

MAP UNITS CORRELATED WITH TOPOGRAPHIC FEATURES
AND MINERAL RESOURCE USES

ENGINEERING INTERPRETATIONS OF SOILS

Geologic Unit	Description	Topography	Mineral Resource Uses			Soil Series	Sewerage Systems (Lagoons)	Septic Tank Absorption Fields	Sanitary Landfills	Small Commercial Buildings	Local roads and Streets	Shallow Excavations	Camp Sites	Picnic Areas	Play-Grounds	General Agriculture	Woods
			Past	Present	Potential												
Alluvium	Unconsolidated sand, silt, and clay	Broad to narrow lowlands adjacent to streams (floodplains)	Sand	Sand	Sand	Appling	Moderate to Severe SC,S	Moderate SP,S	Slight to Moderate S	Moderate to Severe SS,S	Moderate to Severe LS,S	Moderate to Severe R,C,S	Slight to Moderate S	Slight to Moderate S	Slight to Severe S	Good	Good
Terrace Deposits	Unconsolidated alluvial sand, silt, and clay; in places containing pebbles and cobbles of quartz	Flat to moderately sloping divides and benches adjacent to floodplains			Sand and Gravel	Badin	Severe R,S	Severe R,S	Severe R,S	Moderate to Severe SS,S	Severe LS,S	Moderate to Severe R,C,S	Moderate to Severe SM,S	Moderate to Severe S,C	Severe SM,S	Good	Good
Triassic Sediments	Interbedded conglomerate, sandstone, siltstone, mud-rocks, coal, and mudstone	Gently rolling northeast-sloping lowland; low relief except between Madison and Stoneville	Lightweight Aggregate	Lightweight Aggregate	Lightweight Aggregate Crushed Stone	Cecil	Moderate to Severe PS,S	Moderate SP	Slight to Moderate S	Moderate to Severe LS,SS,S	Moderate to Severe LS,SS,S	Moderate to Severe C,S	Slight to Severe S,SM	Slight to Severe S,C	Slight to Severe S,C	Good	Good
Diabase	Dark-gray to black, fine-grained, dense dike rocks	Most have no topographic expression; in places forms narrow, elongated, gently to steeply sloping hills and ridges; in places controls stream channels	Brick and Tile Clay	Brick and Tile Clay	Brick and Tile Clay Uranium Crushed Stone	Chewacha	Severe W,F	Severe W,F	Severe W,F	Severe W,F	Severe W,F	Severe W,F	Severe W,F	Severe F	Severe W,F	Good	Good
Porphyritic Granite Felsic Intrusive Complex	White to light-gray, massive, coarse-grained granitic rocks	Rolling dissected hills; slight to moderate slopes	Sand and Gravel	Sand and Gravel	Sand and Gravel High-potassium Feldspar (porphyritic granite) Crushed Stone	Davidson	Moderate to Severe PS,S	Moderate to Severe SP,S	Slight to Severe S	Slight to Severe S	Moderate to Severe LS,S	Moderate to Severe C,S	Slight to Severe C,S	Slight to Moderate S	Moderate to Severe C,S	Good	Good
Intermediate Intrusives	Dark-gray to black, fine-grained, dense dike rocks	Rolling dissected hills; slight to moderate slopes	Crushed Stone	Crushed Stone	Crushed Stone Brick and Tile Clay	Durham	Severe W,F	Moderate SP	Severe W,F	Slight	Slight	Slight to Moderate S	Slight to Moderate S	Slight	Moderate S	Good	Good
Mafic Intrusives	Black to greenish-black, massive, coarse-grained gabbroic rocks	Rolling dissected hills; small rounded hills; slight to steep slopes	Crushed Stone	Crushed Stone	Crushed Stone Brick and Tile Clay	Enon	Moderate to Severe S	Severe SP,S	Slight to Severe S	Severe SS,LS,S	Severe SS,LS,S	Severe C,S	Moderate to Severe SP,S,C	Slight to Severe C,S	Moderate to Severe S	Good	Good
Ultramafics	Black to greenish-black, massive, coarse-grained rocks	Small rounded hills; slightly to steeply sloping				Georgeville	Moderate to Severe PS,S	Moderate to Severe SP,S	Slight to Severe S	Slight to Severe S	Severe LS,S	Moderate to Severe C,S	Slight to Severe S,SM	Slight to Severe S,SM	Moderate to Severe S,SM	Good	Good
