

RAMELIUS RESOURCES (RMS) LITHOLOGY LOGGING CODES (2012)

T Transported	ZZ Undifferentiated	
	C Transported clay	Z Undifferentiated
		L Lake Clays/Sediments
	G Transported gravel	Z Undifferentiated
		C Gravels in green clay matrix. Alluvium with ultramafic derived matrix
		F Ferruginous gravels. Alluvial sheet wash
	HZ Hardpanised transported material	
	LZ Transported laterite (pisoliths)	
	MZ Mottled zone	
	PZ Pedogenic Carbonate	
SZ Sand		
OZ Transported soil		
D Duricrust	ZZ Undifferentiated	
	CZ Carbonate cemented duricrust or calcrete	
	HZ Hardpan duricrust or ferricrete	
	LZ Duricrust with uncertain material or lateritic material	
	SZ Silicious	
YZ Gypsum		
W In-situ weath rock (residual)	ZZ Undifferentiated weathered material	
	C Clay	Z Undifferentiated
		F Felsic Clay
		M Mafic Clay
		U Ultramafic Clay
		W Clay zone, strong weath. pallid clay
	DZ Gossan	
	MZ Mottled	
	S Saprolite	Z Undifferentiated
		U Upper
	L Lower	
	R Saprock (>30% primary minerals fresh)	
OZ Residual soil		

S Sedimentary	ZZ Undifferentiated	
	F Clastic - fine grained (<0.1mm) (excl. chert/BIF)	Z Undifferentiated S Silt- and Clay- and Mud stone H Shale (dark gray to black) G graphitic shale (black residue on fingers) B banded (colour) U Ultramafic (fine chlorite - top of flow +/-tourmaline)
	M Clastic - medium grained (0.1-2mm)	Z Undifferentiated S Sandstone A Arkose (Quartz and Feldspar (>25%) +/- mica +/- minor carbonate or ferruginous cement) L Sandstone with minor lithic fragments G Graywacke (might vary in grain size)
	C Clastic - coarse grained (>2mm)	Z Undifferentiated G Grit (si cement, max 10% lith fragments) F Grit (fe cement, max 10% lith fragments) C Conglomerate (general) M Monomict Conglomerate (clast supported) N Monomict Conglomerate (matrix supported) O Polymict Conglomerate (clast supported) P Polymict Conglomerate (matrix supported) B Breccia (general) X Monomict Breccia (clast supported) Y Monomict Breccia (matrix supported) V Polymict Breccia (clast supported) W Polymict Breccia (matrix supported)
	B Carbonates	Z Undifferentiated L Limestone (Micrite - rare to no fossils) B Biomicrite (with fossils) M Marble
	I Cherts & BIFs	Z Undifferentiated F dominant ferruginous/magnetite layers (classic BIF) Q BIF with prominent chert layers M BIF with frequent chloritic +/- chert layers C Chert with only minor variations in layer comp. I Chert with dark ferruginous layers (non magnetic) J Jasper
	V Volcanics	Z Volcaniclastics (undiff.)see under FV-,IV-& MV- for detail M Massive Sulphides (associated with and stratiform to other sediments)-see VMS/VMM for other massive sulphide options

