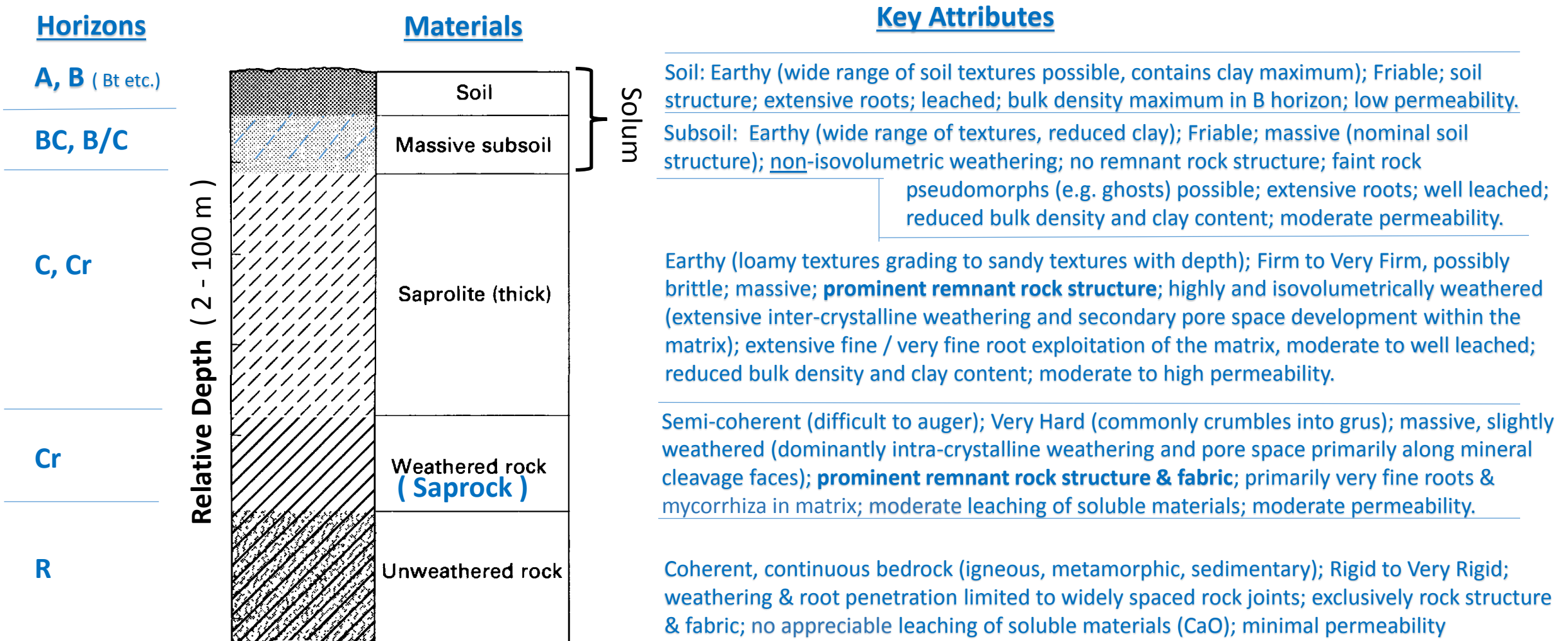


Soil, Saprolite, Weathered Rock  
(saprock), Unweathered Rock



Generalized weathering profile and attributes developed in acid crystalline (e.g. piedmont of Virginia).  
 - Modified from Figure 2, Pavich et al., 1989)