Argillite	Light-gray, brown, and bluish-gray, fine-grained, thinly laminated, metasedimentary rock	Rolling hills and lowlands	Brick and Tile Clay Flagstone	Brick and Tile Clay Flagstone	Brick and Tile Clay Flagstone Metallic Minerals	Goldston	Severe R	Severe R	Severe SE	Moderate to Severe R,S	Moderate to Severe R,S	Severe R	Moderate to Severe SM,S	Moderate to Severe SM,S	Moderate to Severe R,S	Fair	Good
Volcaniclastic-Epiclastic Rocks	Coarse-grained, metamorphosed sediments such as arkose, graywackes, and conglomerates	Rolling hills and lowlands	Crushed Stone	Crushed Stone	Crushed Stone	Hanceville	Moderate to Severe SE,S	Slight to Severe S	Slight to Severe S	Moderate to Severe SS,S	Severe LS,S	Moderate to Severe C,S	Slight to Severe S	Slight to Severe S	Slight to Severe S	Good	Good
Felsic Flows Felsic Volcanics	Dense, medium- to light-gray, metamorphosed volcanic rocks	Gently rolling hills and steeply sloping elongate hills	Metallic Minerals Pyrophyllite Brick and Tile Clay	Brick and Tile Clay	Metallic Minerals Pyrophyllite Brick and Tile Clay Crushed Stone	Helena	Slight to Severe S	Severe SP,W	Slight to Moderate S	Severe SS,S,W	Severe SS,LS	Severe C	Moderate SP,W,C	Moderate W,S,C	Moderate SP,W,C	Good	Good
Intermediate Volcanics	Medium- to dark grayish-green, dense, fine-grained metamorphosed volcanic rocks; well developed cleavage	Steeply sloping hills and elongate ridges			Brick and Tile Clay	Herndon	Moderate to Severe SE,S	Moderate SP,S	Slight to Severe S	Moderate to Severe LS,S	Severe LS	Moderate C,S	Slight to Moderate S	Slight to Moderate S	Moderate to Severe S	Good	Good
Mafic Volcanics	Fine- to medium-grained, medium grayish-green to dark-green to black, metamorphosed volcanic rocks	Gently rolling hills and steeply sloping elongate ridges	Crushed Stone Brick and Tile Clay	Crushed Stone Brick and Tile Clay	Crushed Stone Brick and Tile Clay	Hiwassee	Moderate to Severe S	Moderate to Severe SP,S	Slight to Severe L	Moderate to Severe LS,S	Moderate to Severe LS,S	Moderate to Severe C,S	Slight to Severe C,S	Slight to Severe C,S	Moderate to Severe S	Good	Good
Sericite Phyllite	Fine-grained, medium- to light-gray to greenish-gray to white, schistose rocks	Most are not of large enough extent to control topography	Blended with Pyrophyllite	Blended with Pyrophyllite	Blended with Pyrophyllite	Iredell	Severe W,S	Severe SP,W	Severe W	Severe W,SS,S	Severe LS,SS	Severe W	Severe W	Moderate W,SM	Severe W,S,SM	Good	Good
Hornblende Gneiss	Medium- to coarse-grained, dark, massive to foliated metamorphic rocks	Moderately to steeply sloping hills				Leaksville	Severe R,W	Severe SP,W,R	Severe W	Severe W,SS,LS	Severe LS,SS,W	Severe R,W,C	Severe W	Severe W	Severe W	Poor	Poor
Mica Gneiss	Dark-colored, medium- to coarse-grained, foliated metamorphic rocks	Rolling, dissected hills	Mica (pegmatites)		High-potassium Feldspar (pegmatites) Crushed Stone	Lignum	Severe W,S	Severe SP,W	Severe W	Severe W,S	Severe LS	Severe W	Severe W	Moderate W,SM,S	Severe W,SM,S	Poor	Good
Felsic Gneiss	Light-colored, fine- to medium-grained metamorphic rocks with indistinct layering and foliation	Rolling, dissected hills	Crushed Stone Mica (pegmatites)	Crushed Stone	Crushed Stone High-potassium Feldspar (pegmatites)	Lockhart	Moderate to Severe S,SE	Slight to Severe S	Slight to Severe S	Moderate to Severe S	Slight to Severe S	Moderate to Severe SM,S	Moderate to Severe S,SM	Moderate to Severe S,SM	Moderate to Severe S,SM	Good	Good
