

sf

SHOALHAVEN

Fluvial



Landscape—level to gently undulating present river bed and banks, active floodplain with levees and backwater swamps on alluvium. Flat to gently undulating terrace surfaces of the Shoalhaven River. Relief <5 m and slopes <3%. Completely cleared.

Soils—moderately deep (50–100 cm) Prairie Soils (Gn4.31) occur on levees. Red Earths (Gn2.11) and Yellow and Red Podzolic Soils (Dy.2.51, Dr2.21) occur on terraces. Alluvial Soils (Uc1.22, Uc1.23) and Gleyed Podzolic (potential Acid Sulphate) Soils (Dg1.41) occur on the floodplain.

Limitations—flood hazard, seasonal waterlogging, permanently high watertable, hardsetting, acid sulphate potential (subsoil), strongly acid, sodicity.

LOCATION

Level to gently undulating active floodplain with small levees, minor depressions and backwater swamps on the Coastal Plain. Flat to gently undulating terrace surfaces of the Shoalhaven River.

LANDSCAPE

Geology

Alluvium—gravel, sand, silt and clay derived mainly from sandstone and shale overlying buried estuarine sediments.

Topography

Level to gently undulating floodplains. Relief <5 m and slopes <3%. Broad active floodplains 6–10 km wide with minor levees <1 m and occasional back plain swamps. Scattered flat to gently undulating narrow terraces with relief <2 m.

Vegetation

Completely cleared except for scattered decorative paperbark (*Melaleuca decora*), swamp oak (*Casuarina glauca*), illawarra flame tree (*Brachychiton acerifolium*) on terraces and various reeds in swamps.

Land Use

Predominantly grazing on improved pastures. Recreation areas include Nowra Golf Course.

Existing Erosion

The floodplain is subject to scour or sheet and rill erosion during floods and may be covered by varying depths of alluvial materials as the water recedes. Minor stream bank erosion is widespread.

SOILS

Dominant Soil Materials

sf1—Hardsetting brownish black fine sandy loam (topsoil)

Colour	brownish black (10YR 2/2) to brown (10YR 4/4)
Texture	fine sandy loam to sandy loam
Structure	apedal massive to weakly pedal, <2 mm crumb peds
Fabric	sandy to rough-faced, porous
pH	4.0
Stones	nil
Roots	few

sf2—Brown weakly pedal light sandy clay loam (subsoil)

Colour	brown (10YR 4/4) to yellowish brown (10YR 5/6)
Texture	light sandy clay loam to sandy clay loam
Structure	weakly pedal, <2 mm crumb peds
Fabric	sandy to rough-faced, porous
pH	4.5–5.5
Stones	nil
Roots	nil

sf3—Dull yellowish brown massive sandy clay (subsoil)

Colour	dull yellowish brown (10YR 5/4)
Texture	sandy clay
Structure	apedal massive
Fabric	dense
pH	5.0
Stones	nil
Roots	nil

sf4—Dull reddish brown moderately pedal light medium clay

Colour	dull reddish brown (5YR 4/4)
Texture	light medium clay to heavy clay

Structure	moderately pedal, 5–10 mm polyhedral peds
Fabric	rough-faced, porous
pH	4.5–5.0
Stones	nil
Roots	nil

Associated Soil Materials

Dark grey (10YR 4/1) apedal massive cat-clay with yellow streaks (5Y 8/4) pH 3.0 (after drainage) occurs near channels but is also scattered throughout the floodplain, probably in prior channels.

Dull reddish brown (5YR 4/4) earthy sandy clay loam occurs on the upper terraces.

Light grey (5Y 8/1) apedal massive silty clay loam to fine sandy clay loam occurs beneath Prairie Soils on levees in a small section north of the Shoalhaven River.¹

Peats in swamps (localised).

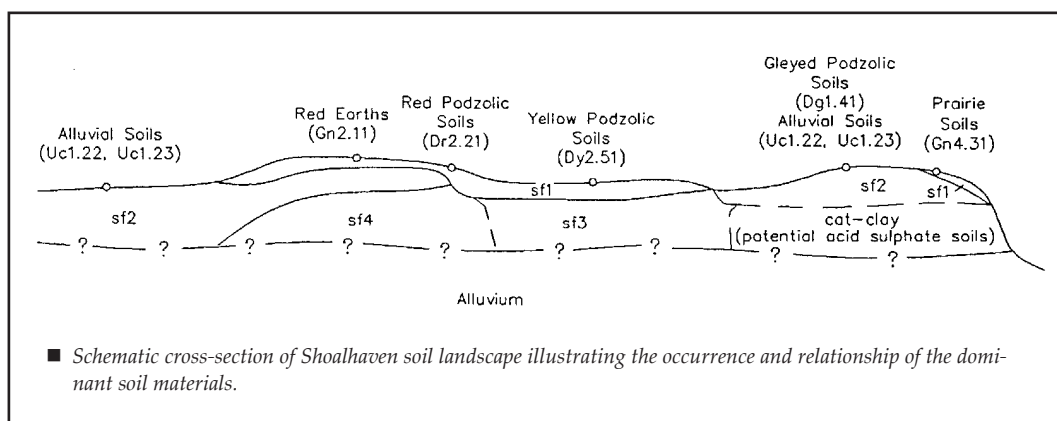
Occurrence and Relationships

A very complex soil pattern occurs on the floodplain. The following soil materials sequences have been described.

Levees. Up to 20 cm hardsetting brownish black fine sandy loam (**sf1**) overlies >50 cm brown weakly pedal sandy clay loam (**sf2**). Boundary is gradual [Prairie Soils (Gn4.31)]. Total depth is >100 cm.

Lower terraces. Up to 20 cm **sf1** overlies >80 cm dull yellowish brown massive sandy clay (**sf3**). Boundary is clear [Yellow Podzolic Soils (Dy2.51)]. Total depth is >100 cm.

Upper terraces. Up to 20 cm **sf1** overlies <20 cm **sf2** which overlies 80 cm dull reddish brown moderately pedal light medium clay (**sf4**). Boundaries are clear [Red Podzolic Soils (Dr2.21)]. Total depth is >150 cm.



¹ This soil material is probably the buried topsoil of a relict. It forms a hard layer which appears to disperse very slowly.

On higher elevations <20 cm **sf1** overlies >80 cm dull reddish brown sandy clay loam. Boundary is gradual [Red Earths (Gn2.11)]. Total depth is >150 cm.

Floodplain. Up to 100 cm **sf2** has been deposited as point bars [Alluvial Soils (Uc1.22, Uc1.23)]. Up to 30 cm **sf2** is associated with >30 cm dark grey cat-clay with yellow streaks. Boundary is abrupt [Gleyed Podzolic—potential Acid Sulphate—Soils (Dg1.41)]. Total depth is >100 cm.

LIMITATIONS TO DEVELOPMENT

Soil Limitations

- sf1** Hardsetting
 - Very high organic matter
 - Strongly acid
 - Sodicity
 - Low available water-holding capacity
- sf2** In combination with associated soil material, acid sulphate potential
 - Sodicity
 - Strongly acid
- sf3** Low permeability
 - Low wet bearing strength
 - Low available water-holding capacity
- sf4** Strongly acid
 - Low available water-holding capacity
 - Sodicity

Fertility

General fertility is moderate to low. The soils on the upper terraces (**sf1**, **sf2**, **sf4**) are moderately structured and better drained than those of the lower terraces (**sf1**, **sf3**). Soil materials **sf1**, **sf2**,

sf4 are strongly acid with moderate CEC. The presence of acid sulphate soils when exposed would prevent plant growth.

Erodibility

Erodibility of the topsoil is low. The erodibility of the subsoils (**sf2**, **sf3** and **sf4**) is high.

Erosion Hazard

Erosion hazard for non-concentrated flows is slight. The calculated soil loss for the first 12 months of urban development ranges up to 10 t/ha for topsoils and 10 t/ha for exposed subsoils. The erosion hazard for concentrated flows is low.

Surface Movement Potential

Moderately reactive topsoil (**sf1**). Non-reactive subsoils (**sf2**, **sf3**, **sf4**).

Landscape Limitations

Flood hazard
 Permanent waterlogging (localised)
 Permanently high watertable
 Seasonal waterlogging

Urban Capability

Generally high to severe limitations for urban development.

Rural Capability

Generally low to moderate limitations for regular cultivation and grazing. High to severe limitations for cultivation and grazing in flood-prone areas. Drainage may result in highly acid soils.