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ELLERSLIE

Fluvial



Landscape—undulating narrow floodplains and terrace surfaces with minor depressions and small intermittent swamps on Quaternary alluvium. Relief <10 m. Slopes <5%. Scattered volcanic sandstone boulders. Extensively cleared with isolated stands of tall open-forest.

Soils—deep (250 cm) Alluvial Soils on floodplain and in drainage lines. Gleyed Podzolic Soils (Dg2.41) and Soloths (Db2.41) occur on lower terraces and in depressions. Yellow Podzolic Soils (Dy3.11) and structured plastic clays (Uf6.33) occur on the upper terraces.

Limitations—flood hazard, permanently high watertable, hardsetting, high organic matter, low permeability, low wet bearing strength and slight shrink-swell potential (topsoil).

LOCATION

Undulating floodplain and terrace surfaces with minor depressions and drainage lines on Quaternary alluvium and Budgong Sandstone in the Kangaroo Valley.

LANDSCAPE

Geology

Quaternary alluvium and gravel. Budgong Sandstone—red brown and grey volcanic lithic sandstone.

Topography

Gently undulating floodplain and terrace surfaces with scattered minor depressions and small intermittent swamps. Relief <10 m. Slopes <5%. Narrow floodplain grading into lower terraces with swampy depressions and well-drained upper terraces. Scattered boulders on upper and lower terraces.

Vegetation

Extensively cleared with stands of tall open-forest. Common species include forest red gum (*Eucalyptus tereticornis*), rough-barked apple (*Angophora floribunda*), river oak (*Casuarina cunninghamiana*), prickly-leaved paperbark (*Melaleuca styphelioides*), scattered white cedar (*Melia azedarach* var. *australasica*), bangalay (*Eucalyptus botryoides*) and river peppermint (*Eucalyptus elata*).

Land Use

Cattle grazing and dairy farming on improved pastures, caravan park, tennis courts, recreation reserves and the village of Kangaroo Valley.

Existing Erosion

Widespread moderate to severe stream bank erosion.

SOILS**Dominant Soil Materials****el1—Hardsetting strongly pedal brownish black loam fine sandy (topsoil)**

Colour brownish black (5YR 2/2)
Texture loam, fine sandy
Structure strongly pedal, 2–5 mm polyhedral peds
Fabric rough-faced, porous
pH 6.0
Stones nil
Roots abundant, in-ped

el2—Hardsetting massive brownish black light sandy clay loam (topsoil and subsoil)

Colour brownish black (10YR 3/2) to dull yellowish brown (10YR 5/3)
Texture light sandy clay loam
Structure apedal massive
Fabric sandy
pH 6.0
Stones nil
Roots abundant

el3—Waterlogged sticky light grey sandy clay loam (subsoil)

Colour light grey (10YR 7/1)
Texture sandy clay loam
Structure apedal massive (wet)
Fabric dense
pH 6.0
Stones nil
Roots nil

el4—Dark brown clayey sand (subsoil)

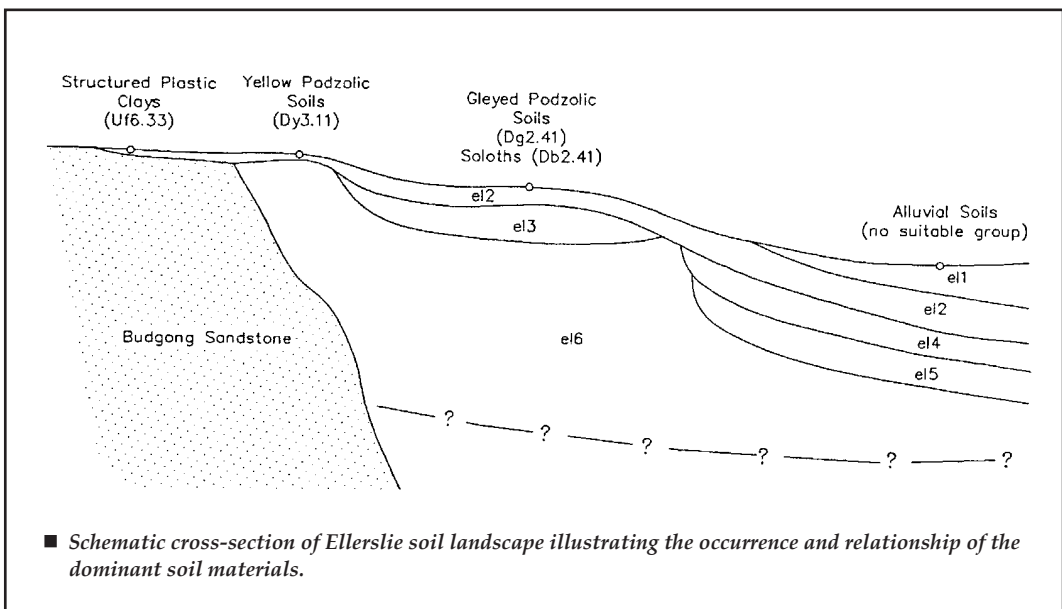
Colour dark brown (10YR 3/3)
Texture clayey sand
Structure apedal massive
Fabric sandy
pH 6.0
Stones nil
Roots nil

