

Map Unit Properties Table

Age	Map Unit (Symbol)	Unit Description	Erosion Resistance	Suitability for Development	Hazards	Paleontologic Resources	Cultural Resources	Mineral Specimens	Karst Issues	Mineral Resources	Habitat	Recreation	Global Significance
QUATERNARY (HOLOCENE)	Alluvium (Qa); Sinkhole (Qs).	Unit Qa contains broad deposits flanking active stream channels of sand, gravel, clay, and silt layers. Unit Qs consists of local depressions commonly filled with rubble from the collapse of areas undermined by dissolution of underlying carbonate rocks.	Very low	Avoid stream edge/riparian areas for heavy development; avoid both units for wastewater treatment facilities due to proximity to water and high permeability.	Unit Qa is associated with stream banks and riparian zones and may be unstable if exposed on a slope or saturated with water. Unit Qs is associated with collapse, and surrounding areas may be prone to further failure, endangering buildings and infrastructure.	Modern remains	May contain artifacts and/or settlement sites along major waterways.	None documented.	Unit Qs shows extreme dissolution of underlying carbonate rocks to form sinkholes (collapse) and caves.	Sand, gravel, silt, clay.	Riparian zones and burrow habitat.	Avoid for heavy recreation, especially areas underlain by unit Qs. Unit Qa is suitable for some trail development.	Unit Qs reflects karst processes throughout the region, and unit Qa reflects modern stream valley development throughout the Quaternary.
QUATERNARY (HOLOCENE AND PLEISTOCENE)	Terrace deposits, low level (Qt); colluvium (Qc).	Deposits of unit Qt are concentrated near stream confluences and contain reworked alluvial sand, gravel, silt, and clay, as well as larger colluvium clasts. Unit Qc commonly fills broad hollows in meadows and contains relatively unsorted, fine-grained fragments in layers of variable thickness.	Very low	Avoid most terrace and colluvium deposits for heavy development due to instability of slopes and high permeability.	Units are associated with stream bank slopes, and with mass wasting driven by gravity, water, and debris-flow processes.	May contain modern remains, plant fragments, and pollen(?); may contain fossiliferous fragments.	May contain artifacts and/or settlement sites along major waterways.	None documented.	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	Frederick Formation, Lime Kiln Member (Cfl); Frederick Formation, Adamstown Member (Cfa); Frederick Formation, Rocky Springs Station Member (Cfr); Frederick Formation, Rocky Springs Station Member (shale) (Cfrs).	The Frederick Formation is a regionally extensive, thick interval of thin- to medium-bedded limestone and dolostone with thinner layers of shale and sandstone. Unit Cfl contains thin beds of limestone with algal limestone near the top of the formation. Unit Cfa consists of thin beds of limestone and shale intervals. Unit Cfr is composed of polymictic limestone breccia whereas unit Cfrs is locally interbedded as gray to black shale layers within the breccia.	Moderate	Suitable for most development unless carbonate layers are highly dissolved and/or the units are highly fractured, rendering them unstable on slopes and too permeable for septic systems.	Unit is found along creek beds and stream embankments and is subject to slope-failure processes.	May contain trace fossils, burrows, and algal mats.	May contain battlefield relics; unit may have provided lime for early iron-smelting operations.	None documented.	Dissolution is likely within this unit.	Limestone, dolostone for building material.	Unit supports a wide variety of habitats.	Unit is suitable for most recreation unless carbonate dissolution has rendered areas too unstable and/or friable for trails.	Units record the evolution of a shallow marine basin with off-shelf submarine slides, deeper water sedimentation, basin enlargement, and basin filling.
CAMBRIAN	Araby Formation (Car).	Unit Car contains sandy metasiltstone and graphitic metashale that appear light brownish gray in outcrop. Both rock types have been burrowed extensively and show marked cleavage development that obscures bedding structures.	Moderate	Unit has marked level of cleavage development that may render it unstable and/or too permeable for heavy development.	Unit is exposed in road cuts and along rivers and may be prone to erosion and mass-wasting processes.	Algal mats, bioturbation, trace fossils, trilobite <i>Olenellus</i> , possibly crinoids, brachiopods, bivalves, and bryozoans.	Unit Car forms low ridges at Monocacy.	None documented.	Not enough carbonate present to form karst.	Slate?	Unit supports a wide variety of habitats.	Unit may be too friable and fractured for heavy recreation.	Unit Car reflects a deep-water slope facies environment within a starved clastic basin.
CAMBRIAN AND NEOPROTEROZOIC	Ijamsville Phyllite (CZi).	Unit consists of blue, purple, and green phyllite, slate, and phyllonite that contain pods and stringers of folded white vein quartz.	Moderate	Highly deformed nature of unit may render it weak for foundations; associated with a shear zone.	Unit has strong cleavage that renders it weak if exposed on slopes; may fail as large sheets.	None	None documented.	White vein quartz.	None	Hematite	Unit supports a wide variety of habitats.	Unit may be too friable and fractured for heavy recreation.	Unit reflects deep-water depositional environment of the Iapetus Ocean and marked deformation along the Martic fault.