SHALLOW CALCAREOUS SANDY LOAM OVER CALCRETE

General Description: *Calcareous sandy loam to sandy clay loam with variable rubble, over calcrete at shallow depth*

Landform: Stony rises on gently undulating plains and rises

Substrate: Calcrete capped Blanchetown Clay

Vegetation: Mallee

Type Site:

Site No.:	MM016	1:50,000 mapsheet:	6827-1 (Karoonda)
Hundred:	Hooper	Easting:	393400
Section:	66	Northing:	6102400
Sampling date:	13/9/91	Annual rainfall:	385 mm average

Stony slope (3%) of a gently undulating rise. Firm surface with more than 50% calcrete stones, 60-200 mm.

Soil Description:

Depth (cm)	*Description*
0-7	Dark brown highly calcareous light sandy clay loam with 20-50% calcrete fragments (60-200 mm). Abrupt to:
7-11	Brown very highly calcareous sandy clay loam with 10-20% calcrete fragments (60-200 mm). Sharp to:
11-67	Calcrete pan of more than 90% calcrete stones (60-600 mm) in light brown very highly calcareous sandy clay loam matrix. Sharp to:
67-103	Massive calcrete. Clear to:
103-155	Pale brown very highly calcareous sandy clay loam with 20-50% calcrete fragments. Clear to:
155-176	Red and olive mottled heavy clay with coarse lenticular structure. Abrupt to:
176-190	As above with gypsum crystals and fine carbonate segregations. Clear to:
190-200	Reddish brown and olive mottled heavy clay with coarse lenticular structure.

Classification: Epihypersodic, Petrocalcic, Supracalcic Calcarosol; medium, very gravelly, loamy / clay loamy, very shallow

Summary of Properties

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

Fertility: Inherent fertility is moderate, according to the exchangeable cation data. High organic matter levels and about 20% clay provide adequate retention capacity. Phosphorus concentration is marginal at the sampling site.

pH: Alkaline at the surface, strongly alkaline with depth.

Rooting depth: 67 cm in pit.

Barriers to root growth:

Physical: The calcrete pan is a severe limitation, and the rubble above it restricts waterholding capacity.

Chemical: High pH and sodicity from 11 cm.

Waterholding capacity: 15 mm in rootzone.

Seedling emergence: Slight limitation due to stoniness.

Workability: Firm surface is easily worked, but stones abrade implements and stone is continually brought to the surface.

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	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	8.5	7.7	12.3	0.39	3.77	2.12	16	310	4.0	0.25	8.8	5.90	1.09	17.0	14.2	3.46	0.51	1.01	3.0
0-7	8.6	7.6	4.2	0.20	1.14	2.36	29	490	4.1	0.18	12.6	7.25	1.72	18.0	15.2	2.59	0.35	0.99	1.9
7-11	8.8	7.8	5.6	0.21	1.31	1.69	11	380	4.1	0.19	15.1	4.98	1.04	15.4	12.2	2.92	0.74	0.78	4.8
11-67	9.6	8.2	75.8	0.57	4.6	0.50	2.5	210	7.0	0.37	1.4	0.66	0.46	5.3	1.97	2.86	1.88	0.69	35.5
67-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103-155	9.6	8.3	87.1	0.97	11.2	0.18	1.6	300	7.4	0.33	1.0	0.19	0.26	6.9	2.28	3.66	1.58	0.77	22.9
155-176	8.7	8.0	2.3	1.73	5.5	0.10	2.3	1100	58	1.13	4.1	0.60	0.82	43.3	0.63	16.7	21.2	3.65	48.9
176-190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
190-200	5.7	5.5	0.7	2.19	7.5	0.26	1.5	920	20	0.25	6.2	0.03	0.25	32.2	0.35	8.78	18.1	2.07	56.1

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