el5—Dull yellowish brown sandy loam (subsoil)

Colour dull yellowish brown (10YR 4/3)
Texture sandy loam
Structure apedal massive
Fabric sandy
pH 6.0
Stones nil
Roots nil

el6—Mottled greyish yellow brown heavy clay (subsoil)

Colour greyish yellow brown (10YR 6/2) yellow/red mottles (75%)
Texture heavy clay with coarse sand grains
Structure apedal massive
Fabric dense



pH	6.0
Stones	nil
Roots	nil

Occurrence and Relationships

Floodplain and drainage lines. Up to 50 cm hardsetting strongly pedal brownish black loam fine sandy (**el1**) overlies <50 cm massive brownish black sandy clay loam (**el2**). Up to 50 cm dark brown clayey sand (**el4**) overlies <20 cm dull yellowish brown sandy loam (**el5**) which overlies >30 cm mottled greyish yellow brown heavy clay (**el6**). Boundaries are clear to diffuse. Alluvial Soils—no suitable group. Total depth is >200 cm.

Lower terraces and depressions. Up to 20 cm **el2** overlies <10 cm waterlogged sticky light grey sandy clay loam (**el3**) which overlies >60 cm **el6** [Gleyed Podzolic Soils (Dg2.41), Soloths (Db2.41)]. Boundaries are clear. Total depth is >100 cm.

Upper terraces. Up to 5 cm **el2** overlies >50 cm **el6** [Yellow Podzolic Soils (Dy3.11)]. Boundary is clear. Total depth is >60 cm. These terraces have been cultivated for approximately 100 years, and **el2** has been in many instances completely removed leaving <30 cm **el6** overlying large boulders [structured plastic clays (Uf6.33)]. Boundary is sharp. Total depth is <30 cm.

LIMITATIONS TO DEVELOPMENT

Soil Limitations

- el1** Hardsetting
 - High organic matter
 - Low wet bearing strength
 - Shrink-swell
 - Very high aluminium toxicity
- el2** Hardsetting
 - High organic matter
 - Low wet bearing strength
 - Shrink-swell
 - Sodicity
 - Very high aluminium toxicity
 - Low available water-holding capacity
- el3** Waterlogged
 - Low permeability
 - Low wet bearing strength

- el4** Low permeability
 - Low wet bearing strength
 - Very high aluminium toxicity
 - Very high available water-holding capacity
- el5** Low permeability
 - Low wet bearing strength
- el6** Low permeability
 - Low wet bearing strength

Fertility

General soil fertility is moderate. These soils have a high base saturation but are poorly structured and are often waterlogged.

Erodibility

Erodibility of the topsoils (**el1**, **el2**) is moderate, and that of the subsoils (**el3**, **el4**, **el5**, **el6**) is high.

Erosion Hazard

Erosion hazard for non-concentrated flows is moderate. The calculated soil loss for the first 12 months of urban development ranges up to 15 t/ha for topsoils and 30 t/ha for exposed subsoils. The erosion hazard for concentrated flows is moderate to high.

Surface Movement Potential

Topsoils (**el1**, **el2**) are slightly reactive, but subsoils (**el3**, **el4**, **el5**, **el6**) are deep and mostly stable.

Landscape Limitations

Flood hazard
 Permanently high watertable
 Waterlogging
 Water erosion hazard (stream bank erosion)
 Rock outcrop (localised)
 Run-on

Urban Capability

Generally high to severe limitations on lower terraces. Moderate limitations for urban development on upper terraces.

Rural Capability

Generally low to moderate limitations for regular cultivation and grazing.