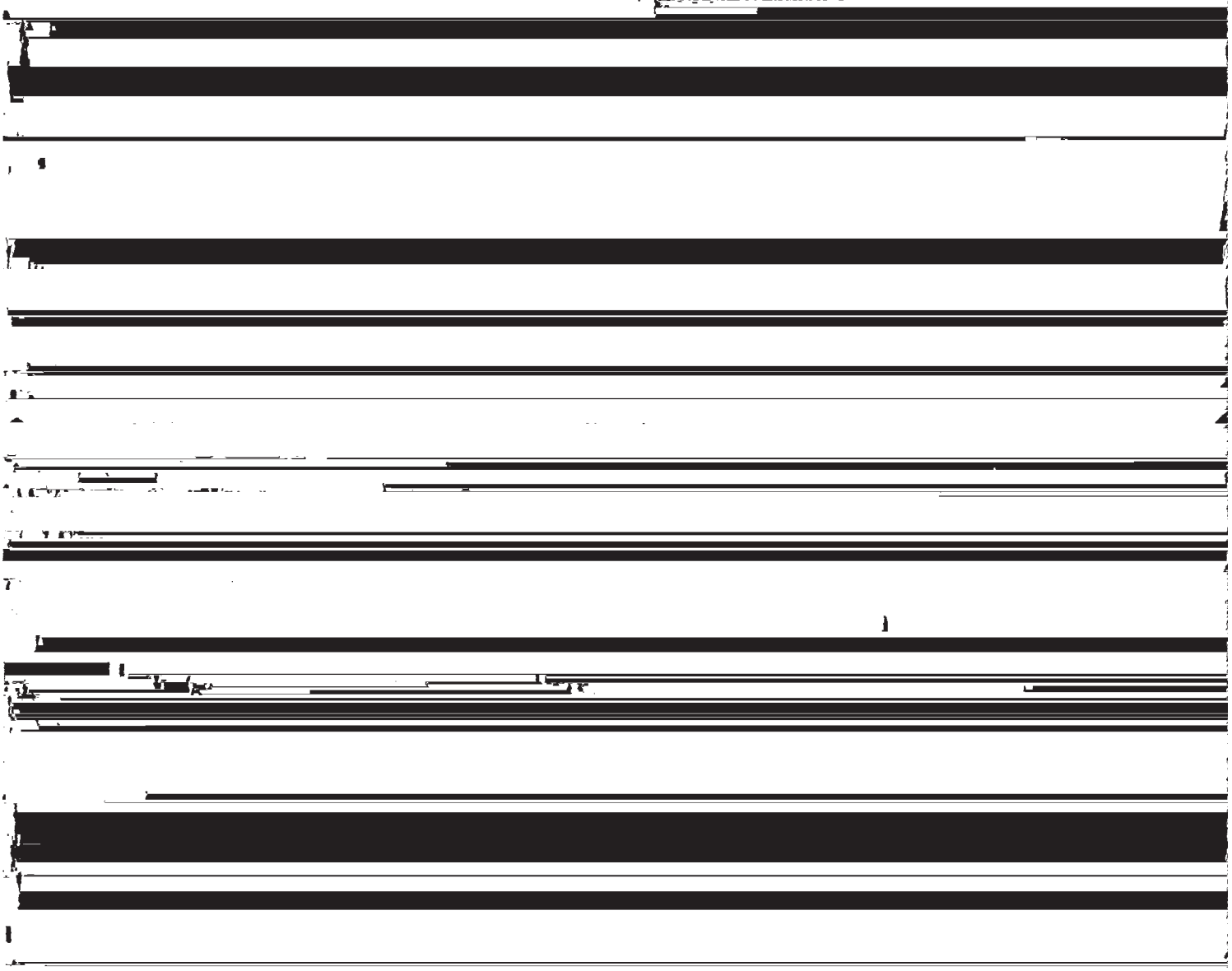
A12—8 to 27 inches, black (10YR 2/1) fine sandy loam; weak, medium, granular structure; friable; few fine roots; very strongly acid; gradual, wavy boundary.

subsurface layer is pale-brown loamy sand about 6 inches thick. The subsoil is 24 inches thick. The upper part is light yellowish-brown sandy clay loam, the middle part is yellowish-brown sandy clay loam that is mottled with brown, and the lower part is brownish-yellow sandy loam that is mottled with brown. Below the subsoil, to a depth of 65 inches, is very pale brown sand that is mottled with gray and yellow.

Kalmia soils are low in natural fertility and content of organic matter. Permeability is moderate, and available water capacity is medium. Shrink-swell potential is low. The seasonal high water table is below a depth of about 5 feet.

Most of the acreage is cultivated. The rest is pastured and used for nonfarm purposes.

Representative profile of Kalmia loamy sand, 0 to 2 percent slopes, in a cultivated field 4 miles northeast of Kinston, 0.2 mile east of intersection of North Carolina Highway 55 and State Road 1210, and 20 feet



Also included are a few small areas of Wickham, Johns, and Kenansville soils. A few soils that are sandy throughout and spots of wet soils in depressions are also included. These are shown by special spot symbols.

Infiltration is moderate, and runoff is slow.

This soil is well suited to all locally grown crops, including corn, tobacco, soybeans, small grain, and truck crops.

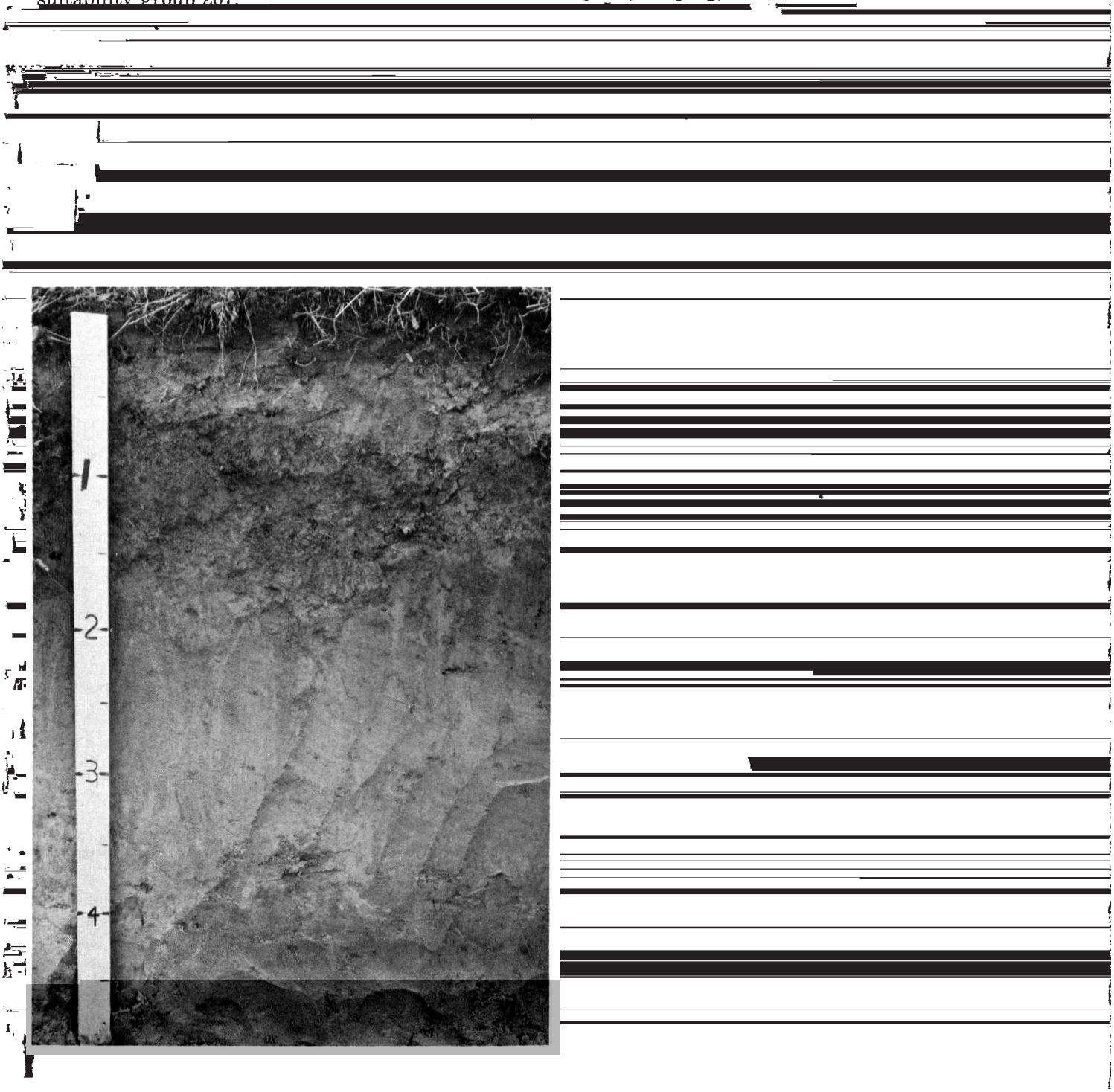
There are no major limitations in the use and management of this soil. Capability unit I–1; woodland suitability group 2o7.

This soil is well suited to most locally grown crops, mainly corn, soybeans, tobacco, and small grain.

Runoff is the main limitation in the use and management of this soil. Capability unit IIe–1; woodland suitability group 2o7.

Kenansville Series

The Kenansville series consists of nearly level to gently sloping, well-drained soils on stream terraces.



ways. A few included wet spots are shown by special spot symbols.

Infiltration is moderately rapid, and runoff is slow.

This soil is fairly well suited to most locally grown crops. The main crops are corn, tobacco, soybeans, and small grain.

Leaching of plant nutrients, the hazard of soil blowing, and very low available water capacity are the main limitations in the use and management of this soil. Capability unit IIs–1; woodland suitability group 3s2.

Kinston Series

The Kinston series consists of nearly level, poorly [redacted]

cent alluvium.

In a representative profile the surface layer is dark grayish-brown loam about 6 inches thick. The subsoil is gray clay loam 44 inches thick. It is mottled with yellow and brown. Below the subsoil, to a depth of 65 inches, is gray clay loam that is mottled with yellow.

soils that are sandy throughout. Also included are small areas of Chewacla and Bibb soils.

Infiltration is moderate, and runoff is slow. In places water ponds on the surface.

The trees are chiefly mixed hardwoods and pines. If drained, the soil is suited to a few locally grown crops, mainly corn, soybeans, and pasture plants. Drainage and flood prevention are needed for most uses and management of this soil.

Frequent flooding, water ponding on the surface, and a seasonal high water table are the main limitations in the use and management of this soil. Capability subclass IIIw, drained and protected from floods; capability subclass Vw, undrained and frequently flooded; woodland suitability group 1w9.

Lakeland Series

The Lakeland series consists of nearly level to gently sloping, excessively drained soils on uplands and stream terraces.

In a representative profile, the surface layer is brown

layer. Also included are small areas of Blanton, Kenansville, and Leon soils.

Infiltration is rapid, and runoff is slow.

This soil is poorly suited to most locally grown crops.

Leaching of plant nutrients, the hazard of soil blowing, and very low available water capacity are the main limitations in the use and management of this soil. Capability unit IVs–1; woodland suitability group 4s2.

Leaf Series

The Leaf series consists of nearly level, poorly drained soils on stream terraces and uplands.

In a representative profile the surface layer is very dark gray loam about 3 inches thick. The subsurface layer is gray loam about 7 inches thick. The subsoil is clay or clay loam 55 inches thick. It is mottled with yellow and brown. Below the subsoil, to a depth of about 80 inches, is gray clay that is mottled with yellow and brown.

Leaf soils are medium in natural fertility and low in content of organic matter. Permeability is slow, and available water capacity is high. Shrink-swell potential is moderate. The seasonal high water table is at the surface.

Most of the acreage is wooded. The rest is cultivated or pastured.

Representative profile of Leaf loam in a wooded area 3 miles east of Kinston, 0.5 mile northeast of in

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid unless the soils are limed. The A horizon is very dark gray, dark gray, or gray. The B horizon is gray or light-gray clay or clay loam that is mottled with yellow and brown. The C horizon is sandy loam, sandy clay loam, clay loam, silty clay, or clay.

Leaf loam (Le).—This soil is on smooth, broad interstream areas. Slopes are less than 1 percent. The areas are long and range from narrow to broad. They are 5 to 100 acres in size.

Included with this soil in mapping are a few small areas of soils that have a surface layer of silt loam and sandy loam. Also included are a few small areas of Lenoir, Lumbee, Portsmouth, and Coxville soils.

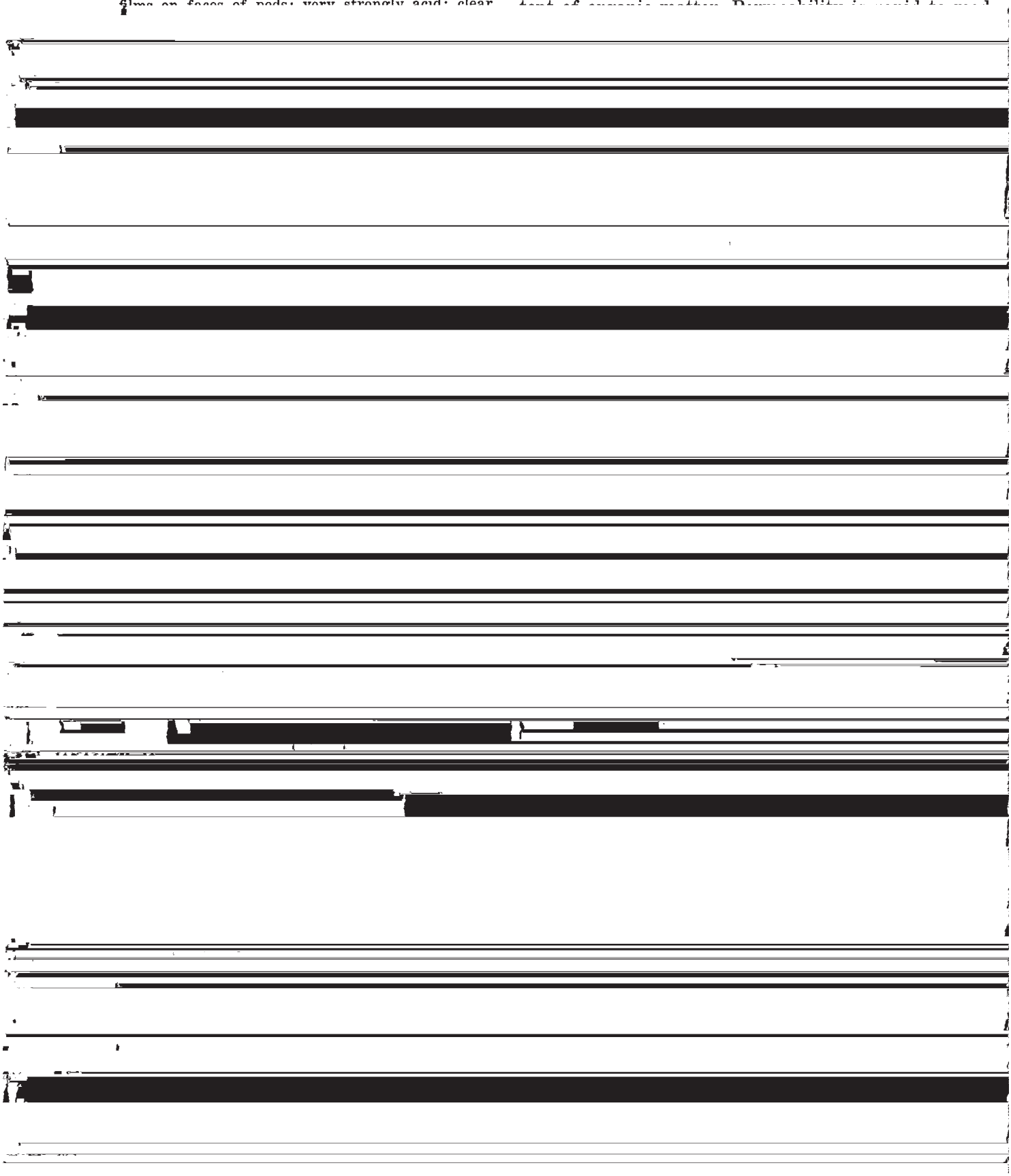
Infiltration is slow, and runoff is slow to ponded. The surface soil is difficult to keep in good tilth and can be worked only over a narrow range of moisture content.

