

## THICK SAND OVER CLAY

**General Description:** *Thick grey sand with a bleached subsurface on yellow brown clay over buried soil*

**Landform:** Plain with low rises

**Substrate:** Clay (probably buried subsoil of an older soil)

**Vegetation:**



<b>Type Site:</b>	Site No.:	SE170	1:50,000 mapsheet:	7022-4 (Kalangadoo)
	Hundred:	Young	Easting:	467840
	Section:		Northing:	5827370
	Sampling date:	04/01/2013	Annual rainfall:	755 mm average

Low rise on gently undulating plain, 6% slope. Firm surface with no stones.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-25	Dark greyish brown soft single grain loamy sand. Gradual to:
25-45	Light grey (bleached) soft single grain loamy sand. Clear to:
45-70	Dark brown friable massive sandy loam with 20-50% dark reddish brown soft ferruginous segregations (iron staining). Gradual to:
70-90	Pale brown and dark yellowish brown firm massive medium clay. Sharp to:
90-120	Dark yellowish brown and strong brown mottled firm medium clay with moderate angular blocky structure.



**Classification:** Eutrophic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, sandy / clayey, moderate



## Summary of Properties

**Drainage:** Well drained. No part of the profile is likely to remain wet for more than a day or two at a time following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is moderately low, as indicated by the exchangeable cation data. The sandy surface soil (and particularly the subsurface 25-45 cm layer) have a low capacity to retain nutrients, but this capacity is boosted by relatively high organic matter levels. However, low pH reduces retention capacity. Test data indicate low phosphorus and potassium levels in the pit (although paddock sample concentrations are adequate). Phosphorus buffering index (PBI) is low in upper 45 cm. Copper zinc and manganese levels are low below the surface layer.

**pH:** Acidic at the surface, strongly acidic in the subsurface, and neutral at depth.

**Rooting depth:** Not recorded – estimate that most root growth occurs in the upper 70 cm, with some persisting to 90 cm.

### Barriers to root growth:

**Physical:** The clayey subsoil presents a marginal barrier to root growth.

**Chemical:** Low pH and associated aluminium toxicity affect root growth in the upper 70 cm.

**Waterholding capacity:** Approximately 85 mm in the estimated potential rootzone.

**Seedling emergence:** Good, assuming no water repellence.

**Workability:** The surface soil is readily worked, but excessive or ill-timed cultivation leads to wind erosion hazard.

### Erosion Potential

**Water:** Moderately low.

**Wind:** Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO <sub>3</sub> + NH <sub>4</sub> mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO <sub>4</sub> -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	5.6	4.8	-	0.279	223	1.91	123	30	12.3	298	21.6	0.5	0.48	67	41.8	5.91	5.4	3.36	0.73	0.46	0.82	8.5
0-25	5.1	4.2	3.55	0.08	30.9	2.31	17	10	26.8	36	10.8	0.3	0.56	295	18.1	3.86	5.4	4.46	0.74	0.17	0.07	3.1
25-45	5.2	4.1	6.89	0.018	2.7	0.77	5	14	31.1	25	1.9	0.2	0.11	233	3.18	0.51	1.5	1.21	0.18	0.03	0.03	2.1
45-70	5.4	4.5	5.51	0.025	1.9	0.53	2	9	70.3	25	3.4	0.3	0.30	208	0.96	0.25	1.9	1.52	0.24	0.06	0.03	3.2
70-90	7.4	6.4	0.41	0.094	18.2	0.61	5	< 2	510	70	26.6	1.4	0.12	35	0.20	0.19	14.0	7.15	5.66	0.99	0.18	7.1
90-120	7.7	6.9	0.28	0.129	32.5	0.22	8	< 2	1209	89	52.5	2.4	0.03	1	0.26	0.12	20.2	9.70	8.10	2.15	0.25	10.6

**Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.

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](#)