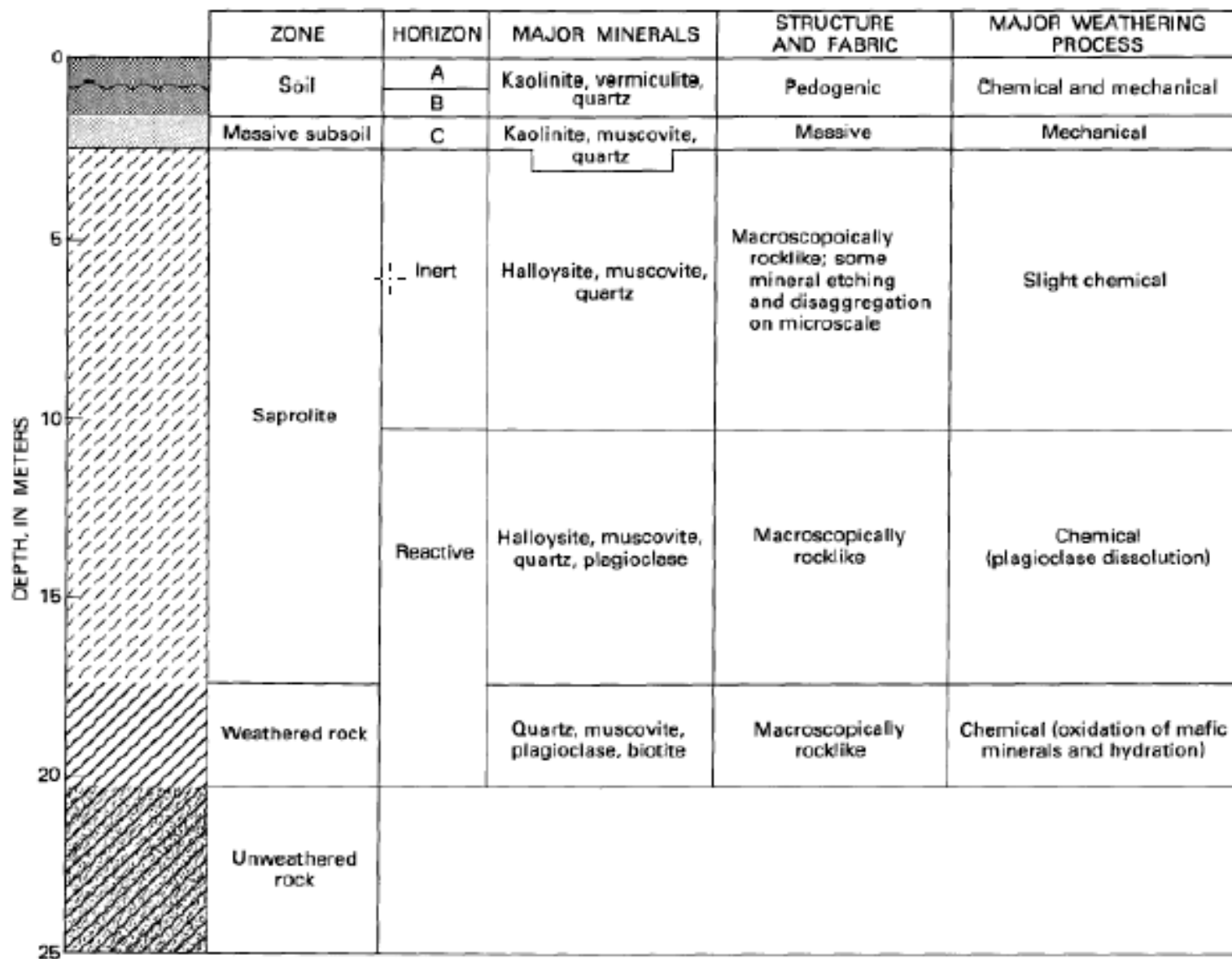


FIGURE 17.—Generalized weathering profile for thick regolith developed on upland quartzofeldspathic rocks.

(Figure 17, Pavich et al., 1989)