If drained, this soil is suited to a few locally grown crops, chiefly corn and soybeans. The main tree species is loblolly pine. Surface and subsurface drainage is needed before the soil can be cultivated or pastured. Adequate drainage may be difficult to obtain because of slow permeability. Practices to improve the soil structure and tilth are needed to obtain good drainage and aeration.

Moderate shrink-swell potential, slow permeability, water ponding on the surface, and a seasonal high water table are the main limitations in the use and management of this soil. Capability unit IVw–2; wood-

sticky and very plastic; few fine roots; thin clay films on faces of peds; very strongly acid; clear

Leon soils are very low in natural fertility and con-



mottled with brown and yellow, and the lower part is gray sandy loam that is mottled with brown. Below the subsoil, to a depth of about 65 inches, is light brownish-gray sand.

Lumbee soils are low in natural fertility and content of organic matter. Permeability is moderate, and available water capacity is medium. Shrink-swell potential is low. The seasonal high water table is at the surface

Water ponding on the surface and a seasonal high water table are the main limitations in the use and management of this soil. Capability unit IIIw–3; woodland suitability group 2w9.

Lynchburg Series

Below a depth of about 21 inches it is gray and mottled with yellow and red. The C horizon is sandy loam or sandy clay loam.

Lynchburg sandy loam (Ly).—This soil is on broad, smooth flats of interstream divides. Slopes are 0 to 2 percent. The areas are long and broad and range from 5 to about 100 acres in size.

Included with this soil in mapping are areas of soils

B3g—30 to 45 inches, gray (10YR 5/1) sandy clay; thin lenses of sandy loam and clay; common, medium, distinct, brownish-yellow (10YR 6/6) and yellowish-brown (10YR 5/6) mottles; weak, medium, angular blocky structure; firm, sticky and plastic; few small fragments of marl; few fine flakes of mica; moderately alkaline; gradual, wavy boundary.

Cg—45 to 85 inches, gray (10YR 5/1) sandy clay loam;

High shrink-swell potential, water ponding on the surface, and a seasonal high water table are the main limitations in the use and management of this soil. Capability unit IIIw–2; woodland suitability group 1w9.

pine, pond pine, loblolly bay, maple, sweet gum, and oak. Surface drainage and subsurface drainage are required if the soil is to be cultivated or pastured.

Water ponding on the surface and a seasonal high water table are the main limitations in the use and

Murville Series

The Murville series consists of nearly level, very poorly drained soils on uplands.

In a representative profile the surface layer is black fine sand about 7 inches thick. The subsoil is 51 inches thick. The upper part is very dark gray fine sand, the middle part is black fine sand, and the lower part is mottled, very dark gray and black fine sand. Below the subsoil, to a depth of about 87 inches, is gray loamy fine sand that is mottled with brown and black.

The Murville soils are very low in natural fertility and medium in content of organic matter. Permeability is moderately rapid, and available water capacity is low. Shrink-swell potential is low. The seasonal high water table is at the surface.

Most of the acreage is wooded.

Representative profile of Murville fine sand in a wooded area 1½ miles south of Pink Hill and 450 feet east of the intersection of State Roads 1103 and 1105:

A1—0 to 7 inches, black (10YR 2/1) fine sand; weak, fine, granular structure; very friable; many large roots;

drained, and VIIw, undrained; woodland suitability group 2w9.

Norfolk Series

The Norfolk series consists of nearly level to sloping, well-drained soils on uplands.

In a representative profile the surface layer is grayish-brown loamy sand about 8 inches thick. The subsurface layer is pale-brown loamy sand about 4 inches thick. The subsoil is 60 inches thick. The upper part is light yellowish-brown sandy loam. The middle part is yellowish-brown sandy clay loam that is mottled below a depth of 45 inches with red and gray. The lower part is brownish-yellow sandy clay loam that is mottled with gray and red. Below the subsoil, to a depth of 85 inches, is gray sandy clay loam that is mottled with yellow and red.

Norfolk soils are low in natural fertility and content of organic matter. Permeability is moderate, and available water capacity is medium. Shrink-swell potential

distinct, brownish-yellow (10YR 6/8) and red (2.5YR 4/8) mottles; massive; friable to firm in sandy clay strata; slightly sticky and plastic; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid unless the soils are limed. The Ap or A1 horizon is grayish brown or light brownish gray. The B horizon is light yellowish brown, yellowish brown, brownish yellow, or strong brown. The texture centers on sandy clay loam, but in places the upper few inches is sandy loam. The lower part of the B horizon is mottled with gray and red. The C horizon is sandy loam or sandy clay loam that has thin strata of sandy clay in places.

Norfolk loamy sand, 0 to 2 percent slopes (Na).—This soil is on smooth, broad, slightly convex divides. The areas are irregularly shaped and range from 5 to about 200 acres in size. This soil has the profile described as representative for the series.

Included with this soil in mapping are a few areas of soils that have a surface layer of sandy loam and very fine sandy loam and some that have a siltier subsoil. Also included are a few small areas of Goldsboro and Wagram soils and a few soils that have sandy clay subsoils, 40 to 60 inches below the surface. Some delineations have a sand spot or one or more spots of wet soils in depressions. These spots of other kinds of soils are shown in mapping by special spot symbols.

Infiltration is moderate, and runoff is slow.

This soil is well suited to most locally grown crops and is used chiefly for tobacco, corn, soybeans, truck crops, fruit crops, and small grain. It is especially well suited to tobacco.

There are no major limitations in the use of this soil. Capability unit I–1; woodland group 2o1.

Norfolk loamy sand, 2 to 6 percent slopes (Nb).—This soil (fig. 7) is on convex divides. The areas are long and narrow and range from 5 to 30 acres in size.

Included with this soil in mapping are a few areas of soils that have a surface layer of yellowish-brown sandy loam and very fine sandy loam that is 4 to 8 inches thick and some that have a silty subsoil. Also included are a few small areas of Goldsboro and Wagram soils and a few areas of soils that have sandy clay 40 to 60 inches below the surface. In places, mapped areas include short strips of Bibb soils in drainageways, a few small spots of a soil that is sandy throughout, and spots of wet soil in depressions. Special symbols are used to show these spots.

Infiltration is moderate, and runoff is medium.

This soil is well suited to most locally grown crops. It is used chiefly for corn, tobacco, soybeans, truck crops, and small grain and is especially well suited to tobacco.

Runoff is the main limitation in the use and management of this soil. Capability unit IIe–1; woodland group 2o1.

Norfolk loamy sand, 6 to 10 percent slopes (Nc).—This soil is on short side slopes next to drainageways. The areas are long and narrow and range from 5 to 20 acres in size.

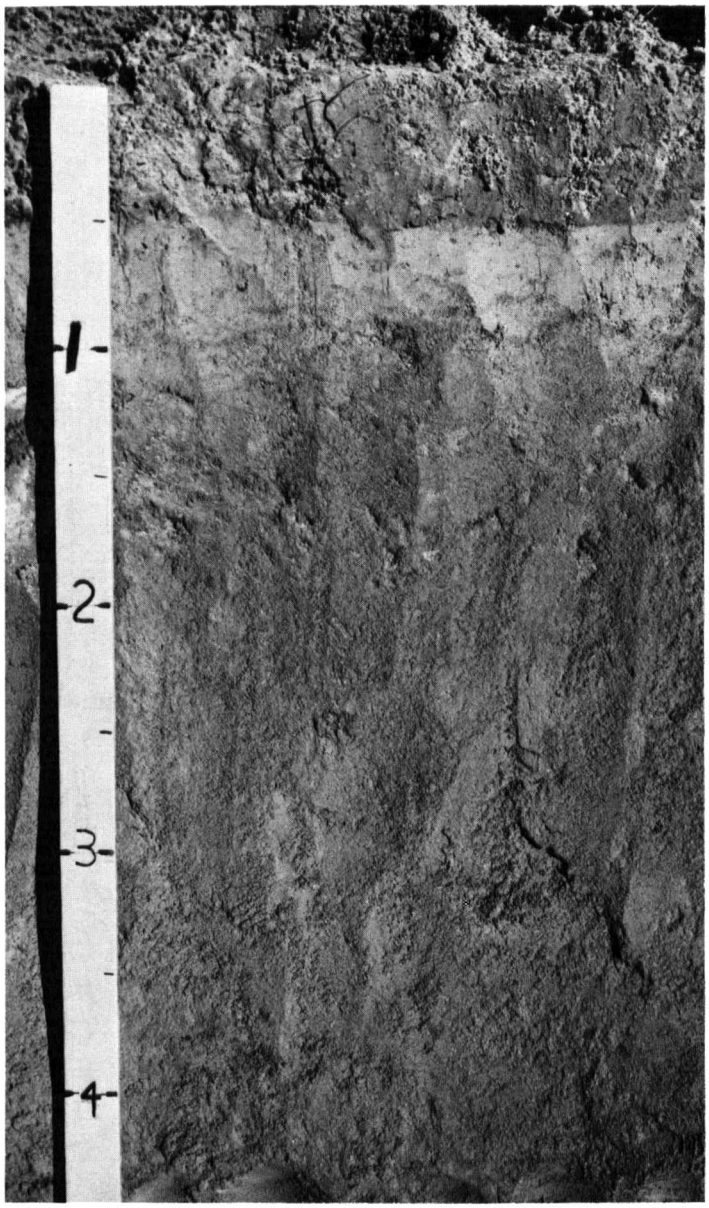


Figure 7.—**Profile of Norfolk loamy sand.**

and Craven soils. In places mapped areas include narrow strips of Bibb soils in drainageways.

Infiltration is moderate, and runoff is rapid.

This soil is well suited to most locally grown crops; however, the short length and strong gradient of the slopes limit the use of this soil for row crops.

Slope and runoff are the main limitations in the use and management of this soil. Capability unit IIIe–1; woodland group 2o1.

Pactolus Series

upper part of the underlying layer is pale-brown loamy sand that is mottled with brown; the middle part is very pale brown loamy sand that is mottled with yellow and gray; and the lower part, to a depth of 75

races. These soils formed in recent alluvium and plant residues.

In a representative profile Pamlico soils consist of layers of black decomposed organic matter (muck)

Very frequent flooding and a seasonal high water table are the main limitations in the use and management of this soil. If the areas are drained and excessively dry, subsidence and the hazard of organic material catching on fire limit use. Capability unit IVw–1, drained; capability subclass VIIw, undrained; woodland suitability group 4w2.

of soils that have a surface layer of sandy loam and a few areas of soils that have a clayey subsoil. Also included are a few small areas of Rains, Torhunta, and Coxville soils.

Infiltration is moderate, and runoff is ponded to very slow.

If drained, this soil is well suited to a few locally

Pantego Series

Pantego soils are low in natural fertility and me- poorly drained soils on uplands.

In a representative profile the surface layer is about 14 inches thick. It is black loam in the upper part and very dark gray sandy loam in the lower part. The subsoil is sandy clay loam 50 inches thick. The upper part is grayish brown, and the lower part is gray and is mottled with brown. Below the subsoil, to a depth of 74 inches, is gray sandy clay loam that is mottled with brown.

Pantego soils are low in natural fertility and medium in content of organic matter. Permeability is moderate, and available water capacity is medium. Shrink-swell potential is low. The seasonal high water table is at the surface.

Most of the acreage is wooded. The rest is cultivated and pastured.

Representative profile of Pantego loam in a cultivated area 9.5 miles south of Kinston, 1.2 miles southwest of the intersection of State Roads 1922 and 1925, and 25 feet northwest of State Road 1922:

Ap—0 to 9 inches, black (10YR 2/1) loam; weak, medium,

grown crops, chiefly corn and soybeans. The important tree species are loblolly and pond pine. Surface and subsurface drainage is needed before this soil can be cultivated or pastured.

Water ponding on the surface and a seasonal high water table are the main limitations in the use and management of this soil. Capability unit IIIw–3, drained; capability subclass VIw, undrained; woodland suitability group 1w9.

Pocalla Series

The Pocalla series consists of nearly level to gently sloping, somewhat excessively drained soils on uplands.

In a representative profile the surface layer is grayish-brown loamy sand about 8 inches thick. The subsurface layer is pale-brown sand about 14 inches thick. The subsoil is light yellowish-brown and yellowish-brown sandy loam 18 inches thick. Below this, to a depth of 80 inches, is a layer of very pale brown sand that is mottled with gray over a layer of light yellowish-brown sandy loam that is mottled with gray and brown.

Pocalla soils are very low in natural fertility and content of organic matter. Permeability is moderate

The solum is more than 72 inches thick. Reaction is very strongly acid or strongly acid unless the soils are limed. The Ap and A1 horizons are gravish brown or dark gravish

and few, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, fine, subangular blocky structure; friable, slightly sticky and slightly plastic;

a limitation to installation and maintenance of drainage systems.

Water ponding on the surface and a seasonal high water table are the main limitations in the use and management of this soil. Capability unit IIIw–3, drained; capability subclass Vw, undrained; woodland suitability group 1w9.

Rains Series

The Rains series consists of nearly level, poorly

and reddish-yellow (7.5YR 6/8) mottles; massive; friable, slightly sticky and slightly plastic; very strongly acid.

The solum is more than 60 inches thick. Reaction is strongly acid or very strongly acid unless the soils are limed. The A1 or Ap horizon is dark gray or very dark gray. Where the surface layer is very dark gray, it is less than 8 inches thick. The B horizon is gray or light-gray sandy clay loam and, to a lesser extent, sandy loam that is mottled with brown, yellow, and red.

Rains sandy loam (Ra).—This soil is in depressions and on smooth flats in broad interstream areas. Slopes are less than 1 percent. The areas are generally long

B21t—12 to 24 inches, pale-brown (10YR 6/3) sandy loam; common, medium, faint, light brownish-gray (10YR 6/2) and brown (10YR 5/3) mottles; weak, medium, subangular blocky structure; very friable; many fine roots; sand grains coated and bridged with clay; very strongly acid; clear, wavy boundary.

B22tg—24 to 42 inches, light-gray (10YR 6/1) sandy loam; common, medium, distinct, light yellowish-brown (10YR 6/4) and brownish-yellow (10YR 6/6) mottles; weak, medium, subangular blocky structure; friable, slightly sticky and slightly plastic; many fine roots; common fine pores; sand grains coated and bridged with clay; very strongly acid; gradual, wavy boundary.

