

RED CLAY LOAM GRADING TO WEATHERING ROCK

General Description: *Sandy loam to clay loam over a red brown friable clay, calcareous with depth, forming in weathering siltstone or sandstone bedrock*

Landform: Slopes of undulating to rolling rises and low hills

Substrate: Precambrian age siltstone, sandstone or shale, mantled by soft or rubbly carbonate

Vegetation: Open blue gum / sheoak woodland



Type Site: Site No.: CU028

1:50,000 sheet:	6631-4 (Jamestown)	Hundred:	Belalie
Annual rainfall:	460 mm	Sampling date:	25/02/93
Landform:	Lower slope of an undulating rise, 4% slope		
Surface:	Hard setting with 2-10% quartzite stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown very hard (dry) clay loam with strong granular structure. Abrupt change to:
10-25	Dark reddish brown friable light clay with strong fine polyhedral structure. Gradual change to:
25-45	Dark reddish brown friable medium clay with strong fine polyhedral structure. Abrupt change to:
45-70	Yellowish red friable massive very highly calcareous medium clay with 20-50% carbonate nodules and 2-10% siltstone fragments. Clear change to:
70-130	Yellowish red friable massive highly calcareous clay loam with 2-10% carbonate nodules and more than 50% siltstone fragments. Diffuse change to:
130-175	Weathering siltstone.



Classification: Haplic, Supracalcic, Red Dermosol; medium, slightly gravelly, clay loamy / clayey, deep

Summary of Properties

- Drainage** Well drained. The soil layers are moderately permeable and the land is sloping. The soil is unlikely to remain saturated for more than a few days.
- Fertility** The soil has a moderate to high inherent fertility, as indicated by its CEC values, and the high proportion of exchangeable calcium. There are no apparent nutrient deficiencies.
- pH** Slightly acidic at the surface, grading to alkaline with depth.
- Rooting depth** 70 cm in pit.
- Barriers to root growth**
- Physical:** There are no physical barriers to root growth other than bedrock, which at the type site is below the likely depth of wetting. In other soils of this type however, shallow depth to rock may limit rooting depth.
- Chemical:** There are no apparent chemical restrictions to root growth.
- Water holding capacity** Approximately 90 mm (moderately high) in root zone, most of which is plant available.
- Seedling emergence** Good to fair, depending on the surface structure. These soil surfaces tend to seal and set hard, so maintenance of adequate organic matter is important. Organic carbon levels at the type site are satisfactory.
- Workability** Good to fair. Depending on the organic matter content, these soils tend to shatter when worked dry and puddle when too wet.

Erosion Potential

- Water:** Moderate due to the gradient and the potential for run-on from upslope.
- Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.5	6.3	0	0.11	0.46	1.8	27	652	-	1.6	1.4	21	36.7	1.9	14.4	9.69	1.90	0.09	1.22	0.6
0-10	6.3	6.1	0	0.10	0.61	1.8	34	600	-	1.3	1.3	22	30.1	0.7	12.8	9.85	1.74	0.09	1.39	0.7
10-25	6.6	6.2	0	0.03	0.17	0.8	9	502	-	2.5	1.3	10	14.1	0.1	22.8	15.95	2.78	0.16	1.25	0.7
25-45	7.7	7.0	0.2	0.09	0.30	0.6	5	1011	-	2.9	1.2	7	6.7	0.1	27.2	18.30	2.24	0.20	1.21	0.7
45-70	8.2	7.7	40.0	0.13	0.35	0.6	5	496	-	2.1	0.9	5	3.1	0.2	16.4	12.27	1.88	0.15	0.59	0.9
70-130	8.4	7.9	20.7	0.13	0.34	0.1	<4	271	-	2.0	0.4	3	1.0	0.3	12.4	6.59	4.81	0.33	0.47	2.7

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.