

## Map Unit Properties Table

Age	Unit Name (Symbol)	Features and Description	Erosion Resistance	Suitability for Development	Hazards	Paleontological Resources	Cultural Resources	Karst	Mineral Occurrence	Habitat	Recreation	Geologic Significance
QUATERNARY (HOLOCENE)	Alluvium (Qa)	Qa contains broad deposits flanking active stream channels of sand, gravel, clay, and silt layers.	Very low	Avoid stream edge/ riparian areas for heavy development, especially for wastewater treatment facilities due to proximity to water and high permeability	Qa is associated with stream banks and riparian zone areas, and may be unstable if exposed on a slope or water-saturated	Modern remains	May contain artifacts and/or settlement sites along major waterways	None	Sand, gravel, silt, clay	Riparian zones and burrow habitat	Qa is suitable for some trail development	Qa contains a record of modern stream valley development throughout the Quaternary
QUATERNARY (HOLOCENE & PLEISTOCENE)	Terrace deposits, low level (Qt)	Qt deposits are concentrated near stream confluences and contain reworked alluvial sand, gravel, silt, and clay, as well as larger colluvium clasts.	Very low	Avoid most terrace deposits for heavy development due to instability of slopes and high permeability	Unit is associated with stream edge slopes deposited by gravity and water	May contain modern remains and plant fragments (pollen?)	May contain artifacts and/or settlement sites along major waterways	None	Cobbles, gravel, sand	Forms upland areas, supporting larger trees and bushes with more soil development along waterways	Suitable for most recreation unless unstable slopes are present	Terrace units record the evolution of local waterways and changes in channel morphology
CAMBRIAN	Chilhowee Group, Harpers Formation (Ch); Chilhowee Group, Weverton Formation, Owens Creek Member (Cwo); Chilhowee Group, Weverton Formation, Maryland Heights Member (Cwm); Chilhowee Group, Weverton Formation, Buzzard Knob Member (Cwb)	Ch contains greenish- to brownish-gray phyllite and metamorphosed siltstone interbedded with light gray to brown thin metamorphosed sandstone. The Weverton Formation contains three members. The uppermost member contains dark gray quartzite and pebble conglomerate atop gray quartzite interbedded with metamorphosed siltstone. The basal member contains light gray metamorphosed graywacke, quartzite, metamorphosed arkose, and metamorphosed siltstone.	Moderate	Cleavage along bedding planes may be surfaces of weakness; intersecting joints in Weverton Formation may compromise rock unit strength	Cw is exposed along stream banks and may be prone to slumping and mass wasting	Burrows, including <i>Skolithos</i> , in Harpers Formation (possible trilobite remains?)	Historically, iron ore an important economic resource. Units provided building material for many of the area's historic structures	Not enough carbonate locally present	Source of iron ore. Large quartz grains and magnetite; used as attractive building stones	Units support hardwood forests	Units may attract climbers to upland areas	Ch was deposited in a deltaic and tidal flat environment; Cw records an alluvial plan depositional setting
CAMBRIAN	Loudoun Formation, Conglomerate (Clc); Loudoun Formation, Phyllite (Clp)	The Loudoun Formation is composed of a basal conglomerate of dark variegated quartz (present as milky, gray, and dusky red) and red jasper clasts. Interlayered with the conglomerate are dark, variegated, tuffaceous phyllite that locally contains sand grains and vesicles (amygdules).	Moderately high	Phyllite layers are areas of weakness between more resistant massive quartzite and conglomeratic layers	Unit is commonly exposed on slopes and is prone to blockfall; phyllites may contain shrink-and-swell clays	None documented	Jasper may have provided trade-tool material for American Indians	Not enough carbonate locally present	Red jasper; amygdules	Units support hardwood forests	Unit may attract climbers to cliff areas	Formation represents fluvial channel and fan deposits derived from Zc; unit records the transition between volcanism and the fluvial environment at the beginning of the Cambrian

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PROTEROZOIC EON (EDIACARAN)	Catoctin Formation, Metabasalt (Zc); Catoctin Formation, Metarhyolite (Zcr); Catoctin Formation, Porphyritic (Zcp)	Units are dominated by metamorphosed basalt flows (greenstone). Some metamorphosed rhyolite (metarhyolite; a quartz-rich volcanic rock) is present locally. Greenstones consist of green massive and schistose metamorphosed basalt flows containing vesicles. The metarhyolite layers appear dark bluish-black, fine-grained, and foliated, weathering to light gray slabs. Locally, layers of tan phyllite and quartz-sericity schist are interlayered with the metarhyolite.	Moderately high, depending on the degree of alteration	Intersections of bedding and flow cleavages in greenstones, as well as heavily altered zones, may be points of weakness in units	Rockfall possible where units are exposed on high angle slope; metarhyolite units can have dangerous sharp edges	None	Cryptocrystalline metarhyolite was a prized tool material for American Indians	None	Amygdules; secondary minerals filling vesicles; epidosite (quartz and epidote masses)	Units weather to produce calcium- and magnesium-rich orangish clayey soils	If present on cliffs, certain units may attract climbing interest; avoid heavily altered areas for recreational development	Unit records widespread volcanic activity following the Grenville Orogeny; zircon U-Pb SHRIMP age of ~560 Ma; metarhyolite has an age of 571 ± 4 Ma (U-Pb)