RUBBLY CALCAREOUS SANDY LOAM ON CLAY

General Description: *Calcareous sandy loam grading to a very highly calcareous sandy clay loam with abundant rubble, over heavy clay at depth*

Landform: Flats and rises in a gently undulating landscape

Substrate: Pleistocene age clay (Blanchetown equivalent)

Vegetation: Mallee

Type Site: Site No.: MM036

1:50,000 sheet:	7027-1 (Prinpun Bore)	Hundred:	Pinnaroo
Annual rainfall:	340 mm	Sampling date:	21/11/91
Landform:	Low rise with a slope of 2%		
Surface:	Firm with minor calcrete stones		

Soil Description:

Depth (cm)	*Description*
0-9	Dark brown firm highly calcareous sandy loam with 2% carbonate nodules. Abrupt to:
9-20	Dark brown highly calcareous light sandy clay loam with 2% carbonate nodules. Clear to:
20-45	Brown very highly calcareous sandy clay loam with more than 50% carbonate nodules (6-20 mm). Diffuse to:
45-72	Pink very highly calcareous light clay with 2-10% carbonate nodules (6-20 mm). Diffuse to:
72-100	Orange highly calcareous medium clay with weak coarse prismatic structure. Diffuse to:
100-140	Orange and light grey highly calcareous medium clay with moderate coarse prismatic structure. Diffuse to:
140-180	Yellowish red and light grey heavy clay with strong coarse prismatic structure.

Classification: Epihypersodic, Regolithic, Lithocalcic Calcarosol; medium, non-gravelly, loamy/clayey, moderate

Summary of Properties

Drainage Well drained. Soil never saturated for more than a few days.

Fertility Inherent fertility is moderate, as indicated by the exchangeable cation data. There are no apparent nutrient deficiencies at the sampling site, but without a rigorous fertilizer programme, deficiencies of phosphorus, nitrogen, zinc and copper are likely. Organic carbon levels are high.

pH Alkaline throughout.

Rooting depth 100 cm in pit, but few roots below 72 cm.

Barriers to root growth

Physical: No physical barriers, although rubble reduces water storage capacity.

Chemical: High boron from 72 cm and high sodicity from 45 cm restrict deep root growth.

Water holding capacity 115 mm.

Seedling emergence: Satisfactory.

Workability: Soft to firm surface is easily worked.

Erosion Potential

Water: Low.

Wind: Moderately 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	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	7.5	2.7	0.23	2.11	1.4	150	990	3.1	0.56	4.0	5.8	7.4	13.7	10.24	2.07	0.09	1.84	0.7
0-9	8.3	7.3	1.8	0.17	0.98	2.0	210	940	3.5	0.74	5.1	15	10	10.5	10.50	2.25	0.02	2.16	0.2
9-20	8.6	7.5	5.4	0.16	0.93	0.89	110	910	5.4	0.56	4.4	6.5	2.5	10.8	10.23	2.38	0.04	2.17	0.4
20-45	8.9	7.9	25	0.21	1.01	0.61	21	710	5.4	0.96	5.2	2.2	0.24	11.9	7.22	4.02	0.24	1.36	2.0
45-72	9.2	8.2	47	1.00	9.76	0.27	3.8	590	4.6	0.70	4.4	1.2	0.15	10.4	3.23	4.41	2.91	1.45	28.0
72-100	9.1	8.2	36	1.22	10.12	0.11	<2.0	710	20	0.73	5.5	0.99	0.13	12.5	2.97	5.26	4.02	1.77	32.2
100-140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140-180	9.3	8.2	4.8	1.19	8.77	0.07	<2.0	1000	92	0.94	6.4	0.50	0.19	17.0	1.50	7.88	11.43	2.44	67.2

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.