

## DEEP BROWN SAND

**General Description:** *Deep brownish loose sand overlying fragmented calcrete at variable depth*

**Landform:** Dunefield

**Substrate:** Bakara calcrete

**Vegetation:** Mallee



<b>Type Site:</b>	Site No.:	MM156	1:50,000 mapsheet:	6828-4 (Swan Reach)
	Hundred:	Forster	Easting:	378360
	Section:	128	Northing:	6158210
	Sampling date:	17/07/2007	Annual rainfall:	290 mm average

Dune slope in a gently undulating landscape of dunes and swales, 3% slope. Loose surface with no stones.

### Soil Description:

Depth (cm)	Description
0-15	Strong brown (7.5YR5/6) soft single grain loamy sand. Clear to:
15-28	Strong brown (7.5YR4/6) soft single grain loamy sand. Clear to:
28-55	Strong brown (7.5YR5/8) soft single grain light loamy sand. Clear to:
55-76	Strong brown (7.5YR5/6) soft single grain light loamy sand. Abrupt to:
76-90	Brown (7.5YR4/4) soft single grain loamy sand. Clear to:
90-132	Yellowish red (5YR5/8) soft single grain loamy sand.
132-160	Fragmented calcrete in a matrix of pink (7.5YR8/4) firm massive very highly calcareous loamy sand.



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



## Summary of Properties

