

KER Kersbrook Land System

Lower slopes, flats and rises of the Kersbrook Valley

Area: 32.1 km²

Annual rainfall: 645 – 820 mm average

Geology: The land is underlain by schists and gneisses of the Barossa Complex. These are commonly deeply weathered and in places carry the remnants of an ancient lateritic capping. However, large parts of the landscape are formed on alluvium which has been washed from the surrounding hills and deposited over the basement rocks. The alluvium is mostly medium to fine grained.

Topography: The system is an elongate north-south oriented valley comprising creek flats and gentle slopes which grade to undulating or rolling rises and low hills on the margins. There is a watershed across the centre (immediately north of Kersbrook). Watercourses to the north flow into the South Para Reservoir, and those to the south flow into Millbrook Reservoir.

Elevation: 270 - 430 m

Relief: Up to 60 m

Soils: The soils are predominantly texture contrast with medium to thick hard setting sandy loam surfaces overlying brown to red clayey subsoils. On hillslopes, the subsoil clays are not mottled and grade to weathering rock within 100 cm. On lower slopes and flats, the clays are mottled and often poorly structured, and thick over alluvium or highly weathered rock. There are shallow stony soils over rock on steeper slopes, and minor ironstone soils.

Main soils

Soils formed in weathering basement rock on hillslopes

K4 Acidic sandy loam over brown clay over freshly weathered rock

K4/K5 Acidic sandy loam over brown clay over kaolinized rock

L1 Shallow stony sandy loam

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 alluvium or deeply weathered rock on lower slopes or flats

F2a Sandy loam over poorly structured brown mottled clay on highly weathered rock

F2b Sandy loam over poorly structured brown mottled clay on alluvium

Soils formed in weathering basement rock on hillslopes

K3 Acidic sandy loam over red sandy clay

Ironstone soils

J2 Deep acidic ironstone soil

Main features: The Kersbrook Land System is a broad valley, although about a third of the area consists of non arable hillslopes. However, the rest comprises gentle to moderate slopes and creek flats. The soils are deep, but most are texture contrast types, commonly imperfectly drained and naturally infertile. Although the topography lends itself to intensive uses, drainage problems and associated saline seepage must be managed, especially in horticultural situations. The soils are also highly erodible, and water courses are especially vulnerable.



Soil Landscape Unit summary: 8 Soil Landscape Units (SLUs) mapped in the Kersbrook Land System:

| SLU | % of area | Main features # |
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| AeC | 33.9 | <p>Rolling low hills with minor outcrop formed on schists and gneisses. Slopes are 18-30% with relief to 60 m. Drainage depressions are well defined, but narrow and unmappable. The soils are mixed texture contrast and shallow stony types.</p> <p>Main soils: <u>Acidic sandy loam over brown clay on rock</u> - K4 (E) <u>Acidic sandy loam over brown clay on kaolinized rock</u> - K4/K5 (C) <u>Shallow stony sandy loam</u> - L1 (E) on steeper rocky slopes <u>Sandy loam over brown mottled clay</u> - F1 (L) on flats and lower slopes</p> <p>These soils are deep to moderately shallow, but generally infertile and acidic. Hillslopes are mostly moderately well drained, but waterlogging caused by perched watertables is common on lower lying land. Productivity potential is low to moderate.</p> |
| BrD | 2.3 | <p>Undulating to gently rolling rises with relief to 30 m and slopes of 8-18%. Underlying rocks are albitized schists and gneisses of the Houghton Inlier member of the Barossa Complex. The soils are moderately deep red sandy loams.</p> <p>Main soils: <u>Acidic sandy loam over red sandy clay</u> - K3 (V) <u>Shallow stony sandy loam</u> - L1 (L) on steeper rocky slopes <u>Sandy loam over brown mottled clay</u> - F1 (L) on lower slopes</p> <p>These soils, although relatively sandy, are fertile and well drained. The land has high potential for perennial horticulture where water is available.</p> |
| CjD | 22.7 | <p>Gently rolling low hills with slopes of 10-18% and relief to 30 m, formed on Barossa Complex schists and gneisses. Drainage depressions are broad (up to 100 m wide) and where wider are mapped as LBE/LBJ. There is little or no rock outcrop. The soils are mostly texture contrast types, either moderately deep over rock, or deep over kaolinitic weathering rock or alluvium.</p> <p>Main soils: <u>Acidic sandy loam over brown clay on rock</u> - K4 (E) <u>Acidic sandy loam over brown clay on kaolinized rock</u> - K4/K5 (C) <u>Sandy loam over brown mottled clay</u> - F1 (L) on flats and lower slopes <u>Shallow stony sandy loam</u> - L1 (L) on minor rocky slopes <u>Ironstone soil</u> - J2 (M) on some upper slopes</p> <p>The soils are generally deep enough that waterholding capacity is not a major limitation, but they are infertile, acidic and imperfectly drained in places, particularly on lower slopes. Erodibility is high. Although overall productivity potential is low, the land has some horticultural value where water is available.</p> |
| FbZ | 0.7 | <p>Isolated upper slopes and crests underlain by deeply weathered and lateritized schists. Slopes are variable, up to 15%, with some surface ironstone. Soils are characterized by ironstone gravel.</p> <p>Main soils: <u>Deep acidic ironstone soil</u> - J2 (E) <u>Acidic sandy loam over brown clay on kaolinized rock</u> - K4/K5 (E)</p> <p>These soils are deep, but imperfectly drained, infertile and acidic. Productive potential is low without high management inputs.</p> |
| LBE LBJ | 9.0 4.5 | <p>Drainage depressions and creek flats formed on medium to fine grained alluvium. Water courses are variably eroded.</p> <p>LBE Depressions and flats with mainly stable water courses. LBJ Depressions and flats with eroded water courses.</p> <p>The soils are deep and mostly texture contrast over alluvium.</p> <p>Main soils: <u>Sandy loam over brown mottled clay</u> - F1 (E) <u>Sandy loam over poorly structured brown clay</u> - F2a/F2b (E)</p> <p>These soils are deep but imperfectly to poorly 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. There is sporadic saline seepage and watercourses are highly susceptible to erosion.</p> |
| LZC | 26.4 | <p>Undulating rises developed on highly weathered schists of the Barossa Complex, and associated alluvium. Slopes are 2-10% and relief is less than 40 m. Drainage depressions are shallow and broad, and not mapped out. There is no significant surface stone. Soils are mostly deep texture contrast types with sandy to loamy surfaces overlying mottled clayey subsoils forming in either deeply weathered rock or alluvium. Shallower texture contrast soils occur on higher rising ground.</p> <p>Main soils: <u>Sandy loam over brown mottled clay</u> - F1 (E) } on alluvium</p> |



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| | | <p><u>Sandy loam over poorly structured brown clay - F2b (M) }</u> <u>Sandy loam over poorly structured brown clay - F2a (C) on kaolinitic rocks on rises</u> <u>Acidic sandy loam over brown clay on (kaolinized) rock - K4/K5 (C) on rises</u> These soils are deep, infertile and usually imperfectly drained due to slowly permeable subsoils. There are patches of saline seepage on lower slopes. Although gently sloping, the land is susceptible to water erosion, and water courses are particularly vulnerable.</p> |
| LdE | 0.5 | <p>Drainage depressions formed on medium to fine grained alluvium derived from the erosion of basement siltstones and shales. The major soils have texture contrast profiles with sandy to loamy surfaces and mottled brown, yellow and grey clay subsoils. Main soils: <u>Sandy loam over brown clay - F1b (V) on alluvium</u> <u>Loam over brown clay - F1a (C) on deeply weathered rock</u> These soils are deep, fertile and moderately well to imperfectly drained. Productive potential is high provided that temporary waterlogging can be managed.</p> |

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 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.
- F2a** 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.
- F2b** Sandy loam over poorly structured brown clay (Hypocalcic, Mottled-Subnatric, Brown Sodosol)
 Thick greyish brown massive loamy sand to loam with a bleached A2 horizon, overlying a yellowish brown, brown and grey mottled clay with coarse prismatic structure and occasional soft carbonate segregations at depth.

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 weathering basement rock on hillslopes

- 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.
- K4** 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.



K4/K5 Acidic sandy loam over brown clay on kaolinized rock (Bleached-Mottled, Mesotrophic, Brown Chromosol / Dermosol)

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, Lithic, 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.

Further information: [DEWNR Soil and Land Program](#)