B3g—42 to 80 inches, light brownish-gray (10YR 6/2) loamy sand; common, medium, faint, light-gray (10YR 7/1) and light yellowish-brown (10YR 6/4) mottles; weak, medium, granular structure; friable, slightly sticky; common small bodies of clean sand; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid to strongly acid unless the soils are limed. The A1 or Ap horizon is dark gray or dark grayish brown. The A2 horizon is light brownish gray or very pale brown. The B21 horizon is pale brown, brownish yellow, or light [illegible]. The B22g and B3 horizons are light gray

Most of the acreage is wooded. The rest is cultivated and pastured.

Representative profile of Torhunta loam in a cultivated field 0.6 mile north of LaGrange, 150 feet east of State Road 1503, and 15 feet northeast of farm road:

Ap—0 to 7 inches, black (10YR 2/1) loam; weak, medium, granular structure; friable; common fine roots; strongly acid; abrupt, smooth boundary.

A12—7 to 14 inches, very dark grayish-brown (10YR 3/2) loam; weak, medium, granular structure; friable; common fine roots; strongly acid; gradual, wavy boundary.

B2g—14 to 36 inches, grayish-brown (10YR 5/2) sandy loam; common medium-sized pores filled with black loam from surface layer; common, medium, faint, dark grayish-brown (10YR 4/2) mottles; weak, fine, subangular blocky structure; very friable, slightly sticky and slightly plastic; very strongly acid; gradual, wavy boundary.

C1g—36 to 45 inches, grayish-brown (10YR 5/2) loamy sand; few, medium, distinct, dark grayish-brown (10YR 4/2) mottles and common, medium, distinct, light-gray (10YR 7/1) mottles; massive; very friable; strongly acid; gradual, wavy bound-

Umbric Ochraqualfs are low in natural fertility and medium in content of organic matter. Permeability is moderate, and available water capacity is medium. Shrink-swell potential is moderate. The seasonal high water table is at the surface.

Most of the acreage is wooded. The rest is cultivated and pastured.

Representative profile of Umbric Ochraqualfs, 0.3 mile south of Loftin's Crossroad, 0.3 mile east of the intersection of North Carolina Highway 58 and State Road 1914, and 100 feet south of State Road 1914:

Ap—0 to 11 inches, black (10YR 2/1) loam; weak, medium, granular structure; friable; common medium roots; strongly acid; gradual, wavy boundary.

A2—11 to 14 inches, very dark gray (10YR 3/1) loam; weak, medium, granular structure; friable; common medium roots; common pores filled with black surface soil; strongly acid; gradual, wavy boundary.

B1g—14 to 18 inches, grayish-brown (10YR 5/2) sandy clay loam; weak, fine, subangular blocky structure; friable; common fine roots; few pores filled with black loam; strongly acid; gradual, wavy boundary.

B21tg—18 to 34 inches, grayish-brown (10YR 5/2) sandy clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, fine, subangular blocky structure; friable, slightly sticky and slightly plastic; thin, discontinuous clay films on faces of peds and pores; medium acid; gradual, wavy boundary.

B22tg—34 to 42 inches, gray (10YR 6/1) sandy clay that has thin strata of sandy loam; few, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, fine, subangular blocky structure; friable, slightly sticky and slightly plastic; thin, discontinuous clay films on faces of peds and pores; neutral; gradual, wavy boundary.

B3g—42 to 70 inches, gray (10YR 6/1) sandy clay loam that has thin strata of sand and greenish-gray clay; massive; friable, slightly sticky and slightly

Wagram Series

The Wagram series consists of nearly level to strongly sloping, well-drained soils on uplands.

In a representative profile the surface layer is grayish-brown loamy sand about 8 inches thick. The subsurface layer is pale-brown loamy sand about 22 inches thick. The subsoil is sandy clay loam 51 inches thick. The upper part is yellowish brown, the middle part is brownish yellow mottled with red and gray, and the lower part is light yellowish brown mottled with brown and gray. Below the subsoil, to a depth of 90 inches, is brownish-yellow sandy clay loam that is mottled with brown and red.

Wagram soils are low to very low in natural fertility and content of organic matter. Permeability is moderately rapid, and available water capacity is low. Shrink-swell potential is low. The seasonal high water table remains below a depth of about 5 feet.

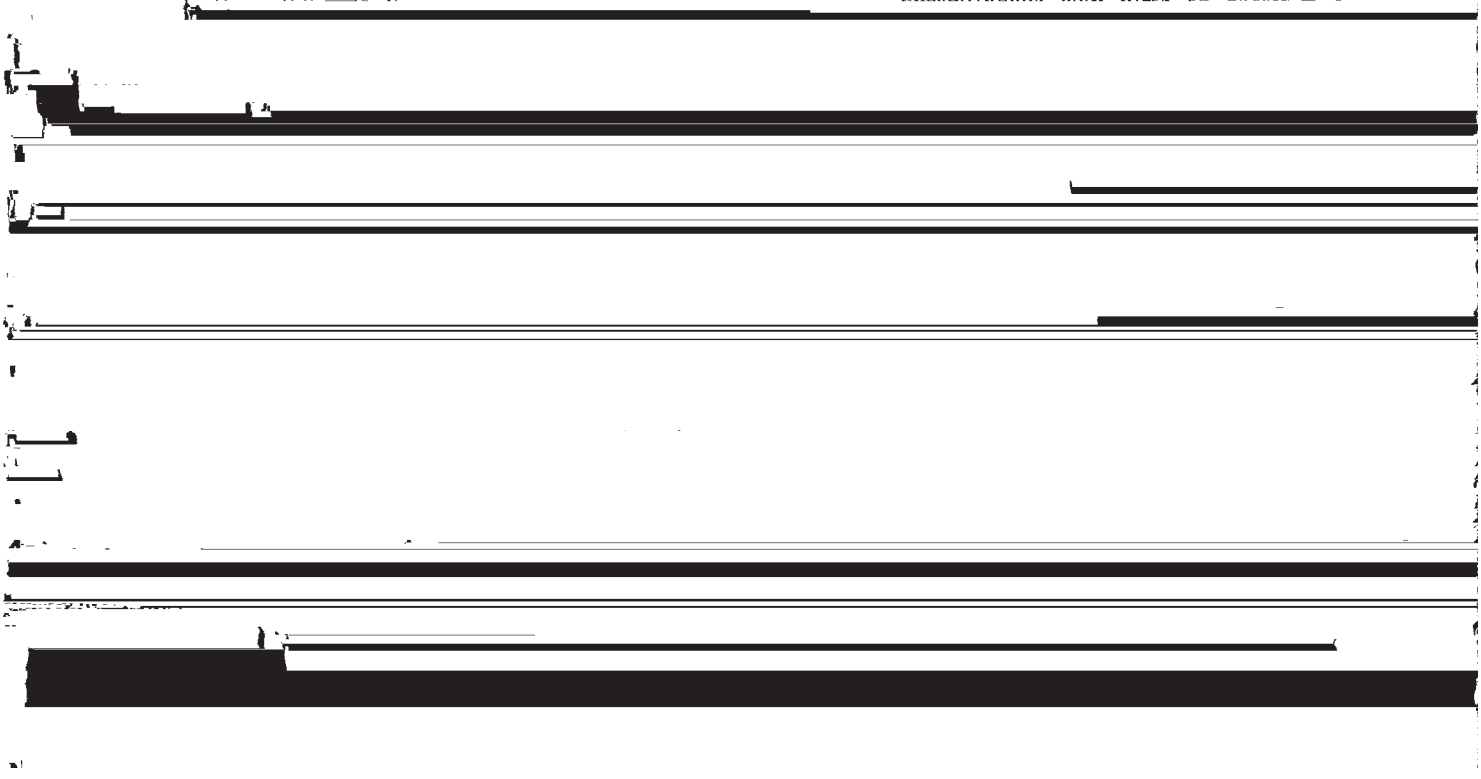
Most of the acreage is cultivated. The rest is used for nonfarm purposes.

Representative profile of Wagram loamy sand, 0 to 6 percent slopes, in a cultivated field 2.4 miles southeast of LaGrange, 0.4 mile southeast of intersection of U.S. Highway 70 and State Road 1520, and 20 feet east of farm road:

Ap—0 to 8 inches, grayish-brown (10YR 5/2) loamy sand; weak, medium, granular structure; very friable; common fine roots; medium acid; abrupt, smooth boundary.

A2—8 to 30 inches, pale-brown (10YR 6/3) loamy sand; common, medium, faint mottles of uncoated sand; weak, medium, granular structure; very friable; few fine roots; very strongly acid; gradual, wavy boundary.

B21t—30 to 58 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, fine, subangular blocky structure; friable, slightly sticky and slightly plastic; thin,



acres in size. This soil has the profile described as representative for the series.

Included with this soil in mapping are a few areas of soils that have a surface layer of sand. Also included are a few small areas of Blanton, Goldsboro, Norfolk, and Pocalla soils. Short, narrow strips of Bibb soils in drainageways and a few small depressions of wet soils are also included. Those wet soils are shown by wet spot symbols.

Infiltration is moderate, and runoff is slow.

This soil is suited to most locally grown crops and is used chiefly for tobacco, corn, soybeans, and small grain.

Leaching of plant nutrients, low available water capacity, and the hazard of soil blowing are the main limitations in the use and management of this soil. Capability unit IIs-1; woodland suitability group 3s2.

cluded are a few small areas of Blanton, Craven, and Norfolk soils. Narrow strips of Bibb soils in drainageways are also included.

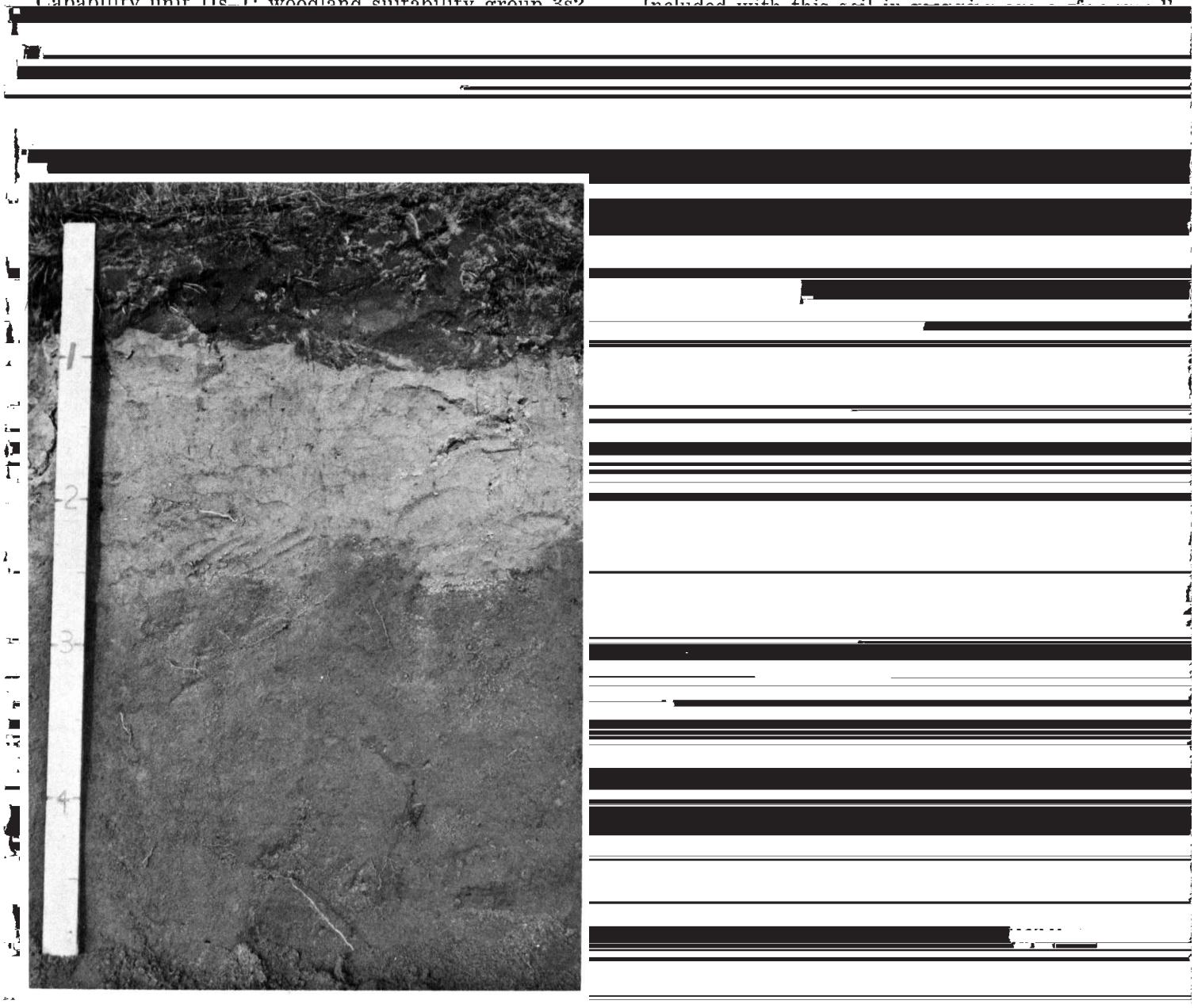
Infiltration is moderate, and runoff is medium.

This soil is fairly well suited to most locally grown crops, but the short length and gradient of the slopes limit the use of this soil for row crop cultivation. Runoff causes a hazard of erosion if this soil is cultivated.

Leaching of plant nutrients, low available water capacity, runoff, and slope are the main limitations in the use and management of this soil. Capability subclass IIIs; woodland suitability group 3s2.

Wagram loamy sand, 10 to 15 percent slopes (WdD).—This soil is between gently sloping uplands and flood plains or stream terraces. The areas are long and narrow and range from 5 to 75 acres in size.

Included with this soil in mapping are a few small



B1—15 to 19 inches, strong-brown (7.5YR 5/6) sandy clay loam; weak, fine, subangular blocky structure; friable; common fine roots; strongly acid; clear, wavy boundary.

B21t—19 to 25 inches, yellowish-red (5YR 4/8) sandy clay loam; moderate, fine, subangular blocky structure; friable, sticky and plastic; clay films on faces of peds; few flakes of mica and feldspar grains; strongly acid; gradual, wavy boundary.

B22t—25 to 38 inches, yellowish-red (5YR 5/8) sandy clay loam; few, medium, faint, yellowish-brown (10YR 5/4) mottles; weak, fine, subangular blocky structure; friable, slightly sticky and slightly plastic; common small flakes of mica and few feldspar grains; strongly acid; gradual, wavy boundary.

B3—38 to 43 inches, strong-brown (7.5YR 5/8) sandy loam; weak, fine, subangular blocky structure; very friable; common small flakes of mica; strongly acid; gradual, wavy boundary.

IIC—43 to 65 inches, brownish-yellow (10YR 6/6) loamy sand; single grained; very friable; common small flakes of mica and few feldspar grains; few pebbles; strongly acid.

Most of the acreage is wooded. The rest is cultivated and pastured.

Representative profile of Woodington loamy sand in a wooded area 5 miles south of Kinston, 0.5 mile north of the intersection of State Roads 1161 and 1149, and 10 feet north of State Road 1149:

A1—0 to 4 inches, very dark gray (10YR 3/1) loamy sand; weak, medium, granular structure; very friable; many fine roots; very strongly acid; gradual, wavy boundary.

A2—4 to 12 inches, grayish-brown (10YR 5/2) loamy sand; weak, medium, granular structure; very friable; many fine roots; few medium pores filled with dark-gray material from the surface layer; very strongly acid; clear, wavy boundary.

