CALCAREOUS CLAY LOAM

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

Landform: Long gentle slopes and flats

Substrate: Heavy clay with strong coarse blocky structure and pockets of fine carbonate (Hindmarsh Clay equivalent)

Vegetation: Mallee scrub

Type Site: Site No.: CM009

1:50,000 sheet:	6530-2 (Blyth)	Hundred:	Blyth
Annual rainfall:	400 mm	Sampling date:	13/02/92
Landform:	Lower slope of long, very gently inclined outwash fan, 1% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-10	Dark brown slightly calcareous clay loam with strong granular structure. Clear to:
10-35	Dark reddish brown slightly calcareous light clay with strong coarse polyhedral structure. Clear to:
35-105	Yellowish red very highly calcareous light medium clay with moderate coarse polyhedral structure and 20-50% soft carbonate segregations (Class I carbonate). Diffuse to:
105-170	Red very highly calcareous heavy clay with strong coarse blocky structure and 20-50% soft carbonate segregations.

Classification: Epihypersodic, Pedal, Hypercalcic Calcarosol; thick, non-gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage The soil is moderately well drained and is unlikely to remain wet for more than a week in most years.

Fertility The inherent fertility of the soil is high, as indicated by the exchangeable cation data. Lower values with depth due to high carbonate content, together with high pH indicate subsoil infertility and particularly induced deficiencies of some elements below about 35 cm. Organic carbon levels are moderate and phosphorus is high at sampling site.

pH Neutral at the surface, strongly alkaline with depth.

Rooting depth 160 cm in pit but below 70 cm roots are confined to vertical biopores.

Barriers to root growth

Physical: There are no physical barriers to root growth above the Hindmarsh Clay. The high strength of this clay causes most root growth to be confined to the surfaces of the coarse aggregates.

Chemical: High boron (toxic below 105 cm) and very high pH (limiting nutrient availability) from 35 cm, restrict root growth.

Water holding capacity Approximately 100 mm in main root zone, but there is potentially some additional water available to the few roots below this depth.

Seedling emergence Good.

Workability Good.

Erosion Potential

Water: Low to moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	7.2	6.3	1.5	0.08	0.5	1.3	42	760	-	-	1.58	8.0	19.4	0.26	24.9	15.50	4.54	0.24	2.48	1.0
0-10	7.3	6.4	2.5	0.08	0.3	1.1	29	650	-	-	1.64	7.2	14.7	0.20	26.2	15.94	4.72	0.30	2.04	1.1
10-35	8.6	7.6	3.0	0.13	0.4	0.6	4	230	-	2.6	1.27	2.6	2.2	0.05	27.2	18.93	5.86	0.62	1.01	2.3
35-105	9.6	8.1	35.6	0.24	1.0	0.3	4	230	-	5.3	0.86	1.6	1.0	0.04	14.3	7.36	5.86	2.57	0.76	18.0
105-170	9.9	8.6	25.2	0.69	2.4	0.1	4	410	-	35.2	0.45	1.7	0.6	0.03	19.2	2.14	9.47	1.98	1.33	10.3

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.