NORTH CAROLINA DEPARTMENT OF ENVIRONMENT,
HEALTH AND NATURAL RESOURCES

NORTH CAROLINA GEOLOGICAL SURVEY
DIVISION OF LAND RESOURCES

OPEN-FILE REPORT 96-1

PLATE 1

Summary of Map Units

UNCONSOLIDATED SEDIMENTARY ROCKS

Quaternary

Qal — Alluvium - White to light-gray, unconsolidated clay, silt, sand, and locally, gravel associated with floodplains.

Qt — Alluvium - stream terrace - Unconsolidated silt, sand, and gravel occurring above the present floodplain.

Tertiary to Quaternary

cpu — Coastal Plain Sediment - Unconsolidated to poorly consolidated, fine- to coarse-grained sands and clayey sands, with local gravel and clay beds. Gravel, gravelly sand, and coarwse, poorly sorted, angular to subangular sands occur at the base of the Coastal Plain section. These sediments are typically overlain by finer sands. In the southeast portion of the quadrangle at elevations above 240 feet, fine, well sorted subangular to rounded sand contains a major reserve of heavy minerals with ilmenite, zircon, and and rutile. Coastal Plain sediments in the southeast corner of the quadrangle are considered to be of Pliocene age (Carpenter and Carpenter, 1991; Hoffman and Carpenter, 1992).

INTRUSIVE ROCKS

Late Paleozoic

sg — **Sims pluton**
Conner granitoid facies of the Sims pluton (187 + 9 ma) - Coarse-grained, megacrystic, very plae orange to grayish-orange monzogranite with abundant perthitic microcline grains up to 5 cm across. The groundmass is plagioclase and biotite with local alteration to muscovite, chlorite, epidote, and rutile. Accessory minerals are apatite, monazite, and zircon.

METAMORPHIC ROCKS

Late Precambrian to Early Paleozoic

Sedimentary Sequence

ar — Argillite - Very fine grained, light-gray to light-olive-gray argillite. Muscovite-rich layers, generally <1mm in thickness, alternate with thicker quartz-rich layers.

Volcanic Sequence - Upper Group

ffv / ph / sp / cms2 / ffv / ph / q / sp / cms1 / ffv / ph — Fine-grained felsic volcanic (ffv) - Aphanitic, gray, quartzo-feldspathic, volcanic rock interpreted to be vitric and vitric-crystal tuff. Interbedded units consist of meta-andesite (cms1) and metabasalt (cms2). Felsic volcanic rocks are commonly alterered. Sericitic alteration is prominent in sericite phyllite (ph). Sericitization, silicification, and pyritization are present in the siliceous phyllite unit (sp) which contains chloritoid and concordant zones of massive quartz (q). Common alteration minerals in mafic volcanic rocks are chlorite, epidote, and quartz.

Volcanic Sequence - Lower Group

ls / mic — Laminated epiclastic rocks and felsic lithic-crystal tuff - Medium - to coarse-grained, light-gray laminated rock. Consists of flattened pumice lapilli, quartz crystals, and layers of sediment in a matrix of quartz, feldspar, and mica. Locally phyllitic. mic - medium-to coarse grained, medium- to dark-green mafic tuff (possibly basalt), mafic lithic tuff and mafic intrusive rock. The body south of NC Hwy. 96 contain quartz tourmaline rock.

qft — Felsic crystal tuff - Fine- to medium-grgrained, light-gray felsic volcanic rock containing phenocrysts of quartz and/or feldspar, locally up to 0.5 cm in size.\ Contains beds of mafic volcanic rock.

Symbols

Contact - well located
Contact- concealed
Contact- approximately located

Strike and dip of bedding (75)
Strike and dip of foliation (75)
Strike and dip of cleavage (primary schistosity) (75)
Strike and dip of secondary (crenulation) cleavage (75)
Strike of vertical bedding
Strike of vertical foliation
Strike of vertical cleavage (primary schistosity)
Strike of vertical secondary (crenulation) cleavage
Observation site in crystalline rocks
Outcrop locality referred to in text (1)
Location of water well - crystalline rocks identified in cuttings
Axial trace of overturned synform (approximate / concealed)
Axial trace of overturned antiform (approximate)

Digital representation by Michael A. Medina

Geology mapped 1990 - 1993

SCALE 1:24 000

1/2 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

N.C.
QUADRANGLE LOCATION

MN GN
6° 107 MILS 1°38' 29 MILS
UTM GRID AND 1978 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

GEOLOGIC MAP OF THE MIDDLESEX 7.5 - MINUTE QUADRANGLE, NORTH CAROLINA

By

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