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COOLONGATTA

Erosional



Landscape—undulating to rolling low hills on Berry Formation. Relief 10–100 m. Slopes 5–20%. Extensively cleared with scattered open-woodland with occasional shrubs.

Soils—Lithosols (Um6.12) occur on crests and upper slopes. Moderately deep (50–100 cm) Brown Earths (Gn3.22) occur on midslopes. Deep (>150 cm) Red and/or Yellow Podzolic Soils (Dr3.31, Dy3.31) occur on lower slopes and in adjacent drainage lines.

Limitations—water erosion hazard, surface movement potential (localised), mass movement hazard (localised), hardsetting, stoniness, strongly acid, low wet bearing strength (topsoil), shrink-swell (subsoil).

Topography

Undulating to rolling low hills. Relief 10–100 m. Slopes ranging from 5–20% with isolated steep slopes >25% and scattered rock outcrops. Broad crests and ridges to 200 m long, moderately inclined slopes with moderate to steeply incised drainage lines. Slumping at heads of drainage lines. On isolated steep slopes terracettes and landslips.

Vegetation

Extensively cleared with scattered open-woodland with occasional shrubs. Common species include spotted gum (*Eucalyptus maculata*), blackbutt (*Eucalyptus pilularis*), blue-leaved stringybark (*Eucalyptus agglomerata*), cabbage tree palm (*Livistona australis*), illawarra flame tree (*Brachychiton acerifolium*), wattle (*Acacia* sp.). Decorative paperbark (*Melaleuca decora*) occurs in the drainage lines.

Land Use

Cattle grazing on improved pastures, Albatross Naval Base, recreational walking trails.

Existing Erosion

Moderate to severe stream bank erosion. Localised moderate gully erosion. Slumping at heads of drainage lines. Moderate to severe rill erosion occurs on batters. There is evidence of terracettes and landslips on steep slopes.

LOCATION

Undulating to rolling low hills on Berry Formation on the Coastal Plain. Examples include lower slopes of Coolongatta Mountain and Parma Road, Nowra.

LANDSCAPE

Geology

Berry Formation—light grey to dark grey micaceous siltstone, mudstone and shale.

SOILS

Dominant Soil Materials

co1—Hardsetting dull brown loam, fine sandy (topsoil)

Colour	dull brown (7.5YR 5/4)
Texture	loam, fine sandy
Structure	weakly to moderately pedal, 5–10 mm polyhedral peds
Fabric	rough-faced, porous
pH	5.5
Stones	nil
Roots	common, in-ped

co2—Friable dark brown loam (topsoil)

Colour	dark brown (10YR 4/3)
Texture	loam
Structure	weakly pedal, 2–5 mm polyhedral to sub-angular blocky peds
Fabric	rough-faced, porous
pH	6.0
Stones	10–20% 8–12 mm angular, dispersed
Roots	abundant, in-ped

co3—Mottled dull reddish brown weakly pedal sandy clay (subsoil)

Colour	dull reddish brown (2.5YR 4/4) with grey red mottles (50%)
Texture	sandy clay to heavy clay
Structure	weakly pedal, 5–10 mm polyhedral peds
Fabric	smooth-faced, dense
pH	4.0

Stones 20–50% <2 mm

Roots few

co4—Brown weakly pedal sandy clay loam (subsoil)

