CALCAREOUS CLAY LOAM

General Description: *Calcareous clay loam grading to a well structured highly calcareous clay with abundant soft carbonate segregations, overlying a reddish coarsely structured heavy clay*

Landform: Gently sloping rises and outwash fans

Substrate: Heavy red clay with coarse blocky structure

Vegetation: Mallee scrub

Type Site:

Site No.:	CM057	1:50,000 mapsheet:	6530-1 (Koolunga)
Hundred:	Koolunga	Easting:	247050
Section:	277	Northing:	6288900
Sampling date:	18/08/95	Annual rainfall:	395 mm average

Lower slope of a very gently inclined outwash fan, 2% slope. Firm surface, no stones.

Soil Description:

Depth (cm)	*Description*
0-12	Dark reddish brown highly calcareous clay loam with moderate granular structure. Clear to:
12-25	Dark reddish brown highly calcareous light clay with weak coarse prismatic structure, breaking to polyhedral. Gradual to:
25-45	Dark reddish brown very highly calcareous light clay (as above) with minor carbonate nodules. Gradual to:
45-65	Reddish brown light clay (as above). Gradual to:
65-100	Yellowish red very highly calcareous light medium clay with 10-20% soft carbonate segregations. Diffuse to:
100-160	Red highly calcareous medium heavy clay with strong blocky structure and up to 20% soft carbonate and manganese segregations.

Classification: Hypervescent, Pedal, Hypercalcic Calcarosol; medium, non-gravelly, clay loamy/clayey, deep

Summary of Properties

Drainage: Well drained. The soil is unlikely to remain wet for more than a few days.

Fertility: The soil's natural fertility is high (as indicated by the exchangeable cation data). All elements except sulphur (very low) are in adequate supply. The high potassium levels may be inducing a magnesium deficiency. The level of organic carbon (nitrogen store) is satisfactory.

pH: Alkaline throughout.

Rooting depth: 160 cm in pit, but few roots below 100 cm.

Barriers to root growth:

Physical: There is a plough pan at 12 cm, which may affect newly developed roots. There are no other physical barriers.

Chemical: High boron from 100 cm, but this is below normal depth of rainfall penetration.

Waterholding capacity: Approximately 140 mm in rootzone (very high).

Seedling emergence: Moderate to good (sealing surface).

Workability: Good, provided organic matter levels are maintained.

Erosion Potential:

Water: Low

Wind: Low

Laboratory Data

Depth cm	pH H_2O	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	8.3	7.9	8.7	0.12	0.47	1.4	29	587	9	1.9	0.92	-	10.7	1.36	19.4	18.11	2.07	0.18	1.87	0.9
0-12	8.3	7.9	8.5	0.12	0.46	1.3	27	628	8	2.0	-	-	-	-	21.0	19.90	2.18	0.16	2.05	0.8
12-25	8.4	7.9	7.8	0.12	0.31	0.6	6	340	10	1.9	-	-	-	-	21.3	19.58	2.37	0.19	1.22	0.9
25-45	8.4	7.9	13.9	0.13	0.52	0.4	4	134	6	1.7	-	-	-	-	19.6	17.43	2.86	0.28	0.53	1.4
45-65	8.5	7.9	17.3	0.12	0.41	0.3	<4	118	8	2.0	-	-	-	-	17.3	15.11	3.95	0.36	0.50	2.1
65-100	8.7	8.0	30.0	0.16	0.52	0.2	<4	131	23	3.9	-	-	-	-	14.3	10.25	6.14	0.67	0.53	4.7
100-160	8.5	8.1	27.0	0.40	1.38	0.1	<4	227	165	19.7	-	-	-	-	17.3	12.19	6.08	1.72	0.85	9.9

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