

# BOR Borthwick Land System

Range of low hills north of Palmer

- Area:** 15.0 km<sup>2</sup>
- Annual rainfall:** 465 – 645 mm average
- Geology:** The land is formed on metamorphosed sandstones of the Backstairs Passage Formation. There are minor deposits of coarse grained and gritty locally derived alluvium as valley fill.
- Topography:** The landscape is a dissected range of low hills. The range runs parallel to the strike of the rock (ie north - south), but is regularly dissected by short east flowing water courses which in turn drain into larger south flowing water courses running along the eastern side of the range. These larger streams are Milendella Creek in the north and an un-named creek flowing on to the Murray Plains one km north of Palmer.
- Elevation:** 290 - 450 m
- Relief:** 50 - 100 m
- Soils:** The dominant soils are shallow to moderately deep sandy loams, either directly overlying weathering rock, or with a clayey subsoil. Deep gritty sands are typical of creek flats.

#### Main soils

*Soils formed on hillslopes*

- K4** Sandy loam over brown clay  
**L1** Shallow stony sandy loam

#### Minor soils

*Soils formed on lower slopes and creek flats*

- M1** Deep alluvial loamy sand

- Main features:** The Borthwick Land System is rough hill country with a mixture of shallow stony soils and deeper sandy loam texture contrast soils over metamorphosed sandstones. The land is too steep and / or too stony for any agricultural uses other than grazing. Steeper dissection slopes are mostly inaccessible. There are limited areas of alluvial flats where coarse grained sediments from the hills have been deposited. Soils are deep, sandy and of low fertility. Water course erosion is a potential problem. There is sporadic saline seepage.



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

SLU	% of area	Main features #
AnC AnD	67.7 23.3	Moderately steep to steep slopes formed on metamorphosed sandstones. There is 10-20% rock outcrop and variable surface stone. <b>AnC</b> Moderately steep slopes of up to 30% and rounded crests with slopes of 5-10%. Drainage depressions are narrow with well defined and occasionally eroded water courses. <b>AnD</b> Steep dissection slopes of 30-50%, with short and sometimes eroded water courses. Main soils: <u>shallow stony sandy loam</u> - <b>L1</b> (E) and <u>sandy loam over brown clay</u> - <b>K4</b> (E). Although about half of the soils are moderately deep, the land is too steep and often too rocky for cultivated agriculture. <b>AnC</b> is mostly accessible to farm machinery if required, but <b>AnD</b> is too steep and rocky for any uses other than rough grazing.
ETD	3.8	Lower slopes of 10-20% formed on weathering metasandstone and localized outwash sediments. Main soils: <u>shallow stony sandy loam</u> - <b>L1</b> (E) and <u>deep alluvial loamy sand</u> - <b>M1</b> (E). These soils are moderately shallow to deep, with moderately low fertility. They are marginally arable. The potential for erosion is high, due to the slope of the land, and the likelihood of runoff from the adjacent steeper rocky slopes.
LVe	5.2	Narrow creek flat formed on gritty alluvium. The water course is well defined and eroded in places. There are occasional wet and marginally saline patches adjacent to the water course. Main soil: <u>deep alluvial loamy sand</u> - <b>M1</b> (D). These soils are deep but with moderately low fertility. The narrowness of the flats and the predominance of the water course limits the potential use of these areas.

# 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:

#### *Hillslopes*

- K4** Sandy loam over brown clay (Eutrophic, Brown Chromosol)  
Thick brown sandy loam, sandier, paler coloured and gravelly with depth, abruptly overlying a brown, yellow and red structured clay, grading to weathering metasandstone at about 100 cm.
- L1** Shallow stony sandy loam (Lithic, Leptic Tenosol)  
Medium to thick brown sandy loam becoming paler, gravelly and sandier with depth over metasandstone from about 35 cm.

#### *Creek flats and lower slopes*

- M1** Deep alluvial loamy sand (Basic, Regolithic, Brown-Orthic Tenosol)  
More than 100 cm loamy coarse sand, paler coloured with depth over brownish gritty clayey sand alluvium.

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

