Map Unit Properties Table: Guilford Courthouse National Military Park

Colored rows indicate units mapped within the boundary of Guilford Courthouse National Military Park.

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Infrastructure	Hazards	Paleontological Resources	Cultural Resources	Mineral Occurrence	Habitat	Geologic Significance
QUATERNARY	Alluvium (**Qal**)	Unit is mapped with soil series, including Chewacla, Congaree, and Wehadkee. Unit consists of dark-brown to gray and white unconsolidated sand, silt, and clay. Occasional subrounded to well-rounded pebbles and cobbles are present in layers. Unit is typically present in river and stream valleys in lowest areas of the region.	Very low	Unit is present on broad to narrow lowlands and floodplain areas. Unless undercut on a frequently water-saturated slope, no restrictions are documented. High permeability and porosity may compromise waste facilities. Avoid shoreline areas.	Unit is susceptible to gullying, slope creep, and mass wasting, especially where undercut and when water-saturated.	May contain invertebrate and vertebrate remains, pollen horizons, and plant debris.	May contain cultural artifacts from early campsites and tool material.	Sand, gravel, clay, silt, aggregate	Unit supports Chewacla, Congaree, and Wehadkee soil series; underlies riparian and shoreline habitats (wetlands?).	Units record watershed development and land-use evolution in the area.
JURASSIC –TRIASSIC	Diabase (**JTRd**)	Unit is dolerite diabase in composition, present in dikes ranging in width from a few cm (1 in.) to more than 30 m (90 ft). In outcrop, unit appears dark-gray to black with medium- to fine-grained plagioclase, augite, micropegmatite, olivine, and accessory minerals such as apatite, biotite, hornblende, and opaques. May also be present as isolated boulders.	High	Suitable for most forms of infrastructure unless highly fractured or degraded. Unit may form narrow hills and ridges and cap high ground.	Rockfall possible where unit is exposed on a highly angled slope or undercut by weaker units.	None	None documented	Isolated boulders may be used for landscaping material, crushed stone. Clay derived from this unit used in brick and tile. Unit may contain uranium.	Unit may locally control stream channel location and morphology.	Unit records Mesozoic extension events following the Alleghenian orogeny.
PALEOZOIC	Porphyritic granite (**PZpgr**)	Unit is correlative with the Churchland Pluton and contains light-gray porphyritic granite with medium- to coarse-grained gray microcline phenocrysts in a matrix of quartz, oligoclase, and biotite. Some local nonporphyritic granites are present.	High	Suitable for most forms of infrastructure unless highly fractured or degraded. Unit underlies rolling hill topography.	Active and inactive mines/ quarries associated with this unit.	None	May have provided material for early trade.	13-cm (5-in) gray microcline phenocrysts, metallic minerals, titaniferous magnetite zones, sand and gravel derived from weathered areas, high potassium feldspar	Unit may support species that thrive on iron-rich soils.	Age of 282 ± 6 million years, determined using rubidium and strontium isotopes, is correlative with the Churchland Pluton.
PALEOZOIC –PRECAMBRIAN	Mica gneiss and schist (**PZPCmgs**)	Unit is heterogeneous in medium- to coarse-grained biotite gneiss and schist outcrops on rolling hill topography. Unit is dark-colored and locally interlayered with hornblende gneiss and schist, as well as felsic gneiss. Unit displays distinct layering and foliation, with some porphyroblastic areas. The unit is composed of biotite, quartz, feldspar, and some muscovite and hornblende with local pegmatite dike intrusions. Local pods of augen gneiss or porphyroblastic biotite gneiss are present and may be extensive (mapped as separate units).	Moderately high to high	Gneissic foliation and associated joints, cleavage, and fractures may be planes of weakness. Highly schistose layers with abundant micas may be too friable for heavy infrastructure.	Rockfall possible where unit is exposed on a highly angled slope, especially if slope strike parallels foliation.	None	May have provided material for early trade.	Augen gneiss, pegmatite minerals, titaniferous magnetite zones, mica, high-potassium feldspar (in pegmatites)	Supports Madison-series soils, eastern hardwood forests, agriculture.	Unit records metamorphic conditions of the Milton Belt.

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PALEOZOIC - PRECAMBRIAN	Felsic intrusive complex (**PZPCicf**)	Complex is heterogeneous with white to gray, fine- to coarse-grained, massive to foliated, metamorphosed bodies of varying assemblages. Most are intimately associated felsic intrusive rock types. Some areas show mineralogical gradations within a single intrusion, whereas others exhibit juxtaposed separate intrusions. General rock types include granite, granodiorite, quartz diorite, and quartz monzonite. Igneous minerals are quartz, plagioclase, ± potassium feldspar, muscovite, and biotite. Local shearing and metamorphism are present. Metamorphic mineralization includes chlorite, epidote, and sericite. Mafic dikes are present in narrow intrusions. Dikes may be the locally predominant rock type in outcrops.	Moderate to high, depending on degree of chemical weathering	Heterogeneity of unit may prove unstable for heavy infrastructure, such as roads and large buildings. Avoid highly fractured and/or weathered areas.	Active and inactive mines/ quarries associated with this unit. Radon hazards associated with this unit.	None	None documented	Epidote, high potassium feldspar, sand and gravel derived from unit, crushed stone	Supports Appling, Cecil, Durham, Enon, Helena, Lockhart, Pacolet, Sedgefield, Vance, Wedowee, and Wilkes soil series.	Unit records intrusive igneous and metamorphic setting of the Charlotte Belt.
	Intermediate intrusive complex (**PZPCdi**)	Unit is commonly present in narrow dikes on rolling dissected hills within massive felsic intrusive units. In outcrop, unit is gray to greenish-gray, massive, and medium- to coarse-grained with well-developed jointing. Unit has been metamorphosed from an original diorite composition. Minerals include hornblende, plagioclase, biotite, epidote, chlorite, magnetite, and minor quartz. Some gabbro present and (may be sufficiently significant for separate mapping).	Moderately high to high	Well-developed jointing and heterogeneity of unit composition and outcrop expression may prove unstable for heavy infrastructure, such as roads and large buildings. Avoid areas that are highly fractured and/or compositionally varied.	Rockfall, mass wasting, and blockfall possible where unit is exposed on a highly angled slope.	None	May have provided material for early trade.	Epidote, chlorite, magnetite, crushed stone, clay for brick and tile	Unit supports Coronaca, Davidson, Enon, Hiwassee, Iredell, Mecklenburg, Sedgefield, and Wilkes soil series.	Unit records island arc(?) intrusion and subsequent metamorphism and deformation during collision of the Charlotte Belt with North America.
	Muscovite and biotite schists (**PZPCms**)	Metamorphic unit contains dark-gray to black, fine- to coarse-grained schistose rocks present on rolling and dissected hills. Unit is locally interlayered with biotite and hornblende gneisses and schists. Minerals include muscovite and biotite with minor quartz, feldspar, and sparse garnet. Pegmatite dikes are present locally.	Moderate	Gneissic and schistose foliation and associated joints, cleavage, and fractures may be planes of weakness. Highly schistose layers with abundant micas may be too friable for some heavy infrastructure.	Rockfall possible where unit is exposed on a highly angled slope, especially if slope strike parallels schistose foliation. Radon hazards associated with this unit.	None	Garnets may have attracted early mining interest or been used for trade.	Garnets for abrasives, mica, high-potassium feldspar (in pegmatites)	Supports Madison-series soils, eastern hardwood forests, agriculture.	Records deformation in the Charlotte Belt, correlates with the Ashe Formation.