

pn

PICTON

Colluvial (Assoc.)



**Landscape**—steep to very steep sideslopes on Wianamatta Group and derived colluvial materials, usually having a southerly aspect. Relief 90–300 m. Slope gradients >20%. Extensively cleared open-forest.

**Soils**—shallow to deep (50–200 cm) Red Podzolic Soils and Brown Podzolic Soils (Dr2.11, Dr3.11, Db1.11) on upper slopes. Brown Podzolic Soils, Yellow Podzolic Soils and Soloths (Db1.11, Dy4.41, Dy4.42, Dy5.11) on lower slopes and benches with Red Earths (Gn3.11, Gn4.11) and Brown Earths (Gn4.11) on colluvial material. Very deep (>300 cm) Yellow Podzolic Soils and Soloths (Dy3.11) on lower slopes and in drainage lines.

**Limitations**—extreme erosion hazard, mass movement (slump) hazard, steep slopes, occasionally impermeable and highly plastic shrink-swell subsoils.

## LOCATION

Steep to very steep hills in north-western section of Moss Vale Tableland north of the Tourist Road.

## LANDSCAPE

### Geology

Wianamatta Group. Ashfield Shale—laminite and dark grey shale. Bringelly Shale—shale, calcareous claystone, laminite, fine- to medium-grained lithic quartz sandstone, and rare coal.

### Topography

Steep to precipitous hills on fine-textured Wianamatta Group shales (local relief 90–300 m, slope gradients 20–80%). Steep concave upper slopes and irregular lower slopes with southerly and south-westerly aspects are the dominant landform elements. Indications of mass movement processes, predominantly soil creep and slump, are widespread.

### Vegetation

Extensively cleared tall open-forest. Common species include sydney blue gum (*Eucalyptus saligna*) and blackbutt (*Eucalyptus pilularis*). Other species include turpentine (*Syncarpia glomulifera*), grey ironbark (*Eucalyptus paniculata*), white stringybark (*Eucalyptus globoidea*), rough-barked apple (*Angophora floribunda*), and broad-leaved apple (*Angophora bakeri*). Sweet pittosporum (*Pittosporum undulatum*) and breynia (*Breynia oblongifolia*) are common understorey species (Benson 1981).

## Land Use

Grazing on improved, voluntary and native pastures.

## Existing Erosion

Slumps, flows, sheet and tunnel erosion occur throughout this soil landscape. Small discontinuous gullies are common in drainage lines where subsoils are more plastic. There are isolated patches of conspicuous and severe sheet erosion.

