PAC Paracombe Land System

Gentle to moderate slopes in the Paracombe area

Area: 12.4 km^2

Annual rainfall: 725 – 855 mm average

Geology: The land is formed on albitized schists and gneisses of the Houghton Inlier member of the Barossa Complex. In places these are deeply weathered and some retain their ancient lateritic capping. There are minor deposits of locally derived fine to medium grained alluvium.

Topography: The Paracombe Land System is a moderately dissected high level plain. Along the southern edge are scattered remnants of the old land surface (lateritic summit surface), but elsewhere, dissection has eroded the deep weathering materials. Most of the landscape is moderately inclined (slopes less than 20%), unusually subdued for the region. Drainage is via watercourses in broad depressions which flow northwards into the Little Para River.

Elevation: 300 to 430 m

Relief: Up to 70 m

Soils: The soils are typically loamy, with thick surfaces and well structured brown to red clayey subsoils. There are shallow stony soils on steeper slopes, ironstone soils on lateritic remnants, and deep sandy loam texture contrast soils on creek flats.

Main soils

Soils formed in weathering basement rock on hillslopes

K2 Acidic loam over red or brown clay

K3 Acidic sandy loam over red sandy clay

Soils formed in alluvium or deeply weathered rock on lower slopes or flats

F1 Sandy loam over brown mottled clay

Minor soils

Soils formed in weathering basement rock on hillslopes

K4a Acidic sandy loam over brown clay

K4b Acidic sandy loam over brown clay on kaolinized rock

L1 Shallow stony sandy loam

Ironstone soils

J2 Deep acidic ironstone soil

Soils formed in alluvium or deeply weathered rock on lower slopes or flats

F2 Sandy loam over poorly structured brown clay

Main features: The Paracombe Land System is characterized by gentle to moderate slopes, making it an unusual feature in a region characterized by generally steep, strongly dissected landscapes. Three quarters of the land is arable, having mostly moderately deep to deep soils with sandy loam to loam surfaces and well structured clayey subsoils. They are moderately well drained and inherently fertile, making them well suited to horticulture. The steeper slopes in the northern areas are less favourable, mainly because of a higher proportion of shallower soils and greater erosion potential.

Soil Landscape Unit summary: 4 Soil Landscape Units (SLUs) mapped in the Paracombe Land System:

SLU	% of area	Main features #
AfC	26.4	Rolling low hills with narrow valleys formed on albitized schists and gneisses of the Houghton Inlier member of the Barossa Complex. Relief is up to 70 m and slopes are 18-30%. The soils typically have thick loamy surfaces and well structured high activity clay subsoils. Main soils: Acidic loam over red or brown clay - **K2** (E) on hillslopes Acidic sandy loam over red sandy clay - **K3** (E) on hillslopes Shallow stony sandy loam - **L1** (L) on steeper rocky slopes Sandy loam over brown mottled clay - **F1** (M) in drainage depressions Acidic sandy loam over brown clay - **K4a** (M) on hillslopes The soils are mainly moderately deep, inherently fertile and well drained, and generally well suited to perennial horticultural crops where water is available. Drawbacks are high erosion potential, and patches of shallow soil with limited water holding capacity. The land is not suited to annual crops.
BrD	60.9	Undulating to gently rolling rises with gentle lower slopes and well defined watercourses formed on albitized schists and gneisses of the Houghton Inlier member of the Barossa Complex. Relief is up to 30 m and slopes are 8-18%. The soils typically have thick loamy surfaces and well structured high activity clay subsoils. Main soils: Acidic loam over red or brown clay - **K2** (E) Acidic sandy loam over red sandy clay - **K3** (E) Sandy loam over brown mottled clay - **F1** (L) in drainage depressions The soils are mainly moderately deep, inherently fertile and well drained, and generally well suited to perennial horticultural crops where water is available. Much of the land also has potential for annual crops, although water erosion is a potentially serious problem.
FbZ	7.0	Flat summit surfaces and gently inclined upper slopes underlain by deeply weathered and lateritized schists. Slopes are variable, up to 12%, with some surface ironstone. Soils are characterized by ironstone gravel. Main soils: Deep acidic ironstone soil - **J2** (E) Acidic sandy loam over brown clay on kaolinized rock - **K4b** (E) These soils are deep, but imperfectly drained, infertile and acidic. Productive potential is low without intensive management.
LBE	5.7	Drainage depressions and creek flats formed on medium to fine grained alluvium. The soils are deep and mostly texture contrast over alluvium. Main soils: Sandy loam over brown mottled clay - **F1** (E) Sandy loam over poorly structured brown clay - **F2** (E) These soils are deep but imperfectly drained. They commonly have hard setting surfaces, bleached A2 layers and tight, poorly structured mottled clayey subsoils. With appropriate species and fertilizer programmes, pasture productivity can be high, but horticultural productivity depends on improvements in drainage as well.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

