Basaltic rock

Description

Dark grey, very fine grained, massive, intrusive igneous rock.

Key diagnostic features :

(i) Dark grey.

(ii) Very fine grained (individual crystals cannot be discerned with the unaided eye).

(iii) Massive (i.e. no banding).

(iv) Sharp, cross-cutting (i.e. intrusive) contacts.

(v) Typically fractures into many angular fragments.

Comments

Often occurs at the boundary between two other rock units (e.g. coarsely feldsparphyric rhyolite and metasedimentary rock). Also found occasionally as rounded 'blobs' up to about 50 centimetres diameter in feldsparphyric rhyolite.

Reference sample no.: 37

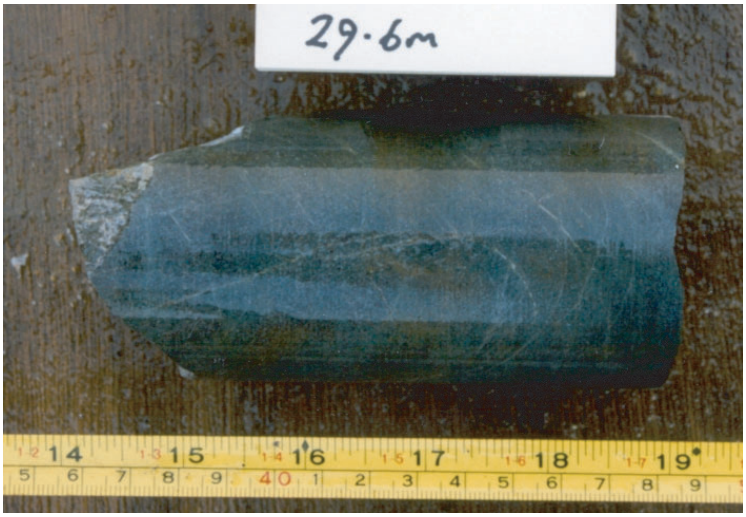

Plate A20 - Basaltic rock. Tung Chung, Site 5; Drillcore D-16; Box 6, 29.6 m. See also: Geoguide 3, Plate A1[Q]

Lamprophyric rock

Description

Generally dark, very fine grained igneous rock characterised by a high proportion of mafic minerals which often form phenocrysts and/or 'clots' of crystals.

Key diagnostic features :

(i) Generally dark grey.

(ii) Fine to very fine grained.

(iii) Massive (i.e. no banding).

(iv) Intrusive contacts.

(v) Small phenocrysts and/or 'clots' of mafic minerals are discernible occasionally.

Reference sample no.: 21

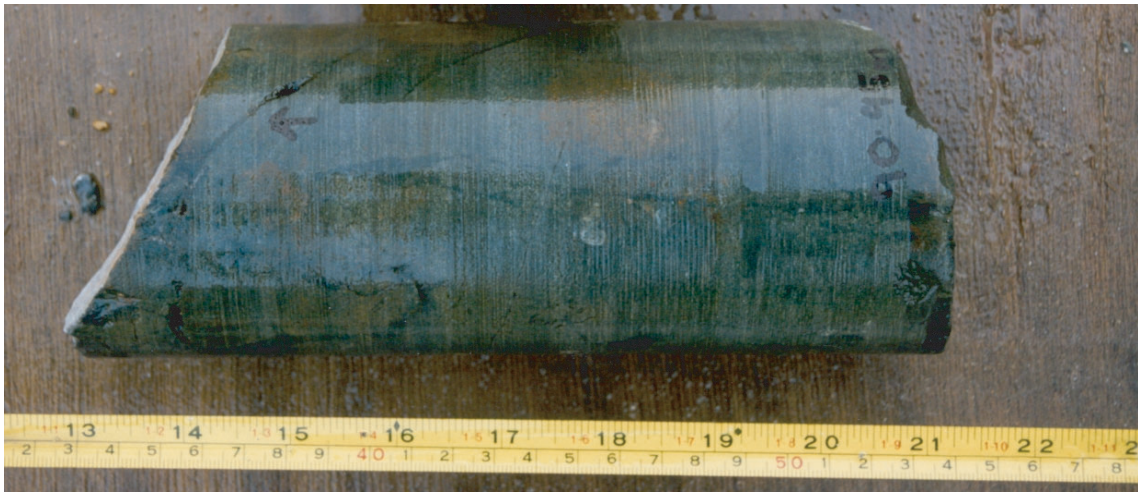

Plate A21 - Lamprophyric rock. Tung Chung, Site 4; Drillcore A-44; Box 6, 90.88 m. See also : Geoguide 3, Plate A1[R]

Residual soil derived from igneous rock

Description

Material derived from an igneous rock (principally granite and feldsparphyric rhyolite) which has undergone chemical weathering to a point where the original rock texture cannot be discerned. Residual soil corresponds to rock weathering grade VI (see Table 4, Table 10 and Plate 3 in Geogudie 3).