B21tg—12 to 16 inches, light brownish-gray (10YR 6/2) sandy loam; few, medium, distinct, light yellowish-brown (10YR 6/4) mottles; weak, fine, subangular blocky structure; very friable; slightly sticky; sand coated and bridged with clay; few medium pores filled with dark-gray material from the surface layer; very strongly acid; gradual, wavy boundary.

B22tg—16 to 32 inches, gray (10YR 6/1) sandy loam; few, medium, distinct, light yellowish-brown (10YR 6/4) and strong-brown (7.5YR 5/6) mottles; weak, fine, subangular blocky structure; friable; slightly sticky; sand coated and bridged with clay; very strongly acid; gradual, wavy boundary.

B23tg—32 to 47 inches, gray (10YR 6/1) sandy loam; common pockets of light-gray (10YR 7/1) and yellowish-brown (10YR 5/4) sand; weak, fine, subangular blocky structure; very friable; very strongly acid; gradual, wavy boundary.

B3g—47 to 85 inches, light-gray (10YR 7/1) loamy sand; few, medium, distinct, brownish-yellow (10YR 6/6) mottles; weak, fine, granular structure; loose; common small bodies of clean sand; very strongly acid.

The solum is more than 60 inches thick. Reaction is very strongly acid or strongly acid unless the soils are limed. The Ap or A1 horizon is dark gray or very dark gray. The very

The solum is about 40 to 55 inches thick. Reaction is strongly acid to slightly acid unless the soils are limed. The Ap and A1 horizons are brown or grayish brown, and the A2 horizon is light yellowish brown or pale brown. The B horizon is yellowish-red or strong-brown clay loam, sandy clay loam, or sandy loam that is mottled with brown in the lower part. The C horizon is loamy sand or sand and generally contains gravel.

Wickham loamy sand, 1 to 6 percent slopes (Wk).—This soil is on smooth, low ridges. The areas are longer than they are wide and range from 5 to 25 acres in size.

Included with this soil in mapping are a few areas of eroded soils that have a surface layer of yellowish-brown sandy loam and loam. Also included are a few small areas of Kalmia and Kenansville soils. Strips of Bibb soils in drainageways and a few small spots

Use and Management of the Soils

The first part of this section presents general guidelines for managing soils for crops and pasture. Then, the capability classification used by the Soil Conservation Service is explained and outlined. Next, the estimated yields of crops are listed. To determine the capability classification of a soil, refer to the "Guide to Mapping Units" at the end of this survey. Detailed information about the management of soils can be found in the section "Descriptions of the Soils." The last part of this section discusses use of the soils for woodland, for wildlife, for engineering purposes, and for town and country planning.

Management of Soils for Crops and Pasture

Land use is fairly consistent throughout the county. Soil differences such as erodibility, wetness, and droughtiness are the major concerns of management. These concerns are mainly responsible for land-use patterns on most farms. The differences are also the basis of the capability classification system.

Management is needed on most soils that are used for cultivated crops to help control erosion, provide drainage, conserve moisture, and maintain tilth and fertility. Practices used on such soils as Norfolk, Goldsboro, Kalmia, and Wagram are a winter cover crop, stripcropping, terraces and diversions, minimum

a substitute for interpretations designed to show suitability and limitations for range, for forest trees, or for engineering.

In the capability system, all kinds of soil are grouped at three levels: the class, the subclass, and the unit.

The placement of any mapping unit in the grouping can be learned by turning to the "Guide to Mapping Units" at the back of this survey.

Capability Classes are the broadest grouping and are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, so shallow, or otherwise so limited that they do not produce worthwhile yields of crops, forage, or wood products.

Capability Subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in some parts of the United States but not in Lenoir county, shows that the chief limitation is climate that is too cold or too

Subclass IIe. Soils that have a moderate hazard of erosion unless protected.
Unit IIe–1. Well-drained, gently sloping soils that have a surface layer of loamy sand and a subsoil of sandy loam to clay loam.
Subclass IIw. Soils that have a moderate limitation because of excess water.
Unit IIw–1. Moderately well drained, nearly level soils that have a surface layer of loamy sand and a subsoil of sandy loam to sandy clay loam.
Unit IIw–2. Moderately well drained to somewhat poorly drained, nearly level soils that have a surface layer of sandy loam and a subsoil of sandy loam to clay loam.
Subclass IIs. Soils that have a moderate limitation because of low available water capacity.
Unit IIs–1. Nearly level and gently sloping soils that have a surface layer of loamy sand and a subsoil of sandy clay loam to sandy loam.

Class III. Soils that have severe limitations that reduce the choice of plants, require special conservation measures, or both.
Subclass IIIe. Soils that have a severe hazard of erosion if cultivated and not protected.
Unit IIIe–1. Well-drained, sloping soils that have a surface layer of loamy sand and a subsoil of sandy clay loam to sandy loam.
Unit IIIe–2. Moderately well drained, gently sloping soils that have a surface layer of fine sandy loam and a subsoil of clay or clay loam.
Unit IVe–1. Moderately well drained, sloping soils that have a surface layer of fine sandy loam and a subsoil of clay loam to clay.
Subclass IVw. Soils that have very severe limitations because of excess water.
Unit IVw–1. Somewhat poorly drained, nearly level soils that have a surface layer of sand and a subsoil of sand or loamy sand.
Unit IVw–2. Poorly drained, nearly level soils that have a surface layer of loam and a subsoil of clay to clay loam.
Unit IVw–4. Very poorly drained and poorly drained, nearly level soils that have a surface layer of loam or loamy sand and a subsoil of sandy loam to clay loam.
Subclass IVs. Soils that have very severe limitations because of low available water capacity.
Unit IVs–1. Excessively drained, nearly level and gently sloping soils that are sandy throughout.
Unit IVs–2. Well-drained, strongly sloping soils that have a surface layer of loamy sand and a subsoil of sandy clay loam to

Class V. Soils that are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife habitat.
Subclass Vw. Soils that are too wet for cultivation; drainage generally not feasible.
Unit Vw–1. Very frequently flooded, very

Figure 10.—Young tobacco plants on Norfolk loamy sand. This soil is used extensively for growing tobacco.

Figure 11.—Sweetgums growing in flood plain on Bibb soils.

management which tends to produce the highest economic returns.

Crops other than those shown in table 2 are grown in the county, but their estimated yields are not included because their acreage is small or reliable data on yields are not available.

The estimated yields given in table 2 can be expected if the following management practices are used.

The value of the wood products is substantial, though it is below its potential. Other values are grazing, wildlife, recreation, natural beauty, and conservation of soil and water. This section explains how soils affect tree growth and management in the county. Table 3 lists potential productivity and management

TABLE 2.—*Estimated average acre yields of crops under intensive management*

[Absence of yield means that the crop is not commonly grown on the soil or that yield estimates are not available]

Soil	Corn	Soybeans	Tobacco	Cucumbers	Sweetpotatoes	Wheat	Coastal bermuda hay	Pasture	
								Fescue and clover	Coastal bermuda
	Bu	*Bu*	*Lb*	*Bu*	*Bu*	*Bu*	*Tons*	*AUM*[1]	*AUM*[1]
Bibb soils, frequently flooded	110	35	---	---	---	---	---	8.0	---
Blanton sand, 0 to 6 percent slopes	60	25	1,600	---	---	55	3.5	---	7.5
Chewacla loam, frequently flooded	90	---	---	---	---	---	---	7.0	---
Coxville loam	85	40	---	---	---	45	---	7.0	---
Craven fine sandy loam, 1 to 4 percent slopes	105	40	2,500	---	---	50	6.0	7.0	---

[redacted]

TABLE 3.—*Potential productivity, preferred species of trees, and hazards to management, by woodland suita-*

bility groups of soils—Continued

Woodland suitability groups, soil series, and map symbols	Description of soils in group	Potential productivity		Trees preferred for management and planting		Erosion hazard	Equipment limitations	Seedling mortality
		Trees	Site class [1]	Broad-leaved species	Needle-leaved species			
Group 2w2: Johns: Jo.	Nearly level, moderately well drained or somewhat poorly drained soils that have a loamy subsoil; high potential productivity; best suited to needle-leaved trees.	Loblolly pine Slash pine Longleaf pine	90 90 70	None recommended.	Loblolly pine, slash pine, longleaf pine.	Slight	Moderate	Moderate.
Group 2w3: Rains: Ra.	Nearly level, poorly drained soils that have a loamy subsoil; on uplands; high potential productivity; best suited to needle-leaved trees.	Loblolly pine [2] Slash pine [2] Longleaf pine [2] Sweetgum [2]	90 90 70 90	None recommended.	Loblolly pine [4], slash pine [4].	Slight	Severe [3]	Severe [3].
Group 2w8: Goldsboro: Go. Lenoir: Ln. Lynchburg: Ly. Stallings: St.	Nearly level, moderately well drained or somewhat poorly drained soils that have a loamy, clayey or sandy subsoil; on uplands and stream terraces; high potential productivity; suited to needleleaved trees, broadleaved trees, or a combination of both.	Loblolly pine Slash pine Longleaf pine Sweetgum Water oak Yellow-poplar	90 90 70 90 90 100	Sweetgum, yellow-poplar, water oak, willow oak, white oak, swamp chestnut oak, cherrybark oak.	Longleaf pine, slash pine, longleaf pine.	Slight	Moderate	Slight to moderate.
Group 2w9: Bibb: BB. Coxville: Co. Grifton: Gr. Leaf: Le. Lumbee: Lu. Murville: Mu. Torhunta: To. Woodington: Wn.	Nearly level, poorly drained or very poorly drained soils that have a loamy, sandy or clayey subsoil; on flood plains, uplands and stream terraces; high potential productivity; suited to broad-leaved trees, needle-leaved trees, or a combination of both.	Loblolly pine [2] Slash pine [2] Sweetgum [2] Water oak [2] Willow oak [2] Green ash [2] Cottonwood	90 90 90 90 90 90 100	Sweetgum [4], yellow-poplar [4], willow oak [4], water oak [4], cherrybark oak [4], shumard oak [4], green ash [4], sycamore [4], swamp tupelo.	Loblolly pine [4], slash pine [4], longleaf pine [4], baldcypress.	Slight	Severe [3]	Severe [3].
Group 3s2: Blanton: Bn. Kenansville: Ke. Pocalla: Po.	Nearly level to strongly sloping, well drained or somewhat excessively drained	Loblolly pine Slash pine Longleaf pine	80 80 70	None recommended.	Slash pine, loblolly pine, longleaf pine.	Slight	Moderate	Moderate.

TABLE 3.—*Potential productivity, preferred species of trees, and hazards to management, by woodland suitability groups of soils*—Continued

Woodland suitability groups, soil series, and map symbols	Description of soils in group	Potential productivity		Trees preferred for management and planting		Erosion hazard	Equipment limitations	Seedling mortality
		Trees	Site class [1]	Broad-leaved species	Needle-leaved species			
Group 3w2: Craven: Cr, Cv. Pactolus: Pa.	Nearly level to sloping, mainly moderately well drained soils that have a loamy or clayey subsoil; on uplands and stream terraces; moderately high potential productivity; best suited to needle-leaved trees.	Slash pine Loblolly pine Longleaf pine	80 80 70	None recommended.	Slash pine, loblolly pine, longleaf pine.	Slight	Moderate	Slight.
Group 4s2: Lakeland: La.	Nearly level to gently sloping, excessively drained soils that have a sandy underlying layer; on uplands and stream terraces; moderate potential productivity; best suited to needle-leaved trees.	Slash pine Loblolly pine Longleaf pine	70 60 70	None recommended.	Slash pine, longleaf pine.	Slight	Moderate	Moderate.
Group 4w2: Leon: Lo.	Nearly level, somewhat poorly drained soils that have a sandy subsoil; on uplands and stream terraces; moderate potential productivity; best suited to needle-leave trees.	Slash pine Loblolly pine Longleaf pine	70 70 60	None recommended.	Slash pine, loblolly pine.	Slight	Moderate	Moderate.
Group 4w3: Pamlico: Pc.	Nearly level, very poorly drained soils that have sandy underlying layers; on flood plains and stream terraces; subject to very frequent flooding; moderate potential productivity; suited to needle-leaved trees.	Slash pine [2] Loblolly pine [2] Pond pine [2]	70 70 60	Swamp tupelo, sweetgum [4].	Slash pine [4], loblolly pine [4], pond pine [4], baldcypress, atlantic white cedar.	Slight	Severe [3]	Severe [3].

[1] Site class is the numerical designation of the relative potential productivity of the species shown in the table. It is based on site index, which is the average of the total heights, measured in feet, of the dominant and co-dominant trees in an even-aged stand at age 30 for cottonwood, at age 35 for sycamore, and at age 50 for all other species or types. Site index was rounded to the nearest 10-foot interval to determine site class. For some trees, especially broad-leaved species, site class is based on the comparative site class of other species on the same soil.

[2] Potential productivity can be attained only where soils have adequate surface drainage.

[3] Tree planting is feasible only on areas where surface drainage is adequate.

[4] Moderate on soils where drainage is adequate.

Use of Soils for Wildlife [3]

Wildlife is related to soils through an indirect re- are directly related to particular kinds of soils. Proper manipulation of soil, water, and plants to produce

The soils of Lenoir County produce a wide variety of plants that provide food, cover, and protection for many species of wildlife. Such upland game species as squirrel, rabbits, quail, mourning doves, foxes, and songbirds are abundant throughout the county. Populations of such furbearers as raccoon, mink, muskrat, and opposum are also abundant. Several species of such waterfowl as mallards, black ducks, and wood ducks are abundant along the Neuse River and Contentea Creek and their tributaries.

In table 4 the soils in the county have been rated for seven elements of wildlife habitat. Summary ratings have been made for the three kinds of wildlife for which one might expect to manage. It should be emphasized that the ratings were made using criteria applicable to the individual element. Following is a brief explanation of each element:

Grain and seed crops are domestic grains or other herbs, shrubs, and vines. Mourning doves, quail, red foxes, cottontail rabbits, and many species of songbirds are typical examples of wildlife one might expect to find in this group.

Woodland wildlife.—Birds and mammals of wooded areas containing hardwoods or coniferous trees and shrubs, or both. Examples are squirrels, woodpeckers, and gray foxes.

Wetland wildlife.—Birds and mammals that are found mainly in such wetland communities as swamps, marshes, or ponds. Examples are muskrat, raccoon, redwing blackbird, and various species of ducks.

The soils are rated for the three kinds of wildlife using four levels of suitability. This suitability is expressed by an adjective rating that can be defined as follows:

Good.—Habitats are easily improved, maintained, or created. Few or no soil limitations in habitat

TABLE 4.—*Suitability of soils for elements of wildlife habitat and kinds of wildlife*

Soil series and map symbols [1]	Elements of wildlife habitat						Kinds of wildlife			
	Grain and seed crops	Domestic grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow-water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Bibb: BB	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Blanton: Bn	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
Chewacla: Ch	Very poor.	Poor	Poor	Good	Good	Fair	Fair	Poor	Fair	Fair.
Coxville: Co	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Craven: Cr, Cv	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Goldsboro: Go	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Grifton: Gr	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Johns: Jo	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Johnston: JS	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Kalmia: Ka, Kb	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Kenansville: Ke	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Kinston: Kn	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Lakeland: La	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Leaf: Le	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Lenoir: Ln	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Leon: Lo	Poor	Poor	Fair	Poor	Poor	Poor	Very poor.	Poor	Poor	Very poor.
Lumbee: Lu	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Lynchburg: Ly	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
Meggett: Me	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Murville: Mu	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Norfolk:										
Na, Nb	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Nc	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Pactolus: Pa	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Pamlico: Pc	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Pantego: Pe	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Pocalla: Po	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Portsmouth: Pr	Very poor.	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Rains: Ra	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Stallings: St	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
Torhunta: To	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Umbric Ochraqualfs: Uo	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Wagram: Wb	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Wagram: Wc, Wd	Fair	Good	Good	Good	Good	Very poor.	Very poor	Good	Good	Very poor.
Wickham: Wk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Woodington: Wn	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair	Fair.