Muscovite and Biotite Schist	Fine- to coarse-grained, schistose metamorphic rocks	Rolling, dissected hills	Mica (pegmatites)		High-potassium Feldspar (pegmatites)	Madison	Moderate to Severe S,SE	Moderate to Severe SP,S	Slight to Severe S	Slight to Severe S	Moderate to Severe LS,S	Moderate to Severe C,S	Slight to Severe C,S	Slight to Severe C,S	Moderate to Severe C,S,SM	Good	Good
Quartz Veins (not shown individually on geologic map)	Light-colored, dense, siliceous veins	Steeply sloping ridges where veins are extensive enough	Crushed Stone for building facings Metallic Minerals	Crushed Stone for building facings	Crushed Stone for building facings Metallic Minerals	Mayodan	Moderate to Severe SE,S	Moderate to Severe SP,S	Slight to Severe S	Moderate to Severe LS,S	Moderate to Severe S,LS	Moderate to Severe C,S	Slight to Severe S	Slight to Severe S	Moderate to Severe S	Good	Good
Siliceous Breccia	Light-colored, fragmental rock containing cavities lined with quartz and tiny veinlets of quartz	Low ridges				Mecklenburg	Moderate to Severe R,S	Severe SP,S	Slight to Severe S	Severe LS,S	Severe LS,S	Severe C,S	Slight to Severe S,SM	Slight to Severe S,SM	Moderate to Severe S,SM	Good	Good
						Nason	Moderate to Severe R,SE,S	Moderate to Severe R,SP,S	Moderate to Severe R,S	Moderate to Severe SS,S	Severe LS,S	Moderate to Severe C,S	Slight to Severe S	Slight to Severe S	Moderate to Severe SM,S	Good	Good
						Orange	Severe W,S	Severe SP,W	Severe W	Severe W,SS,S	Severe LS,SS	Severe W	Severe W	Moderate W,SP,S	Severe W,S	Fair	Good
						Paclet	Moderate to Severe SE,S	Moderate to Severe SP,S	Slight to Severe S	Slight to Severe S	Severe L,S	Moderate to Severe C,S	Slight to Severe S,SM	Slight to Severe S,SM	Moderate to Severe S,SM	Fair	Good
						Pinkston	Severe R,S	Severe R,S	Severe SE,S	Moderate to Severe R,S	Moderate to Severe R,S	Severe R,S	Slight to Moderate S,SM	Slight to Moderate S,SM	Slight to Severe S,R,SM	Fair	Good
						Roanoke	Slight	Severe F,SP,W	Severe F,W	Severe F,LS,W	Severe F,LS,W	Severe F,W,C	Severe F,W,SP	Severe W	Severe F,W,SP	Poor	Fair
						Sedgefield	Slight to Severe	Severe SP,W	Moderate W	Severe SS	Severe SS	Severe C,W	Moderate SP	Moderate W	Moderate SP,W	Good	Good
						Spray	Moderate SE,S	Moderate SP	Slight	Moderate LS,S	Moderate LS	Moderate C	Slight to Moderate C,D	Slight to Moderate C,D	Slight to Moderate S,C,D	Fair	Good
						Tatum	Moderate to Severe SE,R	Moderate to Severe R,SP,S	Moderate to Severe R,S	Moderate to Severe SS,S	Severe LS,S	Moderate to Severe C,S	Slight to Severe SM,S	Slight to Severe SM,S	Moderate to Severe S,SM	Fair	Good
						Vance	Moderate to Severe SP,S	Severe SP,S	Slight to Severe S	Severe LS,S	Severe LS,S	Severe C,S	Moderate to Severe SP,S	Slight to Severe S	Moderate to Severe SP,S	Good	Good
						Wadesboro	Moderate to Severe R,SE,S	Moderate to Severe R,SP,S	Moderate to Severe R,S,C	Moderate to Severe SS,S	Severe LS,S	Moderate to Severe R,S,C	Slight to Severe S	Slight to Severe S	Moderate to Severe S	Good	Good
						Wedowee	Moderate to Severe S	Moderate to Severe SP,S	Slight to Severe S	Moderate to Severe LS,SS,S	Moderate to Severe LS,SS,S	Moderate to Severe C,S	Slight to Severe C,S	Slight to Severe C,S	Moderate to Severe S,C	Good	Good
						Wehadkee	Severe W,F	Severe W	Severe SE,W,F	Severe W,F	Severe W,F	Severe F,W	Severe W	Severe W	Severe W,F	Poor	Poor
						Wilkes	Moderate to Severe S,R	Severe R,S	Severe SE,S	Moderate to Severe S,SS	Slight to Severe S	Moderate to Severe R,S	Moderate to Severe SP,S	Slight to Severe S	Moderate to Severe S,SP	Fair	Good