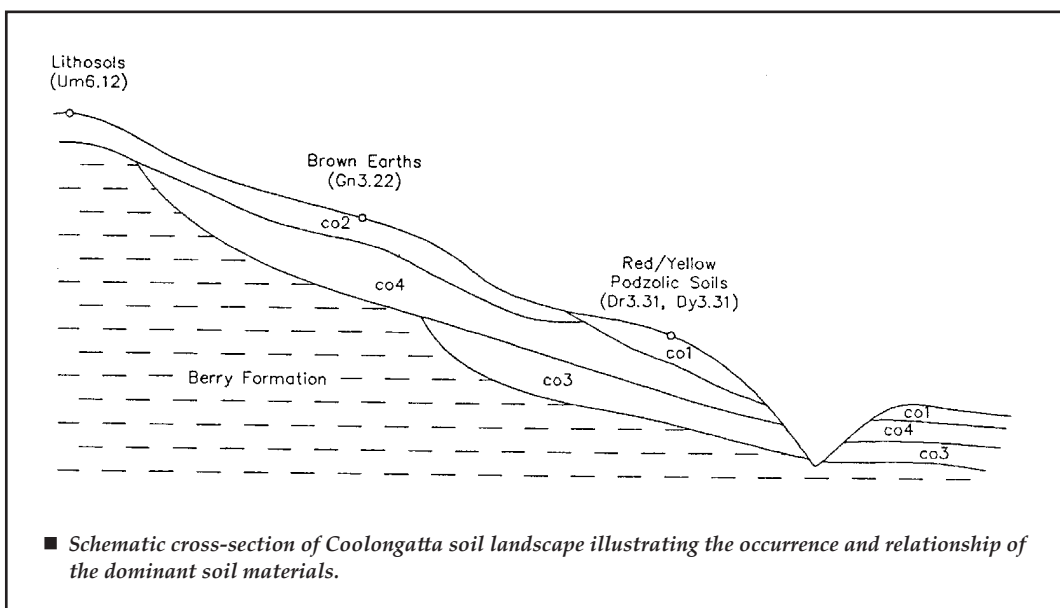
Colour	brown (7.5YR 4/4) to yellowish brown (10YR 5/6)
Texture	sandy clay loam
Structure	weakly pedal, 2–10 mm polyhedral peds
Fabric	rough-faced, porous
pH	4.0
Stones	20–50% 5–10 mm
Roots	few

Occurrence and Relationships

Crests and upper slopes. Up to 20 cm friable dark brown loam (**co2**) overlies bedrock. Boundary is sharp [Lithosols (Um6.12)]. Total soil depth is <20 cm.

Midslopes. Up to 10 cm friable dark brown loam (**co2**) overlies <50 cm brown weakly pedal sandy clay loam (**co4**). Boundary is gradual [Brown Earths (Gn3.22)]. Total soil depth is <60 cm.

Lower slopes and drainage lines. Up to 10 cm hardsetting dull brown loam, fine sandy (**co1**) overlies <15 cm **co4** which overlies <150 cm mottled dull reddish brown weakly pedal sandy clay (**co3**). Boundaries are clear. [Red Podzolic Soils and Yellow Podzolic Soils (Dr3.31, Dy3.31)]. Total soil depth is <200 cm.



LIMITATIONS TO DEVELOPMENT

When ground cover is removed, these soils can be highly dispersible, and dams will fail.

Soil Limitations

- co1** Hardsetting
 - High organic matter
 - Low wet bearing strength
 - Shrink-swell potential (localised)
 - Strongly acid
- co2** Stoniness
 - High organic matter
 - Low wet bearing strength
 - Shrink-swell potential (localised)
 - Strongly acid
 - Sodicity
- co3** Low permeability
 - Stoniness
 - Low wet bearing strength
 - Strongly acid
 - Shrink-swell
- co4** Stoniness
 - Strongly acid

Fertility

General fertility is moderate to low. The soils, with the exception of localised friable outcrops, are generally very hardsetting, weakly structured, strongly acid with low to moderate CEC.

Erodibility

The topsoils (**co1** and **co2**) are highly to moderately erodible (respectively). The subsoils (**co3** and **co4**) have low erodibility.

Erosion Hazard

Erosion hazard for non-concentrated flows is extreme. The calculated soil loss for the first 12 months of urban development ranges up to 900 t/ha for topsoils and 600 t/ha for exposed subsoils. The erosion hazard for concentrated flows is extreme.

Surface Movement Potential

The deep soils are slightly to moderately reactive. Reactivity of these soils may vary widely over short distances. Shallow soils are slightly reactive.

Landscape Limitations

- Steep slopes (localised)
- Mass movement hazard (localised)
- Shallow soil (localised)
- Rock outcrop (localised)
- Water erosion hazard
- Surface movement potential (localised)

Urban Capability

Generally moderate limitations for urban development except on slopes greater than 20% and areas of mass movement hazard which have severe limitation hazard.

Rural Capability

Generally high to severe limitations for regular cultivation. Low to moderate limitations for grazing.