[1] All soils are rated for natural conditions.

come or modified by planning, by design, or by special maintenance. A *severe* limitation means that costly soil reclamation, special design, intense maintenance, or a combination of these is required.

Camp areas are used intensively for tents and small camp trailers and the accompanying activities of outdoor living. Little preparation of the site is required, other than shaping and leveling for tent and parking areas. Camp areas are subject to heavy foot traffic and limited vehicular traffic. The best soils have gentle slopes, good drainage, and a surface free of rocks and coarse fragments. The surface is firm after rains but

TABLE 5.—*Degree of soil limitations and major features affecting use of soils for recreational development*

Soil series and map symbols	Camp areas	Picnic areas	Playgrounds	Paths and trails
Bibb: BB	Severe: flooding; wetness.	Severe: flooding: wetness.	Severe: flooding; wetness.	Severe: flooding; wetness.
Blanton: Bn	Severe: sand surface layer.	Severe: sand surface layer.	Severe: sand surface layer.	Severe: loose sand surface layer.
Chewacla: Ch	Severe: flooding; wetness.	Severe: flooding; wetness.	Severe: flooding; wetness.	Moderate: flooding; wetness.
Coxville: Co	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.
Craven: Cr, Cv	Moderate: slow permeability.	Slight	Moderate if slopes are 0 to 6 percent; permeability. Severe if slopes are 6 to 8 percent.	Slight.
Goldsboro: Go	Slight	Slight	Slight	Slight.
Grifton: Gr	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.
Johns: Jo	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness.
Johnston: JS	Severe: flooding; wetness.	Severe: flooding; wetness.	Severe: flooding; wetness.	Severe: flooding; wetness.
Kalmia: Ka, Kb	Slight	Slight	Slight if slopes are 0 to 2 percent. Moderate if slopes are 2 to 6 percent.	Slight.
Kenansville: Ke	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer.

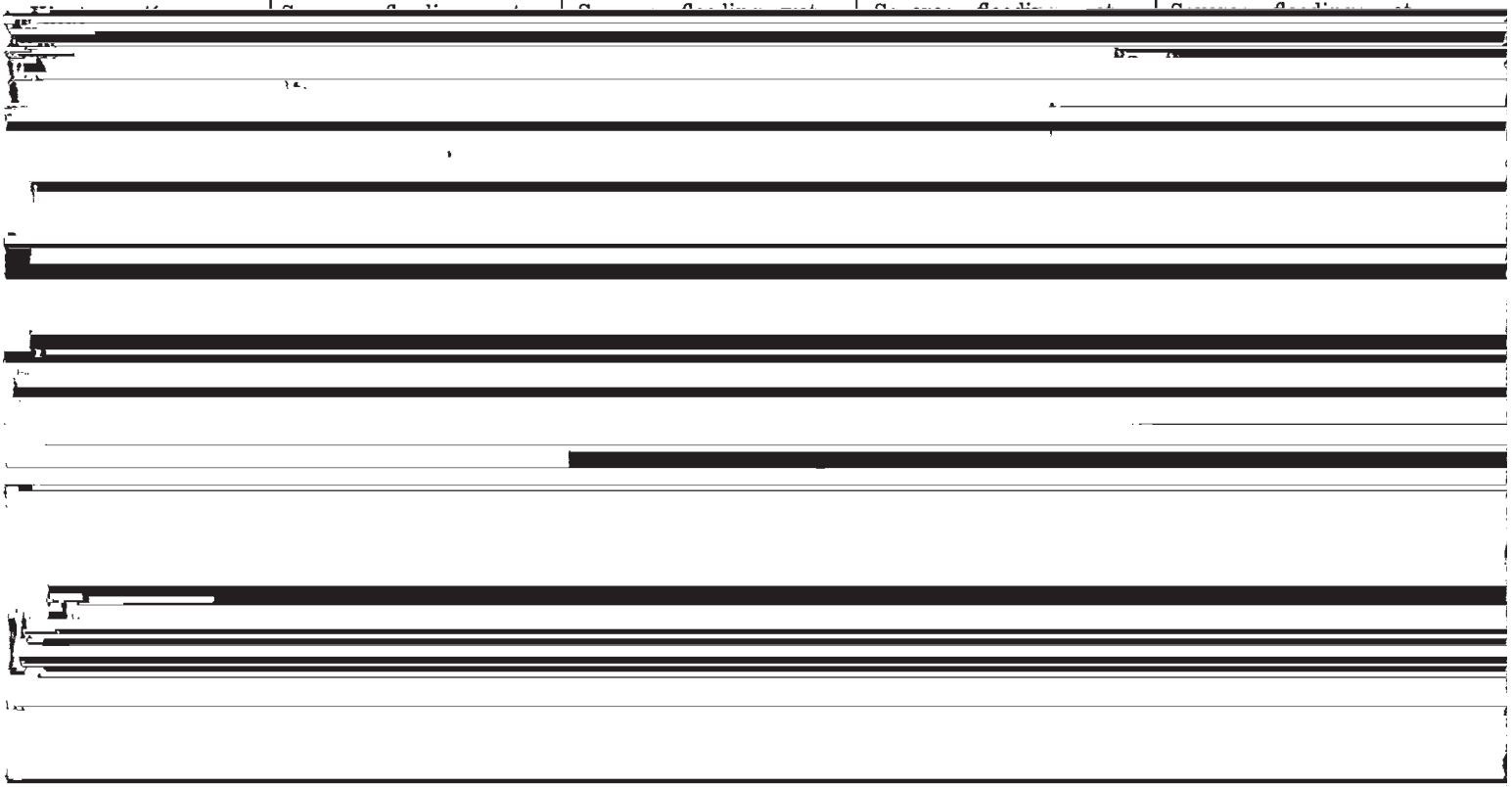


TABLE 5.—*Degree of soil limitations and major features affecting use of soils for recreational development* —Continued

Soil series and map symbols	Camp areas	Picnic areas	Playgrounds	Paths and trails
Pactolus: Pa	Moderate: wetness; sandy surface layer.	Moderate: wetness; sandy surface layer.	Moderate: wetness; sandy surface layer.	Moderate: sandy surface layer.
Pamlico: Pc	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness.
Pantego: Pe	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.
Pocalla: Po	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer; subject to blowing.	Moderate: sandy surface layer.
Portsmouth: Pr	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.
Rains: Ra	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.	Severe: wetness; surface ponding where undrained.
Stallings: St	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate:

upon which structures are built. Among those who can

and others, and the AASHTO system adopted by the

town and city managers, land developers, engineers, contractors, and farmers.

portation Officials (*1*).

In the Unified system (*2*) soils are classified accord-

terial. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from the semisolid to the plastic state, and the liquid limit is the moisture content at which it changes from a plastic

suitability of the soils for all listed purposes other than for drainage of crops and pasture, irrigation, ponds and reservoirs, embankments, and terraces and diversions. For these particular uses, table 7 lists those soil features not to be overlooked in planning, installation, and maintenance.

Soil limitations are indicated by the ratings slight, moderate, and severe. Slight means that soil

TABLE 6.—Estimated soil properties

[The symbol > means greater

Soil series and map symbols	Flood hazard: frequency; duration	Depth to seasonal high water table	Depth from surface	USDA texture	Classification		Liquid limit	Plasticity index
					Unified	AASHTO		
		Ft	*In*					
Bibb: BB	Frequent; brief.	0	0–45	Sandy loam	SM, SM–SC	A–2 or A–4	<35	NP–7
			45–70	Loamy sand, sand.	SM	A–2	--	NP
Blanton: Bn	None.	5	0–55	Sand	SM or SP–SM	A–2 or A–3	--	NP
			55–98	Sandy clay loam, sandy loam.	SC	A–4	18–30	8–10
			98–120	Loamy sand	SM	A–2	--	NP
Chewacla: Ch	Frequent; brief.	1.5	0–12	Loam	ML, CL or ML–CL	A–4 or A–6	<40	NP–13
			12–27	Clay loam	CL or ML–CL	A–4 or A–6	20–30	4–11
			27–65	Sandy loam, loamy sand.	SM, SC, or SM–SC	A–2 or A–4	<30	NP–10
Coxville: Co	Ponding [1].	0	0–12	Loam	ML–CL or CL	A–4 or A–6	20–30	4–12
			12–62	Clay loam	CL	A–6	30–40	15–25
			62–75	Sandy clay loam.	SC, CL, ML–CL, or SM–SC	A–4 or A–6	20–30	5–15
Craven: Cr, Cv	None.	2.5	0–13	Fine sandy loam, loam.	ML	A–4	--	NP
			13–52	Clay, clay loam.	CH	A–7	51–60	30–38
			52–80	Sandy clay loam.	SC or CL	A–7	42–50	20–30
Goldsboro: Go	None.	2.5	0–12	Loamy sand	SM	A–2	--	NP
			12–80	Sandy clay loam, sandy loam.	SM–SC, CL, CL–ML or SC	A–4 or A–6	16–35	4–17
Grifton: Gr	Ponding [1].	0	0–15	Sandy loam	SM	A–2 or A–4	<20	NP–3
			15–40	Sandy clay loam, sandy loam.	SC	A–4 or A–6	20–30	8–17
			40–70	Loamy sand.	SM	A–2 or A–4	15–30	NP–3

significant in engineering

than; < means less than]

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential	Corrosivity	
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)					Uncoated steel	Concrete
				In per hr	*In per in of soil*	*pH*			
95–100	90–100	60–70	30–40	0.6–2.0	0.10–0.14	4.5–5.5	Low	High	Moderate.
100	100	51-75	15–30	2.0–6.0	0.06–0.10	4.5–5.5	Low.		
100	100	51–70	5–15	6.0–20	0.02–0.05	4.5–5.5	Low	Low	High.
100	95–100	60–90	36–50	0.6–2.0	0.10–0.13	4.5–5.5	Low.		
100	95–100	51–75	15–30	6.0–20	0.05–0.10	4.5–5.5	Low.		
100	100	85–95	60–75	0.6–2.0	0.15–0.19	5.1–6.0	Low	High	Moderate.
100	100	90–100	70–80	0.6–2.0	0.17–0.19	5.1–6.0	Low.		
96–100	96–100	60–70	15–40	0.6–2.0	0.06–0.14	5.1–6.0	Low.		
100	100	85–100	60–75	0.6–2.0	0.15–0.19	4.5–6.0	Low	High	High.
100	100	90–100	70–80	0.2–0.6	0.14–0.18	4.5–5.5	Moderate.		
100	100	80–95	36–55	0.2–0.6	0.13–0.15	4.5–5.5	Low.		
100	100	75–95	51–65	0.6–2.0	0.12–0.18	4.5–6.0	Low	High	High.
100	100	90–100	70–95	0.06–0.2	0.12–0.15	4.5–5.5	Moderate.		
100	100	80–90	36–55	0.06–0.2	0.12–0.15	4.5–5.5	Low.		
100	100	51–75	15–30	2.0–6.0	0.06–0.08	4.5–5.5	Low	Moderate	High.
100	100	60–90	36–55	0.6–2.0	0.12–0.15	4.5–5.5	Low.		
100	95–100	60–95	30–40	2.0–6.0	0.12–0.15	5.1–5.5	Low	High	Moderate.
100	100	60–90	36–50	.60–2.0	0.10–0.15	5.1–6.0	Low.		
100	100	51–75	20–40	.60–2.0	0.12–0.14	6.1–8.4	Low.		
100	100	60–70	30–40	2.0–6.0	0.10–0.14	4.5–5.5	Low	Moderate	High.
100	95–100	60–90	36–55	0.6–2.0	0.12–0.15	4.5–5.5	Low.		
100	90–100	51–70	5–15	6.0–20	0.03–0.06	4.5–5.5	Low.		
100	100	90–100	80–90	0.6–2.0	0.20–0.26	4.5–5.5		High	High.
100	100	60–75	30–45	2.0–6.0	0.10–0.14	4.5–5.5	Low.		
100	100	51–70	5–15	6.0–20	0.02–0.06	4.5–5.5	Low.		
100	100	65–90	15–30	2.0–6.0	0.06–0.10	4.5–5.5	Low	Moderate	High.
100	95–100	65–90	30–50	0.6–2.0	0.12–0.15	4.5–5.5	Low.		
100	90–100	60–100	5–15	6.0–2.0	0.02–0.05	4.5–5.5	Low.		
100	100	51–75	15–30	6.0–20	0.05–0.10	4.5–6.0	Low	Low	High.
100	100	60–70	20–35	2.0–6.0	0.10–0.14	4.5–5.5	Low.		
100	90–100	60–75	5–25	6.0–20	0.02–0.05	4.5–5.5	Low.		

TABLE 6.—*Estimated soil properties*

Soil series and map symbols	Flood hazard: frequency; duration	Depth to seasonal high water table	Depth from surface	USDA texture	Classification		Liquid limit	Plasticity index
					Unified	AASHTO		
		Ft	*In*					
Kinston: Kn	Frequent; brief periods.	0	0–6	Loam	CL	A–6	25–35	15–20
			6–50	Clay loam	CL	A–6	15–40	12–18
			50–65	Clay loam	ML, CL or ML–CL	A–4 or A–6, A–3	<40	NP–18
Lakeland: La	None.	5	0–90	Sand	SP–SM	A–2	--	NP
Leaf: Le	Ponding.	0	0–10	Loam	CL	A–4 or A–6	30–40	8–15
			10–80	Clay, clay loam.	CL or CH	A–7	41–55	19–37
Lenoir: Ln	None.	1.5	0–11	Loam	ML, CL or ML–CL	A–4	<35	NP–10
			11–75	Clay, clay loam.	CL	A–6 or A–7	30–49	20–30
Leon: Lo	None.	1.5	0–14	Sand	SP–SM	A–2 or A–3	<24	NP–3
			14–37	Sand, loamy sand.	SM or SP–SM	A–2 or A–3	<15	NP–3
			37–72	Sand	SP–SM	A–2 or A–3	<15	NP–3
Lumbee: Lu	Ponding.	0	0–12	Sandy loam	SM	A–2 or A–4	<20	NP–3
			12–38	Sandy clay loam, sandy loam.	SC or SM–SC	A–4 or A–6	19–35	4–15
			38–65	Sand	SP–SM or SM	A–2 or A–3	--	NP
Lynchburg: Ly	None.	1.5	0–12	Sandy loam	SM	A–4 or A–2	<25	NP–3
			12–85	Sandy clay loam.	SC or CL, ML–CL, SM–SC	A–4 or A–6	20–40	4–16
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[redacted]

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential	Corrosivity	
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)					Uncoated steel	Concrete
				In per hr	*In per in of soil*	*pH*			
100	100	85–95	60–75	2.0–6.0	0.15–0.20	4.5–5.5	Low	High	High.
100	100	90–100	70–80	0.6–2.0	0.15–0.20	4.5–5.5	Low.		
100	90–100	90–100	70–80	0.6–2.0	0.12–0.16	4.5–5.5	Low		
[redacted]									