PHYSICAL CHARACTERISTICS OF SOILS

Rock Type	Soil Series	Natural Drainage	Succumbibility to Erosion	Permeability	Shrink-Swell Characteristics	Thickness of Soil Solum (inches)	Depth to Bedrock (feet)	Slopes (percent)
Felsic intrusives, felsic intrusive complexes	Appling	Good	Slight to Moderate	Moderate	Low	40-60	6-15	0-15
Argillite	Badin	Good	Slight to Moderate	Moderate	Low	20-40	2-4	2-45
Felsic intrusives	Cecil	Good	Moderate to Severe	Moderate	Low	40-60	6-40	0-25
Alluvium	Chewacha	Poor	Slight	Moderate	Low	36->72	5->10	0-2
Alluvium	Congaree	Good	Slight	Moderate	Low	8-20	8-20	0-4
Mafic to intermediate intrusives, mafic volcanics	Coronaca	Good	Slight to Moderate	Moderate	Low	60->100	>10	2-15
Mafic and intermediate intrusives, mafic volcanics	Davidson	Good	Moderate to Severe	Moderate	Low	60->100	6-25	2-25
Felsic intrusives	Durham	Good	Slight to Moderate	Moderate	Low		6-15	2-10
Intermediate intrusives, felsic intrusives mixed with mafic dikes, volcaniclastic-epiclastics	Enon	Good	Moderate to Severe	Slow	Moderate to High	20-44	3-8	2-25
Felsic, intermediate and mafic volcanics, argillite	Georgeville	Good	Severe	Moderate	Low	40-70	10	2-25
Felsic volcanics	Goldston	Good	Moderate to Severe	Moderately Rapid	Low	20	1.5-3.5	2-45
Triassic sandstone, siltstone, and shales	Hanceville	Good	Moderate to Severe	Moderate	Low to Moderate	40-72	5-9	0-40
Felsic intrusives mixed with mafic dikes	Helena	Fair	Moderate to Severe	Slow	Moderate	46	4	0-15
Felsic volcanics	Herndon	Good	Moderate to Severe	Moderate	Low	>30	4-8	2-15
Mafic and intermediate intrusives or mixed felsic and mafic intrusives	Hiwassee	Good	Slight to Moderate	Moderate	Low	40->60	>5	2-25
Mafic volcanics, intermediate and mafic intrusives, and diabase	Iredell	Fair	Moderate to Severe	Slow	High	20-40	2-8	0-15
Triassic sediments	Leaksville	Poor	Slight	Slow	Moderate to High	20-40	2-5	0-4
Sheared felsic volcanics, volcaniclastic-epiclastics	Lignum	Poor	Moderate	Moderately Slow to Slow	Moderate	20-40	>3.5	0-15
Porphyritic granite	Lockhart	Good	Moderate	Moderately Rapid	Low	30-72	6-15	6-40
Mica gneisses and schists	Madison	Good	Moderate to Severe	Moderate	Low	20-40	>5	2-35
Triassic sediments	Mayodan	Good	Moderate to Severe	Moderate	Low	40-60	>5 up to 10	1-25
Intermediate and mafic intrusives and mafic volcanics	Mecklenburg	Good	Moderate to Severe	Slow	Moderate	20-40	4-15	2-20
Felsic volcanics, phyllite, argillite, volcaniclastic-epiclastics	Nason	Good	Moderate to Severe	Moderate	Moderate	25-50	3.5-5	0-25
Felsic volcanics	Orange	Fair	Severe	Slow	High	20-40	3.5-5.5	0-15
Felsic intrusives, felsic gneisses	Paclet	Good	Severe	Moderate	Low	18-30	>5	2-40
Triassic sediments	Pinkston	Good	Severe	Moderately Rapid	Low	12-35	1.5-3.5	0-45
Terrace deposits	Roanoke	Poor	Slight	Slow	Moderate	40-60	>10	0-2
Mixed felsic and mafic intrusives	Sedgefield	Fair	Slight to Moderate	Slow	High	20-40	>4	0-10
Triassic sediments	Spray	Good	Slight	Moderate	Low to Moderate	10-20	>5	0-5
Argillite, phyllite	Tatum	Good	Moderate to Severe	Moderate	Low	25-50	3.5-5	2-30
Felsic intrusives	Vance	Good	Moderate to Severe	Slow	Moderate	24-40	6->10	2-25
Triassic sediments	Wadesboro	Good	Moderate to Severe	Moderate	Low	15-40	3.5-5	2-40
Felsic intrusives	Wedowee	Good	Moderate to Severe	Moderate	Moderate	20-40	>4	5-60
Alluvium	Wehadkee	Poor	Slight	Moderate	Low	30-60	8-20	0-2
Felsic intrusives with mafic dikes, intermediate intrusives, hornblende gneiss	Wilkes	Good	Moderate to Severe	Moderate	Low	10-20	3.5-7	4-60

