

SANDY LOAM OVER COARSELY STRUCTURED RED CLAY (Nobby Hills soil)

General Description: *Gritty sandy loam over a coarsely structured dispersive red clay, calcareous with depth*

Landform: Very gently sloping outwash fans associated with undulating low hills.

Substrate: Gritty alluvial sandy clay.

Vegetation: Mallee (Euc. pileata, E. oleosa, E. leptophylla).



Type Site:	Site No.:	EE100	1:50,000 mapsheet:	6230-4 (Mangalo)
	Hundred:	Hawker	Easting:	656460
	Section:	208	Northing:	6267850
	Sampling date:	9/3/1994	Annual rainfall:	355 mm average

Lower slope of outwash fan, 4% slope. Soft surface with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown friable coarse sandy loam with 2-10% quartz gravel. Clear to:
10-30	Reddish brown firm coarse sandy clay loam with moderate coarse prismatic structure. Abrupt to:
30-55	Dark reddish brown hard medium clay with strong fine angular blocky structure. Clear to:
55-65	Yellowish red friable moderately calcareous medium clay with weak fine angular blocky structure. Clear to:
65-200	Yellowish red firm very highly calcareous coarse sandy clay with weak subangular blocky structure and 10-20% quartz grit.



Classification: Calcic, Subnatric, Red Sodosol; thick, non-gravelly, loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. Water perches on the dispersive clayey subsoil for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderately low, as indicated by the exchangeable cation data. Surface clay and organic carbon contents are relatively low, limiting nutrient retention capacity, although subsoil capacity is high. Provided phosphorus, nitrogen and trace element levels are maintained in the topsoil, there is no subsoil restriction. Phosphorus concentrations are high at the sampling site, and trace element levels are adequate. Nitrogen status depends on legume component of pastures and cropping history.
- pH:** Slightly acidic at the surface, strongly alkaline with depth.
- Rooting depth:** 60 cm in pit.
- Barriers to root growth:**
- Physical:** The coarsely structured clayey subsoil reduces root density, but does not prevent root growth.
 - Chemical:** High pH and sodicity from 65 cm limit deeper root growth.
- Waterholding capacity:** Approximately 80 mm in the rootzone.
- Seedling emergence:** Satisfactory to fair, depending on the degree of compaction in the surface.
- Workability:** Firm surface is easily worked, but if worked too wet or too dry, soil structure will be damaged.
- Erosion Potential:**
- Water:** Moderately low to moderate.
 - Wind:** Moderately low.

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	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	
0-10	6.5	5.7	0	0.07	0.72	0.9	28	388	-	0.6	1.03	15	17.7	0.55	6.1	3.66	1.15	0.07	0.92	1.2
10-30	7.2	6.5	<0.1	0.03	0.25	0.2	6	286	-	0.6	0.81	4	6.31	0.20	6.0	3.32	1.25	0.10	0.58	1.7
30-55	8.8	8.0	0.4	0.21	0.61	0.2	4	349	-	3.1	2.50	7	3.35	0.31	17.0	7.25	8.48	1.82	1.06	10.7
55-65	9.4	8.4	10.8	0.25	0.76	0.2	<4	263	-	5.2	2.32	4	1.07	0.31	12.6	5.01	6.49	1.92	0.88	15.3
65-200	9.8	8.4	12.8	0.41	1.56	0.3	<4	263	-	8.9	1.23	3	0.66	0.25	10.1	2.65	5.66	3.25	0.80	32.2

Note: 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](#)