F	Felsic	ZZ	Undifferentiated		
		R	Rhyolite +/- flow bands unalt/fresh extrusive (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated
				F	Porphyry (feldspar phenocrysts)
				Q	Porphyry (quartz phenocrysts)
				O	Porphyry (other)
		A	Aplite unalt/fresh subvolcanic (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated
				A	Aplite, K-feldspar dominated (pink to redish)+/-biotite
				F	Porphyry (feldspar phenocrysts)
				Q	Porphyry (quartz phenocrysts)
				O	Porphyry (other)
				G	Granophyre (graphic intergrowth of qtz&fsp)
		G	Granite unalt/fresh intrusive (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated
		L	Leucogranite		
		F	Porphyry (feldspar phenocrysts)		
		Q	Porphyry (quartz phenocrysts)		
		O	Porphyry (other)		
PZ	Pegmatite				
W	Rhyolite +/- flow bands weak to mod altered extrusive (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated		
		F	Porphyry (feldspar phenocrysts)		
		Q	Porphyry (quartz phenocrysts)		
		O	Porphyry (other)		
Y	Aplite weak to mod altered subvolcanic (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated		
		A	Aplite, K-feldspar dominated (pink to redish)+/-biotite		
		F	Porphyry (feldspar phenocrysts)		
		Q	Porphyry (quartz phenocrysts)		
		O	Porphyry (other)		
		G	Granophyre (graphic intergrowth of qtz&fsp)		
T	Granite weak to mod altered intrusive (>20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated		
		L	Leucogranite		
		F	Porphyry (feldspar phenocrysts)		
		Q	Porphyry (quartz phenocrysts)		
		O	Porphyry (other)		
M	Metamorphic/strong altered (Protolith not identified)	Z	Undifferentiated		
		G	Gneiss		
		S	Schist		
V	Volcaniclastics (incl. metam. equivalent, as long as identified)	Z	Undifferentiated		
		A	Ash/Tuff (<2mm)		
		L	Lapilli Tuff (>2mm)		
		W	welded tuff / ignimbrite (+/- rock fragments)		
X	Hydrothermal & Vent Breccias (excl. tectonic breccias)	Z	Undifferentiated		
		F	Fragments in finer (aplitic) matrix		
		M	Mesothermal jigsaw breccia (hydrothermal)		

I Intermediate	ZZ	Undifferentiated		
	D	Dacite unalt/fresh extrusive (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated
			F	Porphyry (feldspar phenocrysts)
			Q	Porphyry (quartz phenocrysts)
			O	Porphyry (other)
	A	Dacitic dyke/sill unalt/fresh subvolcanic (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated
			F	Porphyry (feldspar phenocrysts)
			Q	Porphyry (quartz phenocrysts)
			O	Porphyry (other)
	G	Granodiorite/Tonalite unalt/fresh intrusive (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated
			F	Porphyry (feldspar phenocrysts)
		Q	Porphyry (quartz phenocrysts)	
		O	Porphyry (other)	
K	(Quartz-)Syanite and Monzonite unalt/fresh intrusive (<20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated	
		F	Porphyry (feldspar phenocrysts)	
		O	Porphyry (other)	
W	Dacite weak to mod altered extrusive (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated	
		F	Porphyry (feldspar phenocrysts)	
		Q	Porphyry (quartz phenocrysts)	
		O	Porphyry (other)	
Y	Dacitic dyke/sill weak to mod altered subvolcanic (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated	
		F	Porphyry (feldspar phenocrysts)	
		Q	Porphyry (quartz phenocrysts)	
		O	Porphyry (other)	
I	Granodiorite/Tonalite weak to mod altered intrusive (>20%Qtz, Plag>65% of Fsp total)	Z	Undifferentiated	
		F	Porphyry (feldspar phenocrysts)	
		Q	Porphyry (quartz phenocrysts)	
		O	Porphyry (other)	
F	(Quartz-)Syanite and Monzonite weak to mod altered extrusive (<20%Qtz, Plag<65% of Fsp total)	Z	Undifferentiated	
		F	Porphyry (feldspar phenocrysts)	
		O	Porphyry (other)	
M	Metamorphic/strong altered (Protolith not identified)	Z	Undifferentiated	
		G	Gneiss	
		S	Schist (Qtz,Plag +/- Chl,Hbl,Bt-some but not necessarily all of the later)	
		M	Massive (Qtz,Plag +/- Chl,Hbl,Bt-some but not necessarily all of the later)	
V	Volcaniclastics (incl. metam. equivalent where identified)	Z	Undifferentiated	
		A	Ash/Tuff (<2mm)	
		L	Lapilli Tuff (>2mm)	
		W	welded tuff / ignimbrite (+/- rock fragments)	
X	Hydrothermal & Vent Breccias (excl. tectonic breccias)	Z	Undifferentiated	
		F	Fragments in finer (aplitic) matrix	