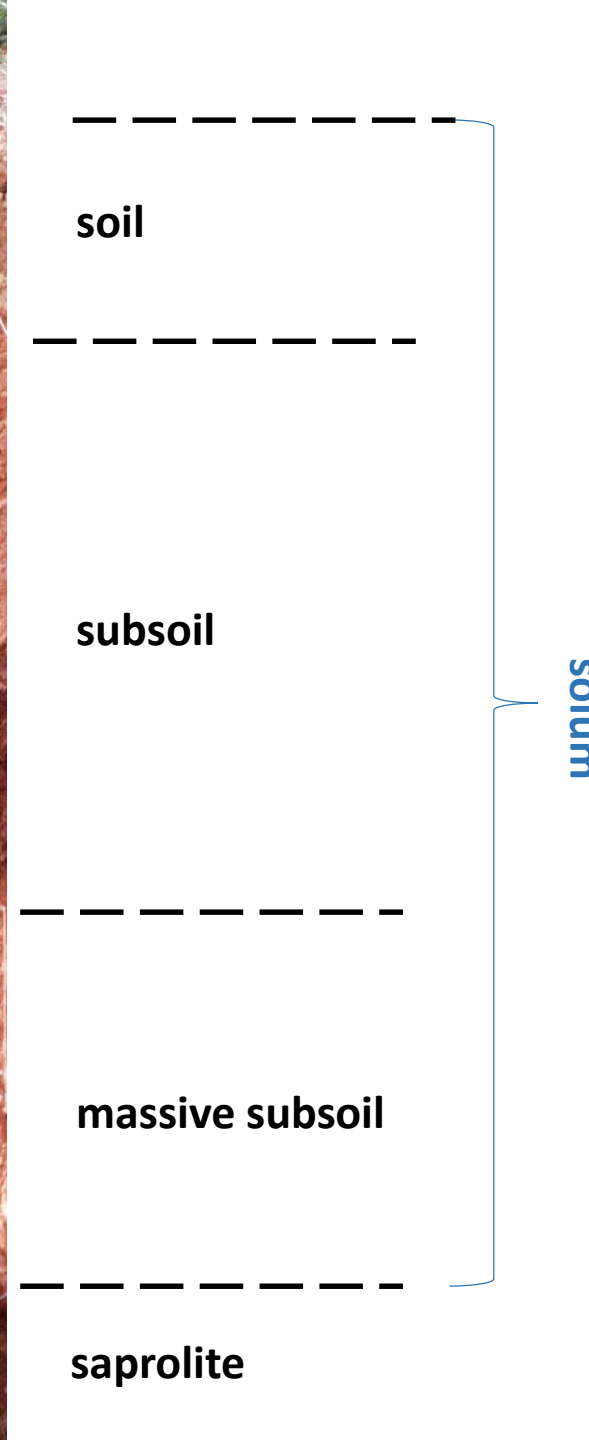
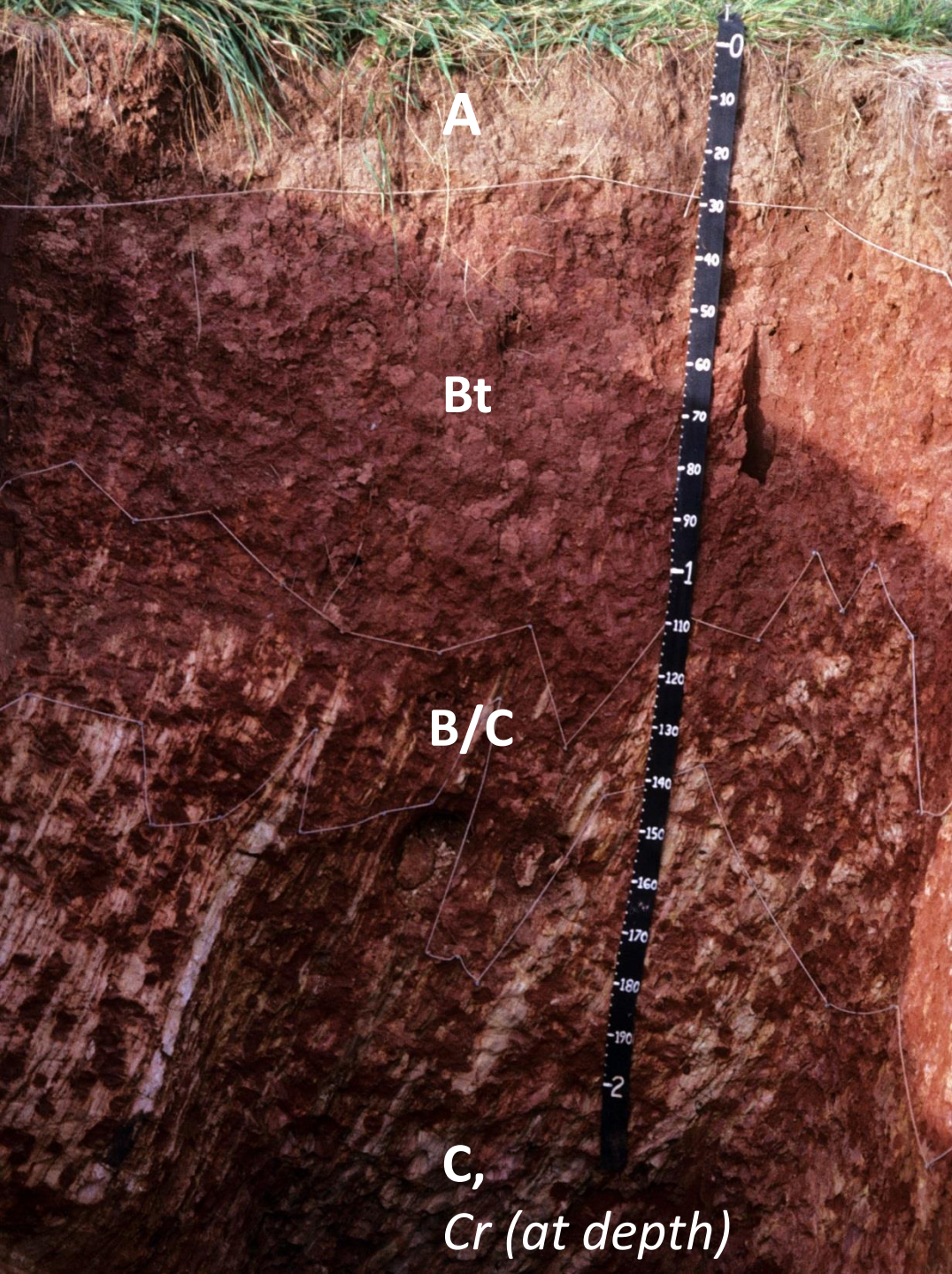
TABLE 1.—Description of weathering profile for igneous and metasedimentary rocks in Fairfax County, Va. (modified from Deere and Patton, 1971)