Abbreviations

- C — Too Clayey
- D — Dusty
- F — Floods
- FA — Frost Action
- LS — Low Strength
- MP — Moderate Permeability
- PR — Percolates Rapidly
- R — Depth to Rock (soil shallowness)
- S — Slope
- SE — Seepage
- SM — Small Rocks
- SP — Slow Percolation
- SS — Shrink — Swell
- ST — Large Stones
- W — Wetness

A slight limitation indicates that soil properties are favorable for the specified use, any limitation is minor and easily overcome.

A moderate limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design.

A severe limitation indicates one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Good, Fair and Poor — These terms are parallel to slight, moderate and severe definitions.

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SUPPLEMENT TO GEOLOGIC MAP OF REGION G
ENGINEERING INTERPRETATIONS OF SOILS
PHYSICAL CHARACTERISTICS OF SOILS
MAP UNITS CORRELATED WITH TOPOGRAPHIC FEATURES AND MINERAL RESOURCE USES

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SHRINK-SWELL POTENTIAL
Shrink-swell behavior is that quality of the soil that determines its volume change with respect to moisture content. Building foundations, roads and other structures may be severely damaged by the shrinking and swelling of soils. The volume change of soils is influenced by the amount of moisture change and the amount and kind of clay present in the soil.

The methods used in determining the shrink-swell potential of soils are (1) the Coefficient of Linear Extensibility (COLE) used by soil scientists; (2) the Shrinkage Index used by soil engineers; and (3) the Potential Volume Change (PVC) used by the Federal Housing Administration.

Three classes are used to help interpret soil maps for shrink-swell behavior — low, moderate, and high. In rare instances, a rating of very high may be justified.

Shrink-Swell Potential:	Low	Moderate	High
COLE	.03	.03 to .06	.06
Shrinkage Index	15	15 to 30	30
PVC	2	2 to 4	4

PERMEABILITY
Permeability relates only to movement of water downward through undisturbed materials. These values should be expressed in terms of inches per hour.

The following classes are used to rate the soil permeability:

Permeability Class	Grouping for Report
Very slow	Less than 0.06
Slow	0.06 to 0.2
Moderately slow	0.2 to 0.6
Moderate	0.6 to 2.0
Moderately rapid	2.0 to 6.0
Rapid	6.0 to 20
Very rapid	Over 20