M Mafic	ZZ Undifferentiated	
	B Basalt/Andesite unalt/fresh extrusive ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated (eg: massive, fine grained) H High Mg-basalt P Pillow basalt V with Vesicles (void or filled with zeolites, calcite, quartz or chalcedony) X Hyaloclastite or other breccia O Porphyry (i.e. with phenocrysts of olivine, plag or px)
	D Dolerite unalt/fresh subvolcanic ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated D (differentiated) dolerite/gabbro F (differentiated) fine grained flow top/sill margin
	G Gabbro (+Diorite & qtz/monzo) unalt/fresh intrusive ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated P Porphyritic
	W Basalt/Andesite weak to mod altered extrusive ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated H High Mg-basalt P Pillow basalt V with Vesicles (void or filled with zeolites, calcite, quartz or chalcedony) X Hyaloclastite or other breccia O Porphyry (i.e. with phenocrysts of olivine, plag or px)
	Y Dolerite weak to mod altered subvolcanic ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated D Differentiated dolerite/gabbro F Differentiated fine grained flow top/sill margin
	T Gabbro (+Diorite & qtz/monzo) weak to mod alt. intr. ($<20\%Qtz$, $Plag > 65\%$ of Fsp total, $<90\%Cpx+Opx+Ol$)	Z Undifferentiated P Porphyritic
	M Metamorphic (Protolith not identified)	Z Undifferentiated G Greenschist (foliated/schistosity) M Greenstone (massive) A Amphibolite (dominantly amphiboles - hornblende/actinolite, little chlorite)
	V Volcaniclastics (incl. metam. equivalent, as long as identified)	Z Undifferentiated A Ash/Tuff ($<2mm$) L Lapilli Tuff ($>2mm$) W welded tuff / agglomerate (+/- rock fragments)
	X Hydrothermal & Vent Breccias (excl. tectonic breccias)	Z Undifferentiated F Fragments in finer (mafic) matrix M Mesothermal jigsaw breccia (hydrothermal)

U Ultramafic	ZZ Undifferentiated	
	K (Meta)Komatiite (extrusive texture identified)	Z Undifferentiated ultramafic flows D Differentiated on basis of texture/mineralogy F Chill margin (finer grained)
	L Kimberlite, Lamproite (subvolcanic texture identified)	Z Undifferentiated K Kimberlite (pipe) L Lamproite - phlogopite, richterite, olivine, diopside, leucite, sanidine (ultra-potassic!)
	P Peridotite/Pyroxenite (intrusive texture identified)	Z Undifferentiated P (former) Pyroxene dominant O (former) Olivine dominant H (former) Hornblend dominant
	C Cumulate (undiff. extrusive or intrusive)	Z Undifferentiated A Adcumulate (93-100%) M Mesocumulate (85-93%) O Orthocumulate (75-85%)
	M Metamorphic (massive)	Z Undifferentiated A Actinolite as dominant mineral B Biotite (and/or Phlogopite) as dominant mineral C Talc as dominant mineral S Serpentinite T Tremolite as dominant mineral
S Metamorphic (foliated/schistose)	Z Undifferentiated A Actinolite as dominant mineral B Biotite (and/or Phlogopite) as dominant mineral C Talc as dominant mineral S Serpentinite T Tremolite as dominant mineral	

V Vein	ZZ Undifferentiated	
	Q dominantly Quartz	Z Undifferentiated M massive A Angel-Wing texture (silicified calcite) E Epithermal (chalcedonic) R with host rock fragments
	CZ dominantly Carbonate	
	M Massive Sulphides	Z Undifferentiated (see also SVM as sedimentary option) S Stockwork or stringers of sulphides (chalcopyrite, pyrite and pyrrhotite with minor qtz, chl, carb) M Mound-zone (laminated massive to brecciated pyrite, sphalerite (+/-galena), hematite, and barite) R Remobilised
H Disturbed	ZZ Undifferentiated	
	S Stope	Z Undifferentiated F Filled stope O Open stope (or partly filled)
	IZ Insufficient sample to log	
	TZ Tailings	
O Undifferentiated & unclassified	ZZ Undifferentiated	
	SZ Schistose/foliated	
	VZ Volcanic	
	XZ Breccia of unknown genesis	
	T Tectonites	Z Undifferentiated C Cataclasite M Mylonite/Pseudotachylite B Tectonic/Fault breccia