GRADATIONAL RED SANDY LOAM

General Description: *Red sandy loam becoming more clayey with depth and calcareous within 30 cm of the surface*

Landform: Flats and slopes on very gently undulating plains.

Substrate: Medium textured Tertiary sediments, capped by secondary carbonates.

Vegetation: Mallee

Type Site: Site No.: MM013

1:50,000 sheet:	6827-1 (Karoonda)	Hundred:	Hooper
Annual rainfall:	350 mm	Sampling date:	04/10/91
Landform:	Gentle slope		
Surface:	Soft with no stones		

Soil Description:

Depth (cm)	*Description*
0-9	Reddish brown sandy loam. Sharp to:
9-11	Yellowish red light sandy loam. Sharp to:
11-16	Red weakly structured light sandy clay loam with 2-10% carbonate nodules. Abrupt to:
16-34	Yellowish red very highly calcareous massive sandy clay loam with more than 50% carbonate nodules. Gradual to:
34-52	Orange very highly calcareous sandy clay loam with 20-50% carbonate nodules. Diffuse to:
52-95	Orange and brown very highly calcareous light sandy clay loam with 10-20% carbonate nodules. Diffuse to:
95-139	Orange and brown highly calcareous light sandy clay loam with 2-10% carbonate nodules. Diffuse to:
139-185	As above, no nodules.

Classification: Sodic, Lithocalcic, Red Kandosol; thin, non-gravelly, loamy / clay loamy, moderate

Summary of Properties

Drainage Well drained. The soil is never saturated for more than a few days.

Fertility Inherent fertility is moderate to moderately low according to the exchangeable cation data. Phosphorus, copper and zinc deficiencies are likely and are indicated by the data from the sampling site. Organic carbon levels are slightly lower than ideal.

pH Neutral at the surface, strongly alkaline with depth.

Rooting depth 95 cm in pit, but few roots below 52 cm.

Barriers to root growth

Physical: The hard massive substrate (from 52 cm) inhibits root growth.

Chemical: High pH and sodicity prevent much root growth below 52 cm.

Water holding capacity 50 mm in rot zone.

Seedling emergence: Satisfactory.

Workability: Soft / firm surface is easily worked.

Erosion Potential

Water: Low.

Wind: Low to 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	7.0	6.9	<0.1	0.14	1.19	0.92	10	310	1.4	0.11	10	7.1	0.18	6.9	4.97	0.97	0.05	0.68	0.7
0-9	6.4	6.4	<0.1	0.07	0.27	0.75	14	200	1.0	0.15	19	7.0	0.16	4.6	4.14	0.09	0.05	0.43	1.1
9-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11-16	8.3	7.4	2.3	0.17	0.36	0.37	2.8	290	1.5	0.18	14	1.6	0.10	12.9	9.18	2.06	0.12	0.70	0.9
16-34	8.5	7.7	12	0.15	0.42	0.42	4.5	110	1.8	0.15	14	1.1	0.16	11.9	9.12	2.71	0.17	0.28	1.4
34-52	8.8	7.8	25	0.14	0.46	0.29	3.6	63	2.3	0.18	3.5	0.74	0.11	7.6	5.16	3.65	0.27	0.15	3.6
52-72	9.4	7.8	23	0.23	0.83	0.14	2.8	140	4.3	0.17	3.5	0.43	0.09	6.5	3.11	3.36	1.41	0.29	21.7
72-95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95-139	9.7	7.5	11	0.47	1.99	0.12	1.3	200	12	0.13	3.7	0.28	0.10	6.5	1.53	2.33	3.77	0.41	58.0
139-185	9.6	7.9	7.6	0.46	2.40	0.09	1.5	200	13	0.12	4.5	0.24	0.06	7.0	1.04	2.09	4.03	0.40	57.6

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.