TABLE 6.—*Estimated soil properties*

Soil series and map symbols	Flood hazard: frequency; duration	Depth to seasonal high water table	Depth from surface	USDA texture	Classification		Liquid limit	Plasticity index
					Unified	AASHTO		
Portsmouth: Pr	Ponding	0	0–13	Loam	ML or ML–CL	A–4	20–40	3–10
			13–38	Sandy clay loam, sandy loam.	SC or SM–SC	A–4 or A–6	19–35	4–15
			38–70	Sand	SP–SM or SM	A–2 or A–3		NP
Rains: Ra	Ponding	0	0–13	Sandy loam	SM, SC or SM–SC	A–2 or A–4	<20	NP–10
			13–63	Sandy clay loam.	SC or SM–SC	A–4	15–30	4–20
			63–85	Sandy clay loam.	SC	A–2 or A–6	20–40	11–20
Stallings: St	None.	1	0–12	Loamy sand	SM	A–2	--	NP
			12–42	Sandy loam	SM	A–2 or A–4	<25	NP–3
			42–80	Loamy sand	SM	A–2	--	NP
Torhunta: To	Ponding.	0	0–14	Loam	ML	A–4	--	NP
			14–36	Sandy loam	SM	A–4 or A–2	--	NP
			36–65	Loamy sand, sand.	SM or SP–SM	A–2 or A–3	--	NP
Umbric Ochraqualfs: Uo.	Frequent ponding.	0	0–14	Loam	ML, CL, CL–ML	A–4	<40	NP–10
			14–70	Sandy clay loam, sandy clay.	CL or SC	A–6 or A–7	30–49	15–30
Wagram: Wb, Wc, Wd	None.	5	0–30	Loamy sand	SM	A–2	<20	NP–3
			30–90	Sandy clay loam.	SC, SC–SM	A–4 or A–6	21–30	5–12
Wickham: Wk	None.	5	0–15	Loamy sand	SM	A–2	--	NP
			15–43	Sandy clay loam, sandy loam.	SC, SC–SM, SM	A–4	<30	NP–10
			43–65	Loamy sand	SM	A–2	--	NP
Woodington: Wn	Ponding.	1	0–12	Loamy sand	SM	A–2	--	NP
			12–47	Sandy loam	SM, SC or SM–SC	A–4 or A–2	<30	NP–10
			47–85	Loamy sand	SM	A–2	--	NP

[1] Shallow water commonly stands during or following a rain.

TABLE 7.—*Interpretations of*

significant in engineering—Continued

Percentage less than 3 inches passing sieve—				Permeability	Available water capacity	Reaction	Shrink-swell potential	Corrosivity	
No. 4 (4.7 mm)	No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)					Uncoated steel	Concrete
100	100	85–95	60–75	0.6–2.0	0.14–0.18	4.0–5.5	Low	High	High.
100	95–100	60–85	36–50	0.6–2.0	0.13–0.15	4.5–5.5	Low.		
100	95–100	51–70	5–15	6.0–20	0.02–0.05	4.5–5.5	Low.		
100	100	60–70	30–40	2.0–6.0	0.08–0.12	4.5–6.0	Low	High	High.
100	100	80–90	36–50	0.6–2.0	0.10–0.14	4.5–5.5	Low.		
100	95–100	60–70	30–40	0.6–2.0	0.11–0.15	4.5–5.5	Low.		
100	100	51–75	15–30	6.0–20	0.06–0.10	4.5–5.5	Low	Moderate	High.
100	100	60–70	30–40	2.0–6.0	0.10–0.14	4.5–5.5	Low.		
100	100	51–75	15–30	6.0–20	0.06–0.08	4.5–5.5	Low.		
100	100	85–95	60–75	2.0–6.0	0.10–0.15	4.0–5.5	Low	High	High.
100	100	60–70	30–40	2.0–6.0	0.10–0.15	4.0–5.5	Low.		
100	95–100	51–75	5–25	6.0–20	0.02–0.05	4.0–5.5	Low.		
100	100	85–95	60–75	0.6–2.0	0.15–0.17	4.5–5.5	Low	High	Low.
100	100	80–95	36–60	0.6–2.0	0.15–0.17	6.1–8.4	Moderate.		
100	100	51–75	15–30	6.0–20	0.06–0.08	4.5–6.0	Low	Low	High.
100	95–100	60–90	36–50	2.0–6.0	0.13–0.15	4.5–5.5	Low.		
100	100	51–75	15–30	2.0–6.0	0.06–0.10	5.1–6.5	Low	Low	Moderate.
100	100	60–90	36–50	0.6–2.0	0.13–0.15	5.1–6.5	Low.		
90–100	90–100	51–70	15–30	6.0–20	0.05–0.10	5.1–6.5	Low.		
100	100	51–75	15–30	6.0–20	0.06–0.10	4.5–5.5	Low	High	High.
100	100	60–70	30–40	2.0–6.0	0.10–0.14	4.5–5.5	Low.		
100	95–100	51–75	15–30	6.0–20	0.06–0.10	4.5–5.5	Low.		

engineering properties of the soils—Continued

available or that the practice is not applicable]

Degree of limitations and major soil features affecting selected use—						
Excavated ponds (aquifer fed)	Dwellings	Septic-tank filter fields	Sewage lagoons	Local roads and streets	Light industries	Sanitary landfill[1] (trench and area method)
Moderate: moderate permeability.	Severe: flooding; seasonal high water table.	Severe: flooding; seasonal high water table.	Severe: probable flood damage to embankment; moderately rapid permeability; sandy substratum at a depth of about 45 inches.	Severe: flooding; poorly drained.	Severe: flooding; seasonal high water table.	Severe: flooding; seasonal high water table; moderately rapid permeability; sandy substratum at a depth of about 45 inches.

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as source of—				Limitations for—	
	Topsoil	Sand	Gravel	Road fill	Pond reservoir areas	Pond embankments
Blanton: Bn	Poor: sand surface layer.	Poor: excessive fines.	Poor: improbable source.	Good	Moderate: moderate permeability.	Moderate: poor resistance to piping and erosion.
Chewacla: Ch	Good	Unsuited: excessive fines; seasonal high water table; subject to flooding; probable source below depth of about 4 feet.	Unsuited: excessive fines; seasonal high water table; subject to flooding; probable source below depth of about 4 feet.	Fair: somewhat poorly drained.	Moderate: moderate permeability.	Moderate: good to poor resistance to piping and erosion; medium compressibility.
Coxville: Co	Fair: limited amount of suitable material.	Unsuited: excessive fines.	Unsuited: excessive fines.	Poor: poorly drained.	Slight	Moderate: medium compressibility; fair slope stability.
Craven: Cr, Cv	Fair: limited amount of suitable material.	Unsuited: excessive fines.	Unsuited: excessive fines.	Poor: low strength.	Slight	Moderate: medium compressibility; fair slope stability.
Goldsboro: Go	Poor: loamy sand surface layer.	Poor: improbable source.	Poor: improbable source.	Good	Moderate: moderate permeability.	Slight
Grifton: Gr	Poor: poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: poorly drained.	Moderate: moderate permeability.	Moderate: good to poor resistance to piping and erosion.
Johns: Jo	Good.	Poor: excessive fines; probable source below depth of about 4 feet.	Poor: excessive fines; probable source below depth of about 4 feet.	Fair: somewhat poorly drained.	Severe: rapid permeability; sandy substratum at a depth of 34 inches.	Moderate: good to poor resistance to piping and erosion; medium permeability.
Johnston: JS	Poor: very poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: very poorly drained.	Severe: rapid permeability; sandy substratum at a depth of about 38 inches.	Severe: poor resistance to piping.
Kalmia: Ka, Kb.	Poor: loamy sand surface layer.	Poor: excessive fines; probable source below depth of about 4 feet.	Poor: excessive fines; probable source below depth of about 4 feet.	Good	Severe: rapid permeability in sandy substratum at a depth of about 38 inches.	Moderate: good to poor resistance to piping and erosion.
Kenansville: Ke.	Poor: loamy sand surface layer.	Fair: few fines.	Poor: excessive fines; probable source below depth of about 4 feet.	Good	Severe: rapid permeability; sandy substratum at a depth of about 36 inches.	Moderate: medium permeability; poor resistance to piping and erosion.

engineering properties of the soils—Continued

[redacted]

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as source of—				Limitations for—	
	Topsoil	Sand	Gravel	Road fill	Pond reservoir areas	Pond embankments
Kinston: Kn	Poor: poorly drained.	Poor: excessive fines; seasonal high water table; subject to flooding; probable source below	Poor: excessive fines; seasonal high water table; subject to flooding; probable source	Poor: poorly drained.	Moderate: moderate permeability.	Moderate: good to poor resistance to piping and erosion; medium compressibility.

engineering properties of the soils—Continued

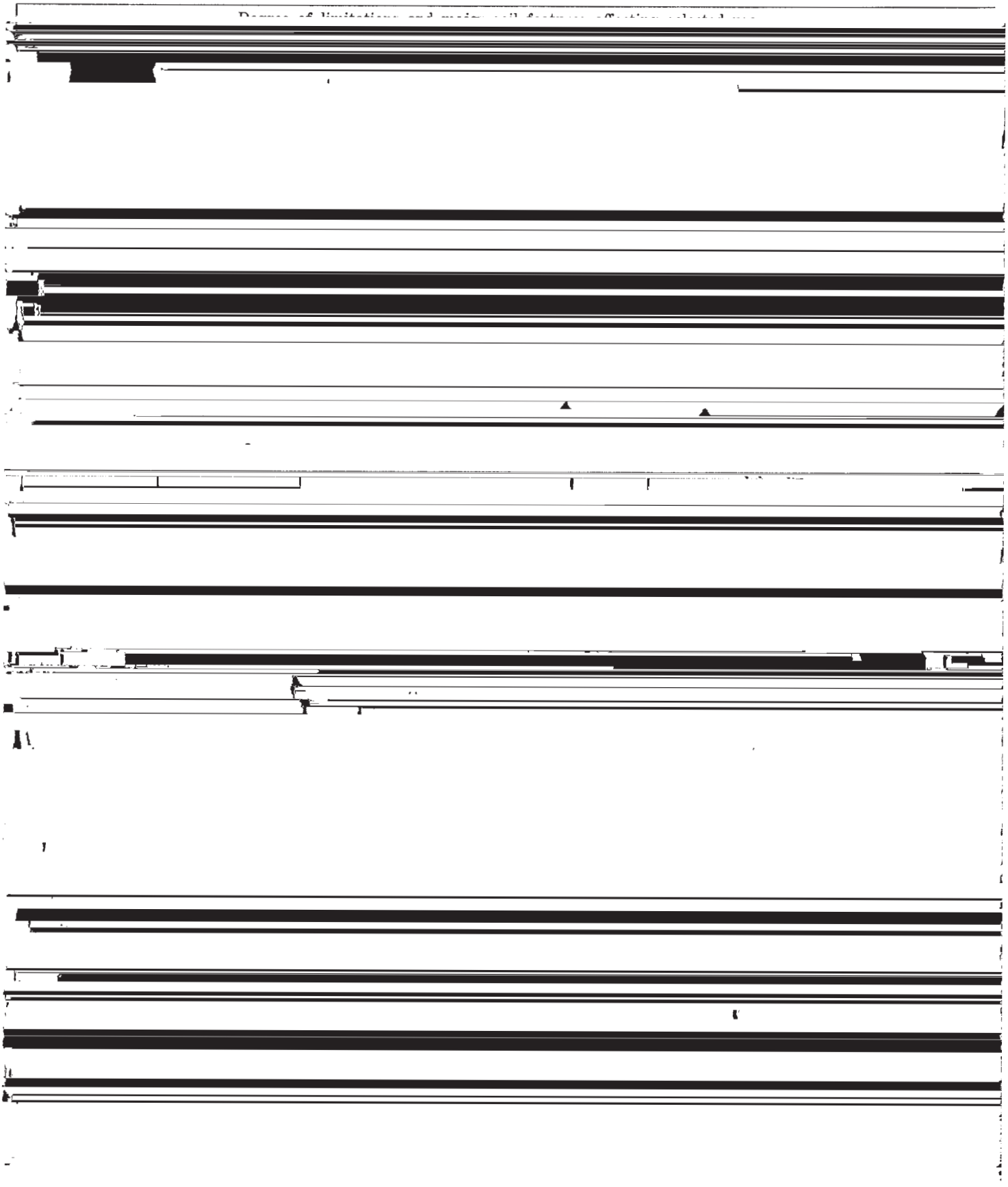


TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as source of—				Limitations for—	
	Topsoil	Sand	Gravel	Road fill	Pond reservoir areas	Pond embankments
Norfolk: Na, Nb, Nc.	Poor: loamy sand surface layer.	Poor: improbable source.	Poor: improbable source.	Good	Moderate: moderate permeability.	Slight
Pactolus: Pa	Poor: loamy sand surface layer.	Fair: some fines.	Poor: improbable source.	Fair: somewhat poorly drained.	Severe: rapid permeability.	Moderate: poor resistance to piping and erosion; poor slope stability; medium to high permeability.
Pamlico: Pc	Poor: very poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: very poorly drained; organic surface layer.	Severe: moderately rapid permeability; sandy substratum at a depth of 33 inches.	Severe: poor slope stability; high compressibility.
Pantego: Pe	Poor: very poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: very poorly drained.	Moderate: moderate permeability.	Slight
Pocalla: Po	Poor: loamy sand surface layer.	Poor: excessive fines.	Poor: improbable source.	Good	Severe: rapid permeability; sandy substratum at a depth of about 40 inches.	Moderate: medium permeability; poor resistance to piping and erosion.
Portsmouth: Pr.	Poor: very poorly drained.	Poor: excessive fines; probable source below depth of about 4 feet.	Poor: improbable source.	Poor: very poorly drained.	Severe: rapid permeability; sandy substratum at a depth of about 38 inches.	Moderate: good to poor resistance to piping and erosion; suitable material at a depth of about 38 inches.
Rains: Ra	Poor: poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: poorly drained.	Moderate: moderate permeability.	Slight
Stallings: St	Poor: loamy sand surface layer.	Poor: improbable source.	Poor: improbable source.	Fair: somewhat poorly drained.	Severe: rapid permeability; sandy substratum at a depth of about 42 inches.	Moderate: poor resistance to piping and erosion; medium permeability; fair slope stability.

engineering properties of the soils—Continued

Degree of limitations and major soil features affecting selected use—						
Excavated ponds (aquifer fed)	Dwellings	Septic-tank filter fields	Sewage lagoons	Local roads and streets	Light industries	Sanitary landfill [1] (trench and area method)
Severe: deep to water table in dry season.	Slight if 0 to 8 percent slopes. Moderate if more than 8 percent slopes.	Slight if 0 to 8 percent slopes. Moderate if more than 8 percent slopes.	Moderate if 0 to 7 percent slopes; moderate permeability. Severe if 7 to 10 percent slopes.	Slight if 0 to 8 percent slopes. Moderate if 8 to 10 percent slopes.	Slight if 0 to 4 percent slopes. Moderate if 4 to 8 percent slopes. Severe if more than 8 to 10 percent slopes.	Slight.
Moderate: depth to water table in dry season.	Severe: seasonal high water table.	Severe: seasonal high water table.	Severe: seasonal high water table; rapid permeability.	Moderate: somewhat poorly drained.	Severe: seasonal high water table.	Severe: seasonal high water table; rapid permeability.
Slight	Severe: seasonal high water table; surface ponding and flooding.	Severe: seasonal high water table; flooding.	Severe: seasonal high water table; flooding; high in content of organic matter; moderately rapid permeability; sandy substratum at a depth of 33 inches.	Severe: very poorly drained; flooding.	Severe: seasonal high water table.	Severe: seasonal high water table; flooding; moderately rapid permeability; sandy substratum at a depth of 33 inches.
Slight	Severe: seasonal high	Severe: seasonal high	Severe: seasonal high	Severe: very poorly	Severe: seasonal high	Severe: seasonal high

TABLE 7.—*Interpretations of*

Soil series and map symbols	Suitability as source of—				Limitations for—	
	Topsoil	Sand	Gravel	Road fill	Pond reservoir areas	Pond embankments
Torhunta: To	Poor: very poorly drained.	Poor: improbable source.	Poor: improbable source.	Poor: very poorly drained.	Severe: rapid permeability; sandy substratum at a depth of about 36 inches.	Moderate: poor resistance to piping and erosion; medium permeability; fair slope stability.
Umbric Ochraqualfs: Uo.	Poor: very poorly drained.	Unsuited: excessive fines.	Poor: improbable source.	Poor: very poorly drained.	Moderate: moderate permeability.	Slight: very poorly drained.
Wagram: Wb, Wc, Wd.	Poor: loamy sand surface layer.	Fair: probable source.	Poor: improbable source.	Good	Severe: moderately rapid permeability.	Moderate: poor resistance to piping.
Wickham: Wk	Poor: loamy sand surface layer.	Poor: excessive fines; probable source below depth of about 4 feet.	Poor: excessive fines; probable source below depth of about 4 feet.	Good	Severe: rapid permeability; sandy substratum at a depth of about 43 inches.	Moderate: poor resistance to piping.
Woodington: Wn.	Poor: poorly drained.	Poor: excessive fines.	Poor: improbable source.	Poor: poorly drained.	Severe: rapid permeability; sandy substratum at a depth of 47 inches.	Moderate: poor resistance to piping and erosion; medium permeability; fair slope stability.

