

gw

GWYNNEVILLE

Residual (Assoc.)



Landscape—undulating to steep hills on Illawarra Coal Measures and Dapto Latite Member on the Coastal Plain. Local relief 10–70 m. Slopes 3–25%. Broad to narrow (250–850 m) rounded ridges and gently to steeply inclined slopes. Structural benches and occasional rock outcrop. Extensively cleared tall open-forest and open-forest.

Soils—shallow (50–100 cm Brown Podzolic Soils (Db3.11) and Xanthozems (Gn4.34) on upper slopes, Lithosols (Um1.43, Uc1.23) on simple slopes and shallow (<50 cm) Brown Earths (Uf6.13) on midslopes and lower slopes.

Limitations—Extreme erosion hazard, steep slopes, mass movement hazard, local flooding. Reactive impermeable and low wet bearing strength clay subsoils.

LANDSCAPE

Geology

Illawarra Coal Measures—resistant interbedded quartz-lithic sandstone, grey siltstone and claystone, carbonaceous claystone, clay and laminite; and Dapto Latite Member—melanocratic coarse-grained to porphyritic latite.

Topography

Undulating to steep hills (local relief 10–70 m); slope gradients 3–25%. Landform elements include broad to moderate ridges (250–800 m), steeply inclined to moderately inclined footslopes, and isolated rises on the Coastal Plain. This soil landscape is characterised by localised structural benches up to 80 m wide and localised bedrock outcrops and deep colluvial deposits.

Vegetation

In residential areas the original tall open-forest and open-forest have been extensively cleared. Remaining species include bangalay (*Eucalyptus botryoides*), blackbutt (*Eucalyptus pilularis*), grey ironbark (*Eucalyptus paniculata*), two-veined hickory (*Acacia binervata*) and black wattle (*Acacia mearnsii*). Swamp mahogany (*Eucalyptus robusta*) and forest red gum (*Eucalyptus tereticornis*) occur in poorly drained areas.

LOCATION

Undulating to steep hills on the Coastal Plain. Examples include Koonawarra and Lakelands.

Land Use

Land use is predominantly urban residential.

Existing Erosion

Evidence of widespread previous mass movement includes isolated collapsed batters and indications of previous slumps and landslides.

SOILS**Dominant Soil Materials****gw1—Friable brownish black moderately pedal sandy loam (topsoil)**

Colour brownish black (7.5YR 2/2) to dull yellowish brown (10YR 5/3)

Texture sandy loam to loam

Structure moderately pedal, 1–10 mm crumb to polyhedral peds

Fabric rough-faced, porous

pH 6.0–7.0

Stones <2–20% gravels and cobbles (6–600 mm) rare to common

Roots rare

gw2—Friable moderately pedal dull yellowish brown sandy clay loam (topsoil or subsoil)

Colour dull yellowish brown (10YR 5/3) to brownish black (10YR 3/2)

Texture sandy clay loam

Structure moderately pedal, 2–10 mm crumb to polyhedral peds

Fabric rough-faced, porous

pH 6.5

Stones 10–90% (2–600 mm) fragments and gravels

Roots few, ex-ped

gw3—Brown moderately pedal light clay (subsoil)

Colour brown (7.5YR 4/6) to dull yellowish brown (10YR 5/4) occasional orange mottles <25% at depth