## SOILS

### Dominant Soil Materials

**pn1—Hardsetting dark brown massive sandy loam (topsoil)**

**Colour** dark brown (10YR 3/3) to dark reddish brown

**Texture** sandy loam to fine sandy clay loam

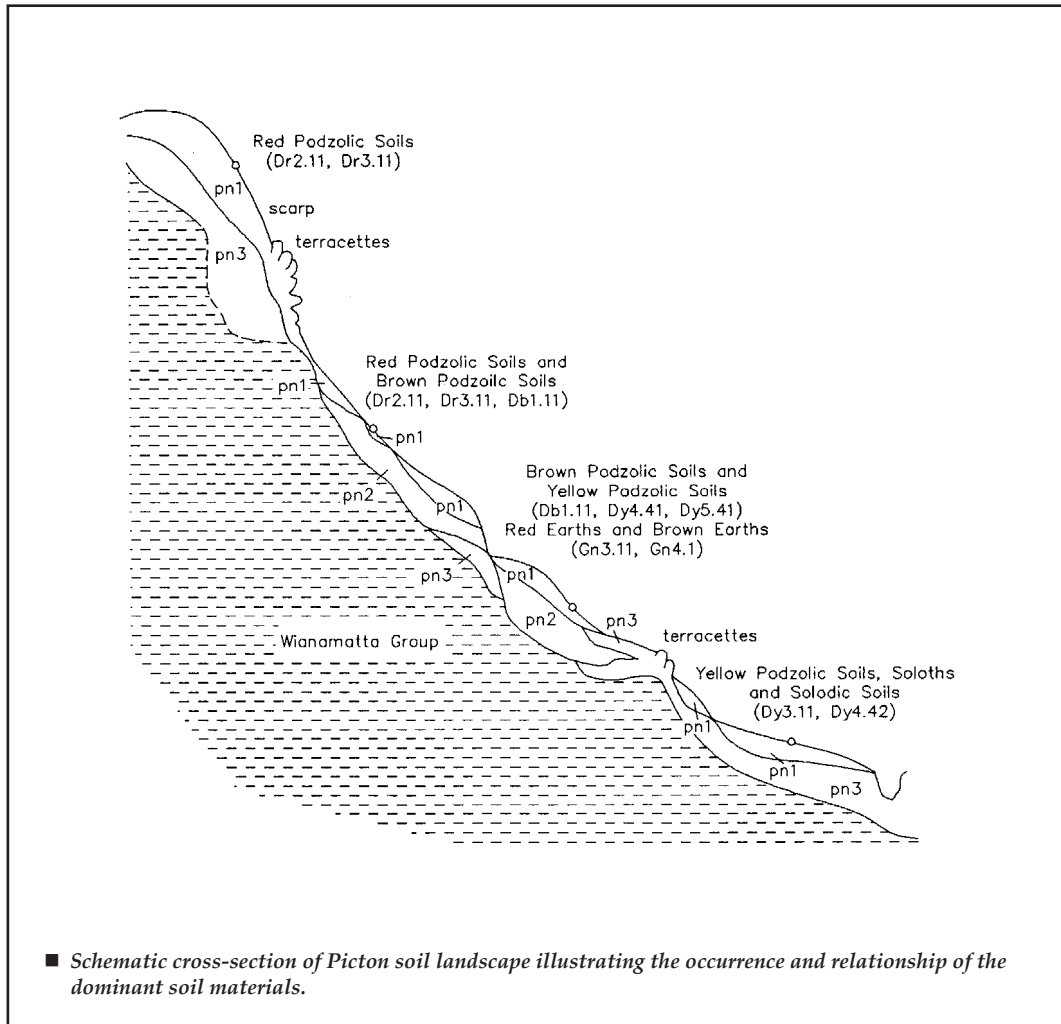
**Structure** apedal massive

**Fabric** earthy

**pH** 6.5–5.5

**Stones** <60% 2–20 mm weakly weathered sub-rounded to angular gravel

**Roots** abundant (in top 5 cm)



**pn2—Strongly pedal dark reddish brown sandy clay (subsoil)**

|                  |  |
|------------------|--|
| <b>Colour</b>    | dark reddish brown (5YR 3/2, 5YR 3/4) occasional red or grey mottles <50% at depth |
| <b>Texture</b>   | sandy clay to light clay   |
| <b>Structure</b> | strongly pedal, 2–5 mm polyhedral peds   |
| <b>Fabric</b>    | smooth-faced   |
| <b>pH</b>        | 6.5  |
| <b>Stones</b>    | 20% 6–20 mm sub-angular  |
| <b>Roots</b>     | few, ex-ped  |

**pn3—Mottled bright brown stony light clay (subsoil)**

|                  |  |
|------------------|--|
| <b>Colour</b>    | bright brown (7.5YR 3/4) to dark reddish brown (2.5YR 3/4) with light grey mottles (25%) |
| <b>Texture</b>   | light to light medium clay   |
| <b>Structure</b> | strongly pedal, 6–20 mm polyhedral to sub-angular blocky                                 |
| <b>Fabric</b>    | rough-faced, porous  |
| <b>pH</b>        | 5.0–4.0  |
| <b>Stones</b>    | 80% weakly weathered, sub-angular to platy gravel  |
| <b>Roots</b>     | rare   |

**Occurrence and Relationships**

**Crests and upper slopes.** Up to 80 cm hardsetting dark brown massive sandy loam (**pn1**) overlies a similar depth of mottled bright brown stony light clay (**pn3**) which directly overlies weathering shale bedrock [Red Podzolic Soils (Dr2.11, Dr3.11)]. Total soil depth is usually >150 cm.

Where there has been more recent downslope movement, **pn1** is much shallower (<30 cm) on the source slope, and this overlies <40 cm strongly pedal dark reddish brown sandy clay (**pn2**) and <50 cm of **pn3**. Boundaries between soil materials are clear [Red Podzolic Soils and Brown Podzolic Soils (Dr2.11, Dr3.11, Db1.11)]. Total soil depth can be <100 cm.

**Colluvial benches.** Materials are typically chaotically mixed with soil types varying considerably over short distances. Up to 80 cm of **pn1** overlies <100 cm of **pn2** and >100 cm of **pn3**. Boundaries between soil materials are gradual to clear [Brown and Yellow Podzolic Soils (Db1.11, Dy4.41 and Dy5.11) or Red Earths (Gn3.11) and Brown Earths (Gn4.1)]. Total soil depth is >200 cm.

**Footslopes and drainage lines.** Up to 50 cm of **pn1** overlies up to 150 cm of **pn3** which overlies strongly weathered shale [Yellow Podzolic Soils,

Soloths and Solodic Soils (Dy3.11, Dy4.42)]. The boundary between soil materials is clear. Total soil depth is >200 cm.

**LIMITATIONS TO DEVELOPMENT****Soil Limitations**

- pn1** High erodibility (localised)  
Strongly acid
- pn2** Low permeability  
Strongly acid  
Low fertility
- pn3** Moderate stoniness  
Sodicity  
Extreme erodibility  
Low fertility  
Shrink-swell (localised)

**Fertility**

General fertility is moderate to low. The topsoil (**pn1**) has high organic matter content, moderate CEC and generally low nutrient status. It is strongly acid and may have high potential for aluminium toxicity. The other soil materials have low fertility with very low nutrient status. They are also locally sodic. Soils are deep, but poor structure often inhibits root penetration with depth.

**Erodibility**

Soil materials **pn1**, **pn2** are moderately erodible. The topsoil (**pn1**) can be coherent with earthy fabric, has high organic matter content or sandy fabric, but can have a relatively high percentage of silt and fine sand. **pn2** is moderately erodible, having small, smooth-faced aggregates which contain a large percentage of silt and are prone to slaking. **pn3** is highly erodible, consisting of structured, slaking clay and silt. Slope failure due to throughflow and development of tunnels is common.

**Erosion Hazard**

The erosion hazard for non-concentrated flows is extreme. The steep slopes are subject to mass movement when saturated. Calculated soil loss for the first 12 months of urban development ranges from 300 t/ha for topsoil on steeper slopes and up to 170 t/ha for exposed subsoil.

Soil erosion hazard for concentrated flows is high to very high.

### **Surface Movement Potential**

Slightly reactive subsoils in areas of deep clayey soils with tall trees in a landscape with complex drainage. There are isolated areas of moderately reactive soils.

### **Landscape Limitations**

Steep slopes  
Mass movement hazard  
Seasonal waterlogging (localised)  
Water erosion hazard  
Surface movement potential

### **Urban Capability**

Generally high to severe limitations for urban development.

### **Rural Capability**

Generally high to severe limitations for regular cultivation or grazing.