

DEEP SILICEOUS SAND

General Description: *Very thick sand with a bleached subsurface layer, grading to a stronger coloured and slightly more clayey subsoil*

Landform: Undulating dunefield.

Substrate: Calcreted calcarenite of the Bridgewater Formation.

Vegetation: Eucalyptus leucoxyton woodland.



Type Site: Site No.: SE027

1:50,000 sheet:	6924-2 (Lucindale)	Hundred:	Joyce
Annual rainfall:	610 mm	Sampling date:	15/06/94
Landform:	Midslope of sand dune, 5% slope		
Surface:	Soft with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Black soft massive loamy fine sand. Gradual to:
10-50	Bleached (with tongues of light yellowish brown) loose single grain fine sand. Sharp but very uneven to:
50-70	Light yellowish brown loose single grain fine sand. Gradual to:
70-110	Light yellowish brown loose single grain fine sand with minor clayey lamellae. Sharp to:
110-130	Strong brown soft massive clayey fine sand with minor ironstone concretions. Sharp to:
130-160	Calcrete.



Classification: Basic, Petrocalcic, Bleached-Orthic Tenosol; medium, non-gravelly, sandy / sandy, deep

Summary of Properties

Drainage	Rapidly drained. The soil never remains wet for more than a few hours.
Fertility	Inherent fertility is very low, as indicated by the exchangeable cation data. Most surface soil nutrient retention capacity is attributable to organic matter, levels of which are very high. Concentrations of tested elements are relatively high, but fall substantially in subsurface layers. Regular applications of nitrogen, phosphorus and sulphur are required, whilst deficiencies of trace elements and possibly magnesium can be expected. Note depth of phosphate leaching in sandy soil – this presents a ground water pollution hazard.
pH	Slightly acidic at the surface, slightly alkaline with depth.
Rooting depth	130 cm in pit, but few roots below 10 cm.
Barriers to root growth	
Physical:	There are no physical barriers above the calcrete, but there is little root growth at that depth.
Chemical:	There are no toxic barriers. Low nutrient status and retention capacity are the main restrictions on root growth.
Water holding capacity	Approximately 85 mm in the potential root zone.
Seedling emergence:	Fair to satisfactory, depending on the degree of water repellence.
Workability:	Soft surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderately high.

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 -S 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	6.3	5.4	0	0.10	0.66	4.0	19	211	6.6	4.2	-	-	-	-	11.0	9.25	1.33	0.10	0.61	na
0-10	6.6	6.0	0	0.11	0.88	2.5	32	217	5.8	3.1	-	-	-	-	7.1	5.03	1.05	0.05	0.41	na
10-50	6.2	5.5	0	0.11	0.89	0.4	35	95	2.6	1.0	-	-	-	-	1.9	1.34	0.38	0.02	0.24	na
50-70	7.1	6.5	0	0.06	0.36	0.2	17	74	1.4	0.6	-	-	-	-	1.3	0.93	0.33	0.04	0.21	na
70-110	7.2	6.7	<0.1	0.06	0.30	0.1	13	93	1.7	0.5	-	-	-	-	1.0	0.42	0.20	0.02	0.18	na
110-130	7.6	6.9	<0.1	0.12	0.69	0.2	4	580	5.6	1.1	-	-	-	-	4.6	2.14	0.68	0.17	1.53	na

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.