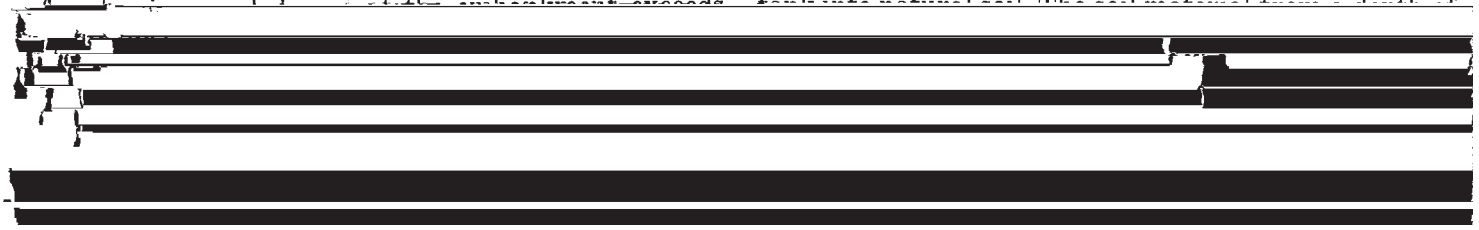
[1] Onsite studies of the underlying strata, water tables, and hazards of aquifer pollution and drainage into ground water

are not rated in this table. Embankment foundation, reservoir area, and slope are assumed to be suitable for pond construction. Soil properties that affect the embankment and the availability of borrow material are considered. The best soils have good slope stability, low permeability, slight compressibility under load, and good resistance to piping and are thick enough for easy excavation.

An aquifer-fed excavated pond (fig. 12) is a body of water created by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds fed by runoff and also embankment-type ponds where the depth

are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support load and resist settlement under load, and those that relate to ease of excavation. Soil properties that affect capacity to support load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, and depth to marl.

Septic tank filter fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic



engineering properties of the soils

Degree of limitations and major soil features affecting selected use—						
Excavated ponds (aquifer fed)	Dwellings	Septic-tank filter fields	Sewage lagoons	Local roads and streets	Light industries	Sanitary landfill [1] (trench and area method)
Slight	Severe: seasonal high	Severe: seasonal high	Severe: seasonal high	Severe: very poorly	Severe: seasonal high	Severe: seasonal high

TABLE 8.—

[Tests performed by North Carolina State Highway Commission,

Soil name and location	Parent material	Report No. S70NC54–	Depth	Moisture-density [1]	
				Maximum dry density	Optimum moisture
			In	*Pct*	*Pct*
Coxville loam:					
2 miles southeast of LaGrange, 0.4 mile east of intersection of U.S. Highway 70 and State Road 1327, 0.3 mile southeast of State Road 1327, and 20 [illegible] southwest of farm road (Model)	Coastal Plain sediment.	5–1 5–3 5–6	0–8 12–27 62–75	107 109 122	16 17 11

Engineering test data

Department of Materials and Tests, Raleigh, N.C.]

Mechanical analysis [2]							Lquid limit	Plasticity index	Classification	
Percentage passing sieve—			Percentage smaller than—							
No. 10 (2.0 mm)	No. 40 (0.42 mm)	No. 200 (0.074 mm)	0.05 mm	0.02 mm	0.005 mm	0.002 mm			AASHTO [3]	Unified [4]
100	97	69	61	50	27	16	25	5	A–4(7)	CL–ML
100	98	81	75	66	44	38	37	20	A–6(12)	CL
100	91	40	37	29	22	19	22	7	A–4(1)	SC
100	90	20	18	12	6	4	16	NP [5]	A–2–4(0)	SM
100	88	36	34	30	26	23	29	9	A–4(0)	SC
100	99	11	9	7	6	4	24	NP	A–2–4(0)	SM–SP
100	97	13	11	9	6	4	17	NP	A–2–4(0)	SM
100	97	24	22	21	17	15	17	NP	A–2–4(0)	SM
100	97	17	7	4	3	2	22	NP	A–2–4(0)	SM
100	90	11	9	6	3	2	24	NP	A–2–4(0)	SM–SP
100	89	17	16	14	9	6	15	NP	A–2–4(0)	SM
100	98	81	70	53	26	15	25	3	A–4(8)	ML
100	99	89	81	69	51	41	49	27	A–7–6(17)	CL
100	98	66	60	50	39	34	41	23	A–7–6(11)	CL
100	95	52	47	40	23	15	38	9	A–4(3)	ML
99.5	95	51	47	43	34	28	27	15	A–6(5)	CL
99	94	46	41	38	31	28	30	13	A–6(3)	SC

[redacted]

Figure 12.—High water level in pond on Torhunta loam.

the area it covers and the depth it extends below the surface. Any one individual soil may cover a few square yards or a several-hundred-acre area of the landscape, and different areas may have different shapes.

The factors that have affected the formation and composition of soils in Lenoir County are discussed in this section, and the soils are then classified in the current system.

Factors of Soil Formation

Soil is the product of the combined effects of plants

ageways on flood plains or terraces as alluvium. In places these closely related materials have been moved by wind or gravity.

The parent materials in the county differ in mineral and chemical composition and in physical makeup. Major differences, such as differences in texture, can be observed in the field. More obscure differences, such as differences in mineral composition, can be determined only by careful laboratory examination.

Many of the differences among the soils of Lenoir County reflect the varying geologic materials from which the soils were formed. Some examples of soils that formed in different parent materials are—

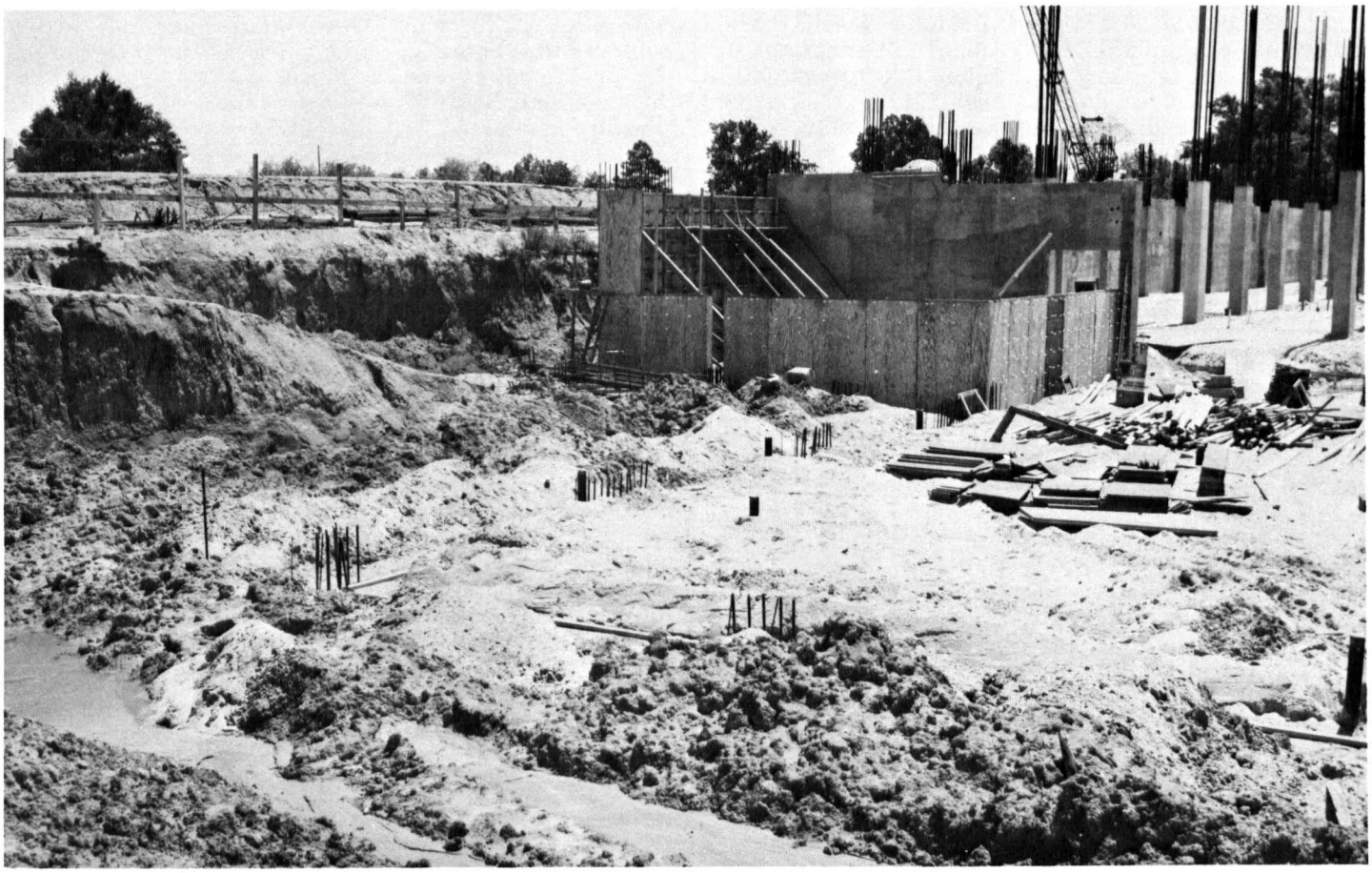


Figure 13.—**Construction on Norfolk loamy sand, 2 to 6 percent slopes. Norfolk soils have only slight limitations for building sites.**

Johnston, and Chewacla soils on flood plains, but they formed Wickham, Kalmia, Johns, and Lumbee soils on

of rainfall favor rapid decomposition of organic matter, hasten chemical reaction, speed leaching of soluble bases, and increase translocation of the less soluble fine

along the large drainageways. As fallen leaves, twigs, [redacted] with thick A2 horizons, fine-textured B horizons, bright

TABLE 9.—*Soils classified according to current system*

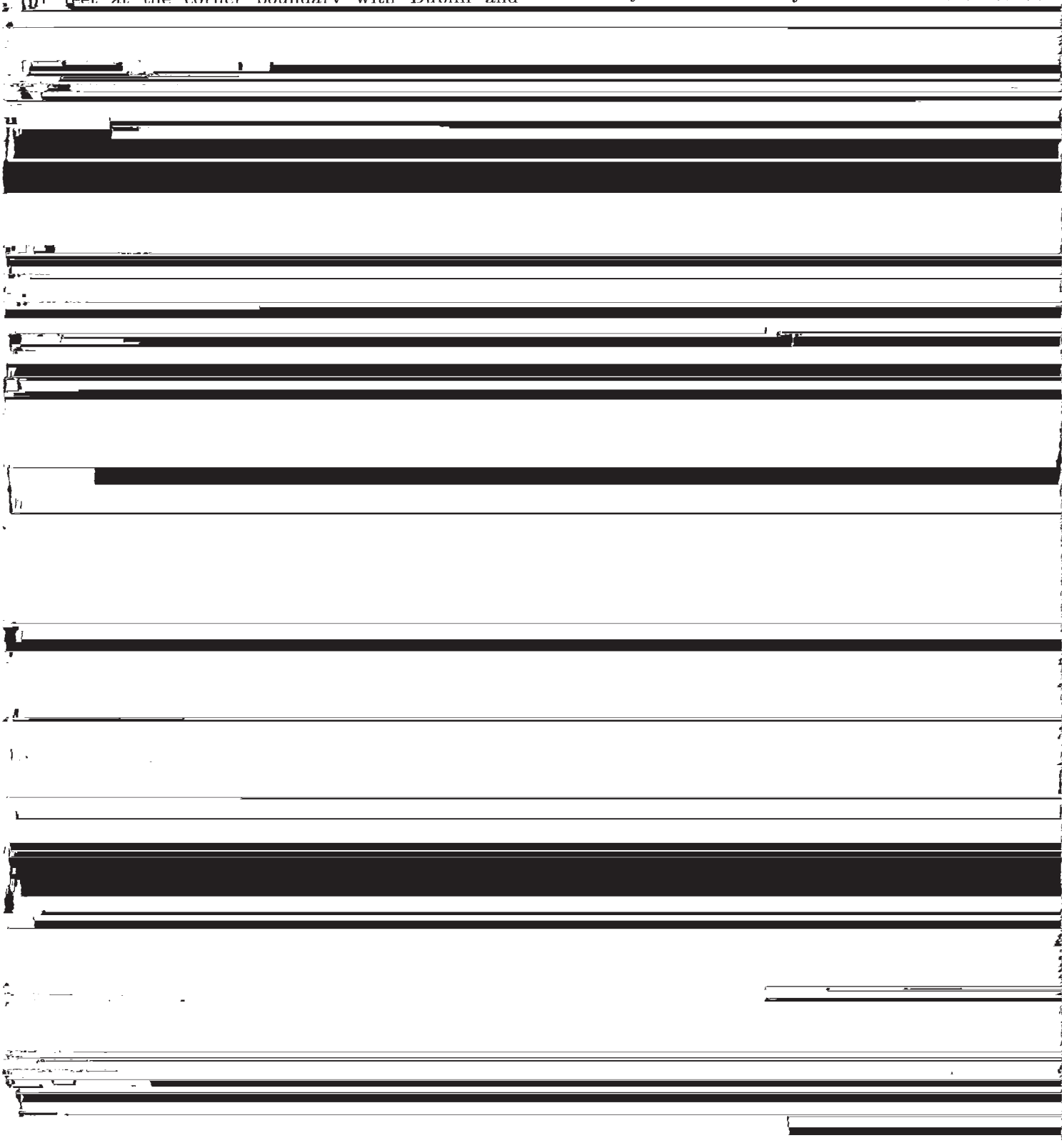
Series	Family	Subgroup	Order
Bibb	Coarse-loamy, siliceous, acid, thermic	Typic Fluvaquents	Entisols.
Blanton	Loamy, siliceous, thermic	Grossarenic Paleudults	Ultisols.
Chewacla	Fine-loamy, mixed, thermic	Fluvaquentic Dystrochrepts	Inceptisols.
Coxville	Clayey, kaolinitic, thermic	Typic Paleaquults	Ultisols.
Craven	Clayey, mixed, thermic	Aquic Hapludults	Ultisols.
Goldsboro	Fine-loamy, siliceous, thermic	Aquic Paleudults	Ultisols.
Grifton	Fine-loamy, siliceous, thermic	Typic Ochraqualfs	Alfisols.
Johns	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic.	Aquic Hapludults	Ultisols.
Johnston	Coarse-loamy, siliceous, acid, thermic	Cumulic Humaquepts	Inceptisols.
Kalmia	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic.	Typic Hapludults	Ultisols.
Kenansville	Loamy, siliceous, thermic	Arenic Hapludults	Ultisols.
Kinston	Fine-loamy, siliceous, acid, thermic	Typic Fluvaquents	Entisols.
Lakeland	Thermic, coated	Typic Quartzipsamments	Entisols.
Leaf	Clayey, mixed, thermic	Typic Albaquults	Ultisols.
Lenoir[1]	Clayey, mixed, thermic	Aeric Paleaquults	Ultisols.
Leon	Sandy, siliceous, thermic	Aeric Haplaquods	Spodosols.
Lumbee	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic.	Typic Ochraquults	Ultisols.
Lynchburg	Fine-loamy, siliceous, thermic	Aeric Paleaquults	Ultisols.
Meggett	Fine, mixed, thermic	Typic Albaqualfs	Alfisols.
Murville	Sandy, siliceous, thermic	Typic Haplaquods	Spodosols.

the county is nearly level, and the rest is gently sloping to strongly sloping.

