

THICK BLEACHED SAND OVER CLAY

General Description: Grey sand with a thick bleached sandy subsurface, over a poorly structured brown mottled clay, calcareous at depth

Landform: Very gently undulating sand plain with low sandy rises.

Substrate: Clay (possibly reworked Padthaway Formation sediments), with calcareous segregations.

Vegetation:



Type Site:	Site No.:	SE176	1:50,000 sheet:	7022-1 (Nangwarry)
	Hundred:	Mingbool	Easting:	496460
	Section:		Northing:	5834110
	Sampling date:	12/12/2012	Annual rainfall:	720 mm average

Flat on very gently undulating plain, 0% slope. Soft surface with no stones. Soil has been delved and spaded.

Soil Description:

Depth (cm)	Description
0-15	Very dark greyish brown soft single grain loamy sand. Clear to:
15-60	Light grey (bleached) soft single grain sand, with pockets of clay from layer below (result of delving). Abrupt to:
60-85	Yellowish brown and red mottled hard massive medium clay with pockets of bleached sand (result of delving). Clear to:
85-110	Light brownish grey and strong brown mottled hard massive slightly calcareous sandy light medium clay. Clear to:
110-130	Brownish yellow hard massive highly calcareous sandy light medium clay with 20-50% soft and nodular calcareous segregations.



Classification: Bleached-Mottled, Hypercalcic, Brown Chromosol; thick, non-gravelly, sandy /clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. No part of the profile is likely to remain wet for more than a week at a time following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. This is due to the low clay content of the surface and subsurface layers, and low organic matter content. Test data indicate marginal deficiencies of nitrogen, phosphorus, potassium and sulphur. Clay incorporated from the underlying subsoil has not mixed sufficiently with the sand to improve nutrient status or retention capacity.
- pH:** Slightly acidic at the surface, alkaline at depth.
- Rooting depth:** Not recorded – estimate that most root growth occurs in the upper 85 cm.
- Barriers to root growth:**
- Physical:** The hard subsoil clay restricts even root distribution. Delving and spading can reduce this problem to some extent in the upper subsoil.
 - Chemical:** Apart from nutrient deficiency (see above), there are no chemical barriers, provided soil is not allowed to acidify.
- Waterholding capacity:** Approximately 80 mm in the estimated potential rootzone.
- Seedling emergence:** Satisfactory, except where water repellent.
- Workability:** The sandy surface soil is readily worked, but over-working creates wind erosion hazard.
- Erosion Potential**
- Water:** Low.
 - Wind:** Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable cations cmol(+)/kg				ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.6	6.1	-	0.045	-	-	-	15	-	27	-	-	-	-	-	4.5	3.57	0.76	0.03	0.09	0.7	
0-15	6.8	6.1	0.46	0.039	8	0.55	3	21	33	54	2.4	0.4	0.49	135	5.3	0.96	4.6	3.53	0.86	0.07	0.12	1.5
15-60	5.8	5.3	0.90	0.021	4	0.54	2	24	21	32	1.6	0.2	0.49	166	0.91	3.83	2.1	1.63	0.40	0.02	0.06	0.9
60-85	7.4	6.7	0.34	0.104	5	0.45	4	2	196	65	13.6	1.6	0.13	37	0.05	1.97	15.2	11.3	3.39	0.30	0.22	2.0
85-110	8.3	7.7	0.25	0.173	2	0.12	4	<2	179	90	10.5	2.1	0.11	23	6.2	0.73	17.8	13.9	3.36	0.26	0.28	1.5
110-130	8.5	8.0	0.25	0.155	7	0.14	7	<2	206	82	9.1	1.7	0.19	22	2.0	1.24	18.3	14.8	2.96	0.25	0.23	1.4

Note: Paddock sample bulked from cores (0-10 cm).

Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