Texture light to heavy clay

Structure moderately pedal, 5–20 mm polyhedral or blocky peds

Fabric rough-faced, porous

pH 5.0–6.5

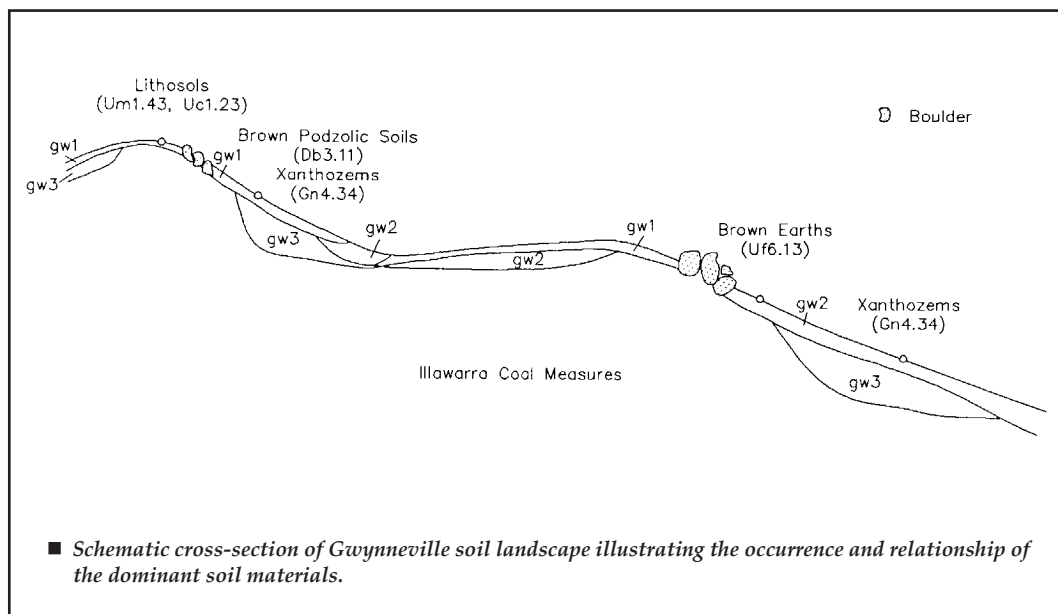
Stones common, gravel

Roots nil

Occurrence and Relationships

Soil material distribution is variable throughout this landscape, reflecting previous mass movement.

Ridges. 10–30 cm of friable brownish black moderately pedal sandy loam (**gw1**) overlies bedrock. Boundaries between soil materials are gradual [Lithosols (Um1.43, Uc1.23)]. Total depth is <50 cm.



Upper slopes and midslopes. 10–30 cm of friable brown loam (**gw1**) overlies <100 cm brown moderately pedal light clay (**gw3**). Boundaries between soil materials are clear [Brown Podzolic Soils (Db3.11)] or gradual [Xanthozems (Gn4.34)]. Total depth is >150 cm.

In localised positions on midslopes and lower slopes. 20–50 cm of dull yellowish brown moderately pedal sandy clay loam (**gw2**) overlies either <20 cm **gw3** or bedrock. Boundaries are gradual [Xanthozems (Gn4.34), Brown Earths (Uf6.13)]. Total depth is <60 cm.

LIMITATIONS TO DEVELOPMENT

Soil Limitations

- gw1** High permeability
Low available water-holding capacity
Stoniness (localised)
- gw2** High permeability
Low available water-holding capacity
Stoniness
- gw3** Low permeability
Low available water-holding capacity
Stoniness (localised)

Fertility

General fertility is moderate with high CEC and low to moderate organic matter. **gw3** has low permeability. Soils are shallow and have poor root penetration at depth.

Erodibility

The soil erodibility is moderate.

Erosion hazard

The erosion hazard for this soil landscape for non-concentrated flows is extreme. Calculated soil loss during the first 12 months of urban development ranges up to 560 t/ha for topsoil and 500 t/ha for exposed subsoil. Soil erosion hazard for concentrated flows is moderate.

Surface Movement Potential

The soil materials vary from stable topsoils to moderately reactive subsoil.

Landscape Limitations

Steep slopes
Mass movement hazard
Rock fall hazard (localised)
Erosion hazard

Urban Capability

Generally high to severe limitations for urban development on steep slopes. Moderate limitations midslopes and lower slopes.

Rural Capability

Generally low to moderate limitations for grazing but high to severe limitations for regular cultivation.