

SAND OVER SODIC BROWN SANDY CLAY LOAM

General Description: *Thick sand over a coarsely structured dispersive brown sandy clay loam to sandy clay, calcareous with depth*

Landform: Dunefield

Substrate: Pleistocene age clay, capped by fine carbonates (Woorinen Formation)

Vegetation: Mallee



Type Site: Site No.: MP003

1:50,000 sheet:	6728-2 (Mannum)	Hundred:	Finniss
Annual rainfall:	325 mm	Sampling date:	30/07/92
Landform:	Lower slope of low linear sandhill		
Surface:	Loose with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-22	Dark greyish brown loose loamy sand. Clear to:
22-35	Brown loose sand. Abrupt to:
35-42	Pale brown loose sand. Sharp to:
42-66	Yellowish brown and brown mottled very hard sandy clay loam with coarse columnar structure. Clear to:
66-105	Yellow and brown highly calcareous hard massive sandy clay loam. Clear to:
105-128	Red and yellow very hard highly calcareous light clay with coarse prismatic structure. Clear to:
128-165	Red and grey very hard medium clay with strong very coarse prismatic structure.



Classification: Hypercalcic, Mottled-Hypernatric, Brown Sodosol; thick, non-gravelly, sandy / clay loamy, deep

Summary of Properties

Drainage Moderately well drained. Water will perch on the dispersive subsoil for periods of up to a week following heavy or prolonged rainfall.

Fertility Inherent fertility is low, as indicated by the exchangeable cation data for the surface layers. Phosphorus and organic carbon levels are low at the sampling site, but low retention capacity predisposes the soil to a range of deficiencies.

pH Slightly acidic at the surface, strongly alkaline with depth.

Rooting depth 66 cm in pit.

Barriers to root growth

Physical: The dispersive subsoil prevents uniform root distribution - they tend to concentrate on the faces of the aggregates without penetrating them.

Chemical: High pH and high sodicity prevent roots from extending below 66 cm. Boron levels are also toxic in the deep subsoil.

Water holding capacity Approximately 50 mm in the rootzone.

Seedling emergence: Moderate due to water repellent surface.

Workability: Good.

Erosion Potential

Water: Moderately low.

Wind: Moderate, due to loose sandy surface.

Laboratory Data

Depth cm	pH H ₂ O	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	6.5	6.1	0	0.06	0.25	0.49	16	210	0.8	0.2	16.5	1.9	0.7	3.3	2.18	0.87	0.19	0.33	5.8
0-22	6.3	5.9	0	0.05	0.18	0.34	20	170	0.5	0.2	17.6	1.6	0.6	2.5	1.81	0.65	0.14	0.27	5.6
22-35	6.7	6.3	0	0.04	0.12	0.20	10	170	0.4	0.2	5.5	1.7	0.3	2.8	2.03	0.72	0.16	0.28	5.7
35-42	7.5	6.7	<0.1	0.05	0.32	0.34	<5	170	0.7	0.2	4.3	2.7	0.2	4.2	2.71	1.12	0.29	0.27	6.9
42-66	9.2	8.6	0.2	0.55	2.40	0.30	<5	500	9.3	0.4	15.6	0.2	0.3	21.7	5.35	10.00	6.55	1.38	30.2
66-105	9.6	8.7	31.9	1.11	5.91	0.34	<5	530	14.4	1.0	6.6	0.6	0.3	13.3	1.94	7.97	7.75	1.26	58.3
105-128	9.5	8.8	8.8	1.19	4.34	0.17	<5	660	15.1	0.8	5.5	0.6	0.3	18.9	1.18	9.31	12.11	1.47	64.1
128-165	7.1	6.7	<0.1	0.99	5.95	0.11	<5	500	7.9	4.8	10.4	0.1	0.3	18.3	1.01	8.35	11.81	1.22	64.5

Note: Paddock sample bulked from 20 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