

## CALCAREOUS CLAY LOAM

**General Description:** *Reddish brown well structured calcareous clay loam, becoming more clayey and calcareous with depth, over a Class I carbonate layer within 50 cm, grading to heavy clay at about 100 cm*

**Landform:** Plains and gentle slopes

**Substrate:** Strongly structured heavy clay of Pleistocene age (Hindmarsh Clay equivalent)

**Vegetation:** Mallee scrub



**Type Site:**

Site No.:	CM026	1:50,000 mapsheet:	6530-1 (Koolunga)
Hundred:	Hart	Easting:	260150
Section:	411	Northing:	6270950
Sampling date:	13/05/93	Annual rainfall:	435 mm average

Long gentle slope of 2% with a firm surface.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown highly calcareous clay loam with weak granular structure. Clear to:
10-25	Dark reddish brown highly calcareous light clay with weak blocky structure and 10-20% fine carbonate segregations. Gradual to:
25-50	Yellowish red highly calcareous light medium clay with 20-50% fine carbonate segregations. Gradual to:
50-70	Reddish yellow highly calcareous medium clay with 20-50% fine Class I carbonate segregations. Diffuse to:
70-100	Red highly calcareous medium heavy clay with moderate coarse prismatic structure and pockets of fine carbonate. Diffuse to:
100-150	Red and light brown mottled heavy clay with strong coarse blocky structure, and minor fine carbonate segregations.



**Classification:** Endohypersodic, Regolithic, Hypercalcic Calcarosol; medium, non-gravelly, clay loamy / clayey, moderate



## Summary of Properties

- Drainage:** The soil is moderately well drained; the clayey textures restrict water movement to some extent. The profile is unlikely to remain wet for more than a week or so.
- Fertility:** The soil has a high nutrient retention capacity as indicated by the exchangeable cation data, but availability is restricted by the high pH. Phosphorus is low at the sampling site, and organic carbon values are marginally low.
- pH:** Alkaline at the surface, strongly alkaline with depth.
- Rooting depth:** There are few roots below 70 cm, and most of these are confined to vertical biopores.
- Barriers to root growth:**
- Physical:** The soil at this site has an unusually compact appearance. This compaction may retard root penetration: the high strength Hindmarsh Clay will also affect root growth.
  - Chemical:** Toxic levels of boron and high ESP values below 70 cm, together with high pH-induced nutrient deficiencies limit root growth largely to the upper 70 cm.
- Waterholding capacity:** Approximately 110 mm in the rootzone.
- Seedling emergence:** Good to fair. This soil has an uncharacteristically compact surface.
- Workability:** Good to fair.
- Erosion Potential:**
- Water:** Low to moderate. The long slopes typical of these soils may generate considerable run-off in heavy rains, so that even gentle slopes are prone to erosion.
  - Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	8.2	7.8	6.0	0.15	0.62	1.4	16	649	-	3.8	0.8	3	4.8	0.5	23.7	17.26	2.90	0.15	1.48	0.6
0-10	8.3	7.8	4.3	0.14	0.50	1.5	19	739	-	3.7	0.7	3	4.5	1.0	24.4	18.18	2.89	0.15	1.78	0.6
10-25	8.4	7.9	17.2	0.14	0.31	0.8	6	355	-	4.0	1.0	6	2.4	0.3	21.5	15.79	3.66	0.34	0.83	1.6
25-50	8.9	8.0	35.0	0.18	0.41	0.3	6	200	-	5.3	1.0	7	1.7	0.2	16.6	9.83	5.12	1.24	0.39	7.5
50-70	9.7	8.4	43.2	0.47	0.78	0.1	7	267	-	22.2	0.7	4	1.0	0.1	15.6	3.87	7.90	4.67	0.59	29.9
70-100	9.9	8.7	29.0	0.84	1.63	0.1	6	433	-	44.1	0.6	5	0.8	0.2	19.8	3.18	9.44	7.68	1.05	38.8
100-150	9.6	8.8	12.0	1.32	3.52	0.1	5	573	-	57.8	0.7	7	0.8	0.2	25.8	3.32	10.69	11.34	1.40	44.0

**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](#)