Zone	Description <sup>1</sup>	RQD <sup>2</sup> (NX core percent)	Percent core recovery (NX core)	Relative permeability	Relative strength	Common thickness (meters)	
Soil -----	A Horizon -----	Top soil, roots, organic material. Zone of leaching and eluviation. Generally porous and sandy.	Not applicable.	0	Medium to high --	Very low ---	0.1-0.2
	B Horizon -----	Characterically clay enriched, also accumulations of Fe and Al. No relict structures present.	Not applicable.	0	Low -----	Commonly low, medium if very dry.	0.3-1.0
Massive subsoil -----	No relict rock structure. Less dense than soil B horizon. Less clay than soil B horizon. Depleted in cations and silica relative to Fe and Al. May contain clasts of saprolite.	Not applicable.	0	Medium -----	Low-----	0.5-1.0	
Saprolite-----	Relict rock structures retained. Clay-bearing silt or clay-bearing sand grading to sand at depth. Commonly micaceous; feldspars and mafic minerals altered to clays. Less than 10 percent core stones. Joints strongly cemented with oxides at many places.	0 or not applicable.	Generally 0-10 percent.	Medium -----	Low to medium (relict structures very significant).	1-15	
Weathered rock ----	Transition (from saprolite to partly weathered rock).	Highly variable, saprolitelike to rocklike. Fines commonly fine to coarse sand (grus). 10-95 percent core stones. Feldspars and mafic minerals altered in part.	Variable, generally 0-50 percent.	Variable, generally 10-90 percent.	High (water losses common during drilling).	Medium to low where weak structures and relict structures are present.	0.3-3
	Partly weathered rock.	Rocklike, soft to hard rock. Joints stained to altered. Slight alteration of feldspars and mafic minerals.	Generally 50-75 percent.	Generally 90 percent.	Medium to high --	Medium to high <sup>3</sup> .	0.3-3
Unweathered rock-----	No iron stains to trace along joints. No weathering of feldspars and micas. No sheared zones.	>75 percent (generally >90 percent).	Generally 100 percent.	Low to medium---	Very high <sup>3</sup> .	—	

<sup>1</sup>The descriptions provide the only reliable means of distinguishing the zones.

<sup>2</sup>RQD stands for Rock Quality Designation, described in Deere and others (1967). RQD in percent equals length of core pieces 4 in. (10.3 cm) and longer divided by length of run times 100. NX core diameter in 1.75 in. (4.5 cm).

<sup>3</sup>Considering only intact rock with no adversely oriented geologic structures.



# Saprolite & Related Terms

Pacolet soil, saprolite from felsic crystalline bedrock (*e.g. gneiss, schist*)

Raleigh, NC.  
Source: P. Schoeneberger