According to elevation data based on U.S. Geological Survey quadrangle sheets, the highest elevation is about 161 feet at the corner boundary with Duplin and

Climate [5]

Causal Factors.—Lenoir County lies near the center of the North Carolina Coastal Plain. The climate of the county is influenced by this location because of



[All data were obtained from records at Kinston]

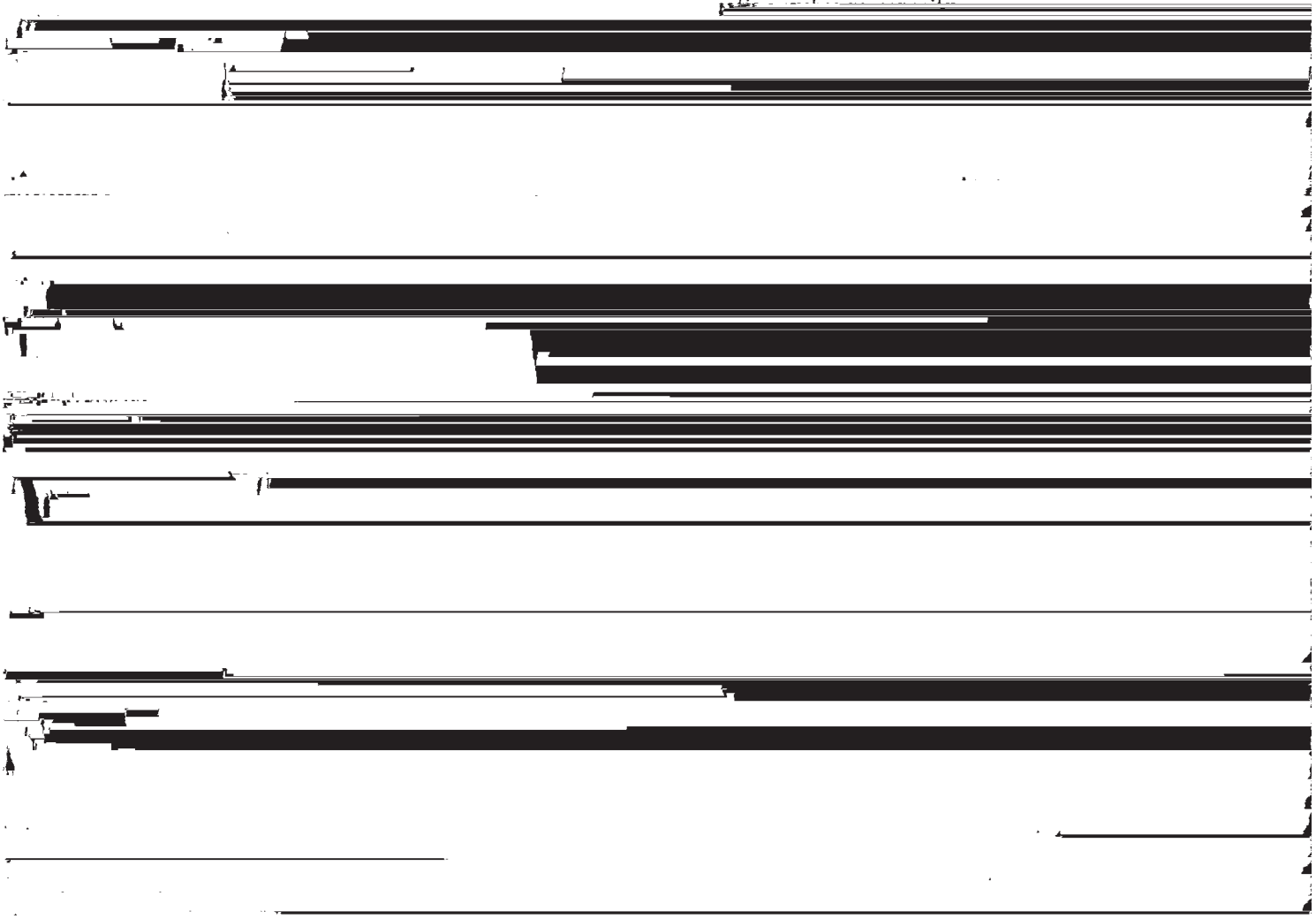
Probability	Dates for given probability and temperature of—				
	16° F or lower	20° F or lower	24° F or lower	28° F or lower	32° F or lower
Spring:					
1 year in 10 later than	February 25	March 8	March 20	April 2	April 13
2 years in 10 later than	February 12	February 24	March 11	March 24	April 7
5 years in 10 later than	January 22	February 8	February 25	March 12	March 27
Fall:					
1 year in 10 earlier than	December 9	November 22	November 14	October 31	October 24
2 years in 10 earlier than	December 14	November 30	November 20	November 6	October 30
5 years in 10 earlier than	December 21	December 10	November 29	November 15	November 8

fall is increased by the passage of a tropical storm through eastern North Carolina or the waters offshore.

Later, the first permanent white settlers moved into what would become North Carolina. In 1711, Europeans John Lawson and Baron Christopher Von Graf-

Transportation and Industry

Transportation facilities include one commercial airline, two air taxi and charter airlines, two railway systems, 12 common carriers, three bus lines, and a modern highway system of primary and secondary roads. Major industries are textiles, tobacco processing, and meatpacking.



Lenoir County Community College, a tax-supported,

Association, soil. A group of soils geographically associated in a characteristic repeating pattern.

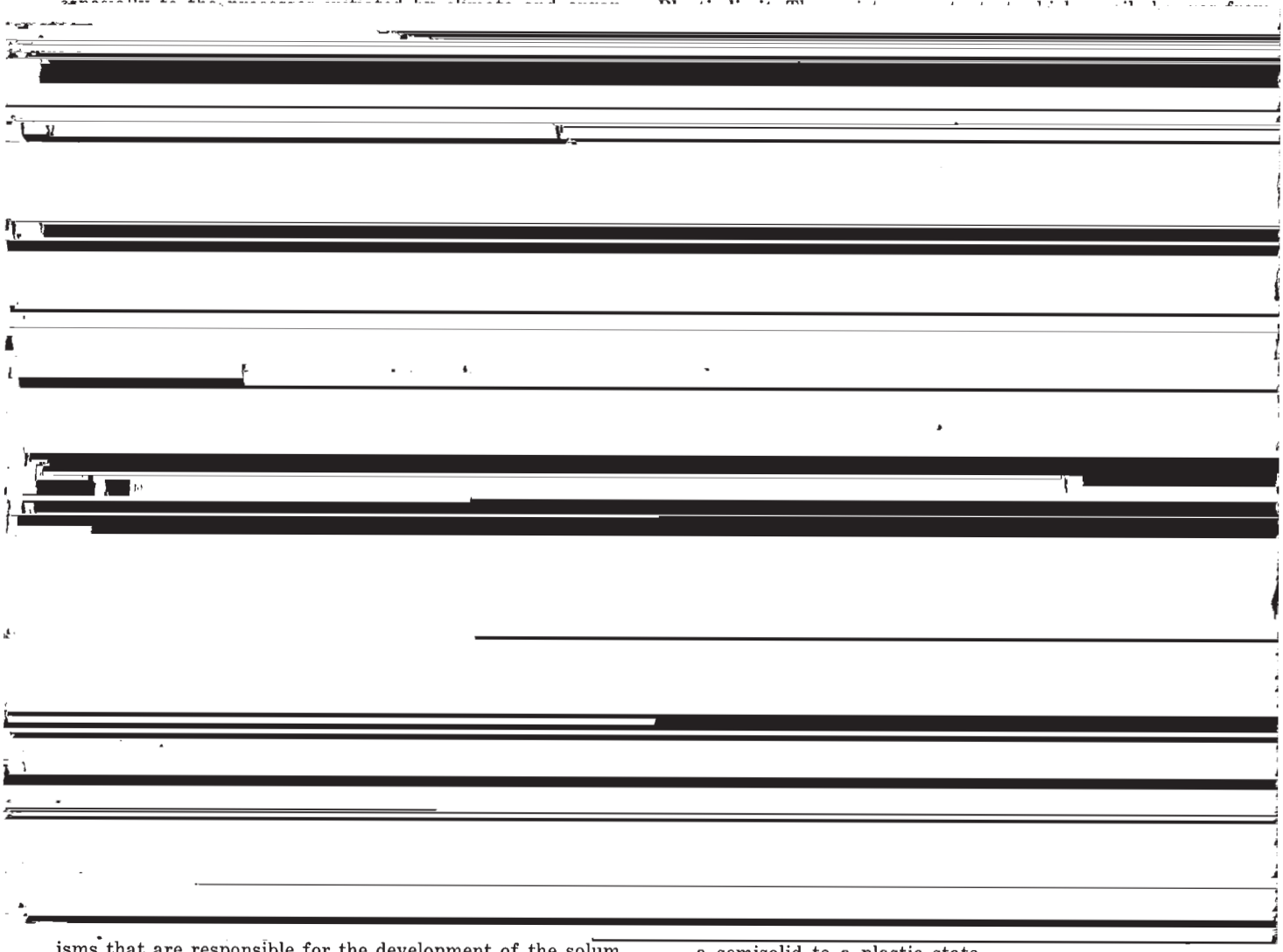
Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Base saturation. The degree to which material that has base-exchange properties is saturated with exchangeable cations other than hydrogen, expressed as a percentage of the

0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 per-

that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The manner in which a soil originates. Refers especially to the processes initiated by climate and organ-



isms that are responsible for the development of the solum, or true soil, from the unconsolidated parent material, as conditioned by relief and age of landform.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons.

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

a semisolid to a plastic state.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Neutral	6.6 to 7.3
Very strongly acid	4.5 to 5.0	Mildly alkaline	7.4 to 7.8
Strongly acid	5.1 to 5.5	Moderately alkaline	7.9 to 8.4
Medium acid	5.6 to 6.0	Strongly alkaline	8.5 to 9.0
Slightly acid	6.1 to 6.5	Very strongly alkaline	9.1 and

[redacted]

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which it belongs. The suitability of the soils for use as cropland and pasture is discussed in the soil descriptions and in the section "Use and Management of the Soils." The capability classification system is discussed on pages 29 and 30. For information about woodland groups, see the section beginning on page 31.

Map symbol	Mapping unit	Described on page	Capability unit or subclass	Woodland suitability group
			Symbol	Number
BB	Bibb soils, frequently flooded	6	Vw, frequently flooded	2w9
Bn	Blanton sand, 0 to 6 percent slopes	6	IIIs-1	3s2
Ch	Chewacla loam, frequently flooded	7	Vw, frequently flooded	1w8
Co	Coxville loam	8	IIIw-2, drained IVw, undrained	2w9
Cr	Craven fine sandy loam, 1 to 4 percent slopes	9	IIIe-1	3w2
Cv	Craven fine sandy loam, 4 to 8 percent slopes	9	IVe-1	3w2
Go	Goldsboro loamy sand, 0 to 2 percent slopes	9	IIw-1	2w8
Gr	Grifton sandy loam	11	IIIw-3, drained VIw, undrained	2w9
Jo	Johns sandy loam	11	IIw-2	2w2
JS	Johnston soils	12	IVw-4, drained VIIw, undrained	1w9
Ka	Kalmia loamy sand, 0 to 2 percent slopes	12	I-1	2o7
Kb	Kalmia loamy sand, 2 to 6 percent slopes	13	IIe-1	2o7
Ke	Kenansville loamy sand, 0 to 6 percent slopes	13	IIs-1	3s2
Kn	Kinston loam, frequently flooded	14	IIIw, drained Vw, undrained	1w9
La	Lakeland sand, 0 to 6 percent slopes	14	IVs-1	4s2
Le	Leaf loam	15	IVw-2	2w9
Ln	Lenoir loam	16	IIIw-4	2w8
Lo	Leon sand	16	IVw-1	4w2
Lu	Lumbee sandy loam	17	IIIw-3	2w9
Ly	Lynchburg sandy loam	18	IIw-2	2w8
Me	Meggett fine sandy loam	18	IIIw-2	1w9
Mu	Murville fine sand	19	IVw, drained VIIw, undrained	2w9
Na	Norfolk loamy sand, 0 to 2 percent slopes	20	I-1	2o1
Nb	Norfolk loamy sand, 2 to 6 percent slopes	20	IIe-1	2o1
Nc	Norfolk loamy sand, 6 to 10 percent slopes	20	IIIe-1	2o1
Pa	Pactolus loamy sand	21	IIIs-1	3w2
Pc	Pamlico muck	21	IVw-1, drained VIIw, undrained	4w3
Pe	Pantego loam	22	IIIw-3, drained VIw, undrained	1w9
Po	Pocalla loamy sand, 0 to 6 percent slopes	23	IIs-1	3s2
Pr	Portsmouth loam	23	IIIw-3, drained Vw, undrained	1w9
Ra	Rains sandy loam	24	IIIw-3, drained Vw, undrained	2w3
St	Stallings loamy sand	25	IIw-2	2w8
To	Torhunta loam	25	IIIw-3, drained VIw, undrained	2w9
Uo	Umbric Ochraqualfs	26	IIIw-3	1w9
Wb	Wagram loamy sand, 0 to 6 percent slopes	26	IIs-1	3s2
Wc	Wagram loamy sand, 6 to 10 percent slopes	27	IIIs	3s2
Wd.	Wagram loamy sand, 10 to 15 percent slopes	27	IVs	3s2
Wk	Wickham loamy sand, 1 to 6 percent slopes	28	IIe-1	2o7
Wn	Woodington loamy sand	28	IIIw-3, drained VIw, undrained	2w9

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