(D) Dominant in extent (>90% of SLU)
(V) Very extensive in extent (60–90% of SLU)
(E) Extensive in extent (30–60% of SLU)
(C) Common in extent (20–30% of SLU)
(L) Limited in extent (10–20% of SLU)
(M) Minor in extent (<10% of SLU)

Detailed soil profile descriptions:

Soils formed in weathering basement rock on hillslopes

K2 Acidic loam over red or brown clay (Eutrophic, Brown / Red Chromosol)
Thick dark loam, paler coloured at base, overlying a dark brown, yellowish red and greyish brown, well structured clay, grading to weathering gneiss before 150 cm.

K3 Acidic sandy loam over red sandy clay (Eutrophic, Red Chromosol)
Thick to very thick coarse sandy loam, with a paler coloured and gravelly A2 layer, overlying a reddish brown well structured sandy clay, grading to weathering gneiss before 100 cm.

K4a Acidic sandy loam over brown clay (Bleached, Mesotrophic, Brown Chromosol)
Medium thickness gravelly brown loamy sand to light sandy clay loam, overlying a yellowish red to strong brown finely structured clay subsoil grading to weathering rock within 100 cm.

K4b Acidic sandy loam over brown clay on kaolinized rock (Bleached-Mottled, Mesotrophic, Brown Chromosol)
Medium thickness gravelly brown loamy sand to light sandy clay loam, overlying a yellowish red to strong brown finely structured clay subsoil grading to soft kaolinitic schist or gneiss continuing below 200 cm.

L1 Shallow stony sandy loam (Acidic, Paralithic, Bleached-Leptic Tenosol)
Thick, greyish, very gravelly loamy sand to sandy loam with a bleached A2 horizon, grading to hard schist, gneiss or metasandstone by 50 cm.

Ironstone soils

J2 Deep acidic ironstone soil (Bleached-Ferric, Mesotrophic, Brown Kurosol)
Medium thickness grey brown loamy sand with a bleached A2 horizon containing over 50% ironstone gravel, overlying a yellow brown clay with soft red inclusions of weathered ironstone, grading to a greyish silty clay forming in weathering schist or micaceous sandstone deeper than 200 cm.

Soils formed in alluvium or deeply weathered rock on lower slopes or flats

F1 Sandy loam over brown mottled clay (Bleached-Mottled, Eutrophic, Brown Chromosol)
Thick sandy loam to sandy clay loam, with a bleached and gravelly A2 horizon, overlying a yellowish brown, brown and red mottled, firm, coarsely structured sandy to medium clay.

F2 Sandy loam over poorly structured brown clay (Eutrophic, Mottled-Subnatric, Brown Sodosol)
Thick grey brown loamy sand to sandy loam surface with a bleached A2 horizon, sharply overlying a brown, red and grey mottled columnar structured clay subsoil, grading to soft kaolinitic rock below 100 cm.

Further information: DEWNR Soil and Land Program