

CLAY LOAM OVER RED CLAY

General Description: *Reddish brown clay loam overlying a red prismatic structured clay subsoil, calcareous at depth with abundant quartzite stones throughout*

- Landform:** Outwash fans and plains associated with quartzite ranges
- Substrate:** Heavy clay sediments with abundant quartzite stones and soft carbonate segregations
- Vegetation:** Red gum / box woodland



Type Site:	Site No.:	CU042	1:50,000 mapsheet:	6532-3 (Melrose)
	Hundred:	Wongyarra	Easting:	237850
	Section:	408	Northing:	6364850
	Sampling date:	06/06/1994	Annual rainfall:	450 mm average

Gently sloping (2%) fan with a hard setting surface and 20% surface quartzite.

Soil Description:

Depth (cm)	Description
0-18	Dark reddish brown clay loam with 2-10% quartzite stones. Abrupt to:
18-30	Red and reddish brown heavy clay with moderate coarse prismatic structure and 2-10% quartzite stones. Abrupt to:
30-50	Red heavy clay with strong coarse prismatic structure and 2-10% quartzite stones. Clear to:
50-90	Red and dark brown mottled highly calcareous heavy clay with strong angular blocky structure, 20-50% quartzite stones and 10-20% soft carbonate segregations (Class I carbonate). Gradual to:
90-120	Brown and red mottled highly calcareous medium heavy clay with 20-50% quartzite stones and 2-10% soft carbonate segregations.



Classification: Sodic, Calcic, Red Chromosol; medium, slightly gravelly, clay loamy / clayey, deep



Summary of Properties

Drainage: Moderately well drained. The heavy dispersive clay prevents free water movement and the soil may remain wet for a week or so following rain.

Fertility: The soil has a very high nutrient retention capacity (high CEC). All measured elements are well supplied, with phosphorus levels exceptionally high. Organic carbon (and therefore total nitrogen reserves) are satisfactory.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: 90 cm in pit.

Barriers to root growth:

Physical: The very firm clay may limit optimal root penetration.

Chemical: There are no chemical barriers to root growth, except for marginal sodicity at the base.

Waterholding capacity: Approximately 80 mm. The heavy clay has a high wilting point and withholds significant amounts of water.

Seedling emergence: Fair due to the tendency of the surface to set down and seal over.

Workability: Fair due to the poor soil surface condition. The soil is sticky when over wet and becomes very hard when dry.

Erosion Potential:

Water: Low.

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 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	6.8	6.6	0	0.16	0.76	1.9	62	428	-	1.5	1.4	54	28.5	2.2	21.8	16.2	3.7	0.33	1.39	1.5
0-18	6.6	6.4	0	0.13	0.98	1.4	98	507	-	1.3	1.0	36	10.2	3.7	13.4	10.9	2.1	0.16	1.54	1.2
18-30	7.2	6.7	0.1	0.12	0.32	0.7	19	1503	-	4.5	1.4	26	6.4	0.3	32.9	17.9	11.3	1.37	4.91	4.2
30-50	8.4	7.9	1.1	0.23	0.43	0.5	12	1397	-	5.5	1.1	12	3.2	0.3	37.7	18.3	11.7	2.01	3.94	5.3
50-90	9.0	8.2	19.3	0.29	0.71	0.3	5	300	-	9.2	0.8	10	2.2	0.4	29.1	13.7	10.6	3.86	0.98	13.3
90-120	8.9	8.2	6.4	0.49	1.76	0.1	6	206	-	9.0	0.9	13	1.9	0.4	31.6	15.3	11.5	5.78	0.65	18.3

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.

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