Key diagnostic features :

(i) Original rock texture cannot be discerned.

(ii) Consists of variable proportions of soft to firm clay and oxide minerals, usually with quartz crystals.

(iii) Generally red, pink or orange, and often characterised by a range of coloured bands (Plate 23).

(iv) Contains no 'exotic' clasts or fragments (which distinguishes it from fine alluvial sediment (see Section 2.5).

Comments

Quartz is generally the only primary mineral to survive intensive chemical weathering in igneous rocks. The nature of the parent rock may be deduced by examining quartz crystals in the residual soil. In residual soil derived from granite, quartz crystals often have irregular form, whereas in residual soil derived from rhyolite the quartz crystals are usually subhedral, typically with sub-spherical form. The size and abundance of quartz crystals in residual soil may provide further clues as to the nature of the parent rock. For example, if the quartz crystals are relatively coarse and sub-spherical the parent rock was probably coarsely feldsparphyric rhyolite; if they are relatively fine and sub-spherical the parent rock was probably finely feldsparphyric rhyolite.

Residual soil derived from igneous rock may contain discrete, boulder-like areas of relatively unweathered rock, with weathered margins; these are 'corestones'. In drillcores, corestones appear as intervals of relatively fresh rock of the host lithology above and below which is residual soil and/or pervasively weathered rock.

Reference sample no.: Mazier samples: 64 - 65 m in borehole A-48; 76 -77 m in borehole A-8B; 41 - 42 m in borehole CC9. Most of the Reference drillcores contain intervals of residual soil derived from igneous rock.

Plate A22a - Residual soil derived from finely feldsparphyric rhyolite. Relict feldspar and fresh quartz phenocrysts can be discerned in the reddish clayey matric. The black and orange colouration is secondary Mn and Fe oxide minerals which developed originally in and around hairline fractures. Way-up is to the right. Tung Chung, Site 4; Drillcore A-48, Mazier sample, 64 - 65 m

Plate A22b - Residual soil derived from (?) coarsely feldsparphyric rhyolite. Relict feldspar (white areas) and fresh quartz phenocrysts can be discerned in the orange-brown clayey matric. Way-up to the right. Tung Chung, Site 4; Drillcore A-8B, Mazier sample, 76 - 77 m

Residual soil derived from metasedimentary rock

Description

Material derived from metasedimentary rock which has undergone chemical weathering to a point where the original rock texture cannot be discerned. Residual soil corresponds to rock weathering grade VI (see Table 4, Table 10 and Plate 3 in Geoguide 3).

Key diagnostic features :

(i) Usually dominated by dark brown, grey, purple or green clayey and oxide-rich material.

(ii) The clayey material described in (i) often contains angular fragments of siliceous metasedimentary rock, ranging from fine sand to cobble size. There are usually no discrete quartz crystals as in residual soil derived from igneous rocks.

(iii) The characteristics, in particular the colour, of residual soil derived from metasedimentary rocks usually vary considerably over short depth intervals, reflecting the variability in character of the parent rocks as well as secondary chemical processes.

Comments

Residual soil derived from metasedimentary rock can have characteristics that are very similar to those of unconsolidated cavity-fill deposits. Careful examination of Mazier samples may help to distinguish between them.

Reference sample no.: Reference drillcores C-42 (55 - 94.5 m) and CC-9 (118 - 130 m).

Fault

Description

A discontinuity in the rock containing fault breccia. Definition and description of faults and related features are given in Geoguide 3, Section A7.2.

Key diagnostic features :

(i) Presence of fault breccia.

(ii) Fault breccias are unlikely to be wider than 1 metre, and are usually considerably less.

Comments

Healed faults are those in which a (usually siliceous) cement has sealed the discontinuity and is contiguous with the wallrock minerals. A healed fault is no longer a physical discontinuity, and therefore may not be significantly weaker than the enclosing rock.

Reference sample no.: Reference drillcore E-96 (80 - 92 m)

Plate A23 - Healed fault and shearing (see Section 2.28) in contact facies granite. Tung Chung, Site 3; Drillcore CC-23; Box 4, 66 m

Vein breccia

Description

A brecciated rock in which the fragments form a 'jigsaw' texture which is cemented by carbonate or silicate minerals.

Key diagnostic features :

(i) Interval of rock with detached, angular wallrock fragments cemented by authigenic minerals.

(ii) Usually less than 5 centimetres wide.

(iii) The absence of fine or crushed wallrock fragments distinguishes vein breccia from fault breccia.

Comments

Some vein breccias (and fault breccias) in Tung Chung drillcores are cemented by calcite. Where these occur below the weathered zone the breccia is intact. Where they occur above the base of the weathered zone the calcite has dissolved partly or completely, leaving a 'collapsed' breccia characterised by an interval of disaggregated drillcore. Such intervals may be indistinguishable from those created in highly fractured and/ or weakened rock by coring disturbance.

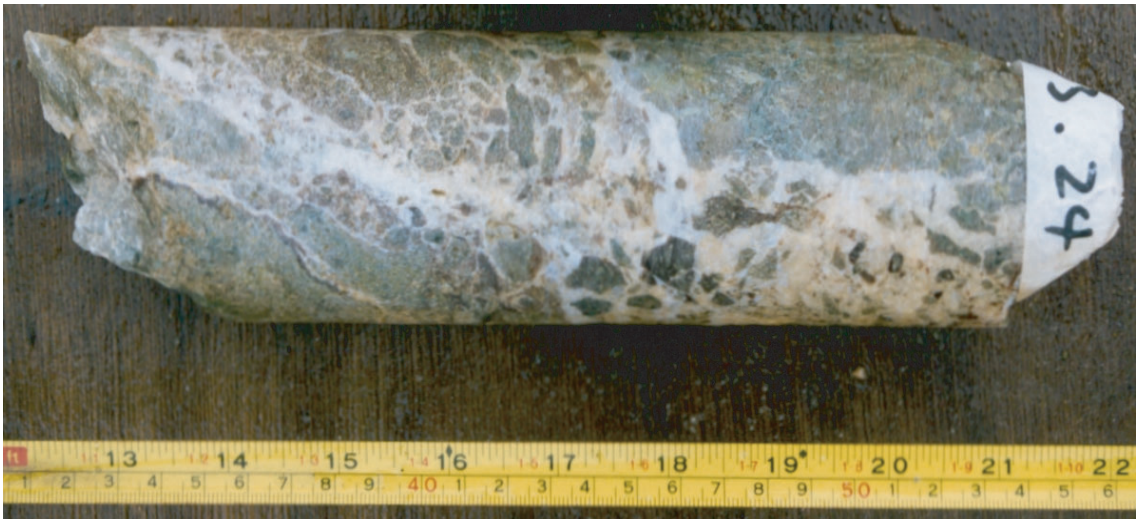

Plate A24 - Calcite-cemented vein-breccia in coarsely feldsparphyric rhyolite. Tung Chung, Site 5; Drillcore E-72; Box 8, 123.3 m

Chlorite seams

Description

Generally thin (<2 mm wide), planar to curved or sinuous, occasionally bifurcating discontinuities mineralised by chlorite with or without quartz and haematite (Plate 26).

Key diagnostic features :

(i) Generally thin, planar to curved or sinuous, occasionally bifurcating discontinuities.

(ii) Mineralised by chlorite with or without quartz and haematite.

(iii) Confined to igneous lithologies, mainly granite.

(iv) Usually dark green, sometimes with lighter yellow-green epidote.

Shearing

Description

Planar fabric superimposed on an interval of rock by tectonic activity, usually at elevated temperatures and often in association with hydrothermal fluids. The intensity of shearing may be described as weak, moderate or strong.

Key diagnostic features :

(i) A planar fabric superimposed on igneous rocks.

(ii) Often accompanied by minerals associated with moderate to intensive hydrothermal alteration, such as chlorite (as chlorite seams) and haematite.

Plate A25 - Sheared and chloritised contact facies granite. Tung Chung, Site 3; Drillcore CC-20; Box 8, 172.9 m

ABBREVIATIONS

Man-made deposits

Fill	F

Superficial deposits

Marine sediment	Ms
Alluvium	A
Colluvium	Co
Fine alluvial sediment	FAS
Siltstone	Ss
Iron-rich rock	IRd

Metasedimentary rocks

Marble	M
Quartzite	Q
Calc-silicate rock	CS
Skarn	S
Metasandstone	Msa
Metamudstone	Mm
Magnetite-rich rock	Mrr

Features associated with solution

Cavity	C
Cavity-fill deposit	CF
Consolidated/lithified	CFc
Unconsolidated	Cfu

Igneous rocks

Granite	G
Feldsparphyric microgranite	Gmf
Rhyolite	R
Feldsparphyric rhyolite	Rf
Coarsely phyric rhyolite	Rfc
Finely phyric rhyolite	Rff
Basaltic rock	B
Lamprophyric rock	Lp

Residual soil

Residual soil derived from rock of unknown origin	RSu
Residual soil derived from igneous rocks	RSi
Residual soil derived from metasedimentary rocks	RSm

ABBREVIATIONS

Man-made deposits

Fill	F

Superficial deposits

Marine sediment	Ms
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Magnetite-rich rock	Mrr

Features associated with solution

Cavity	C
Cavity-fill deposit	CF
Consolidated/lithified	CFc
Unconsolidated	Cfu

Igneous rocks

Granite	G
Feldsparphyric microgranite	Gmf
Rhyolite	R
Feldsparphyric rhyolite	Rf
Coarsely phyric rhyolite	Rfc
Finely phyric rhyolite	Rff
Basaltic rock	B
Lamprophyric rock	Lp

Residual soil

Residual soil derived from rock of unknown origin	RSu
Residual soil derived from igneous rocks	RSi
Residual soil derived from metasedimentary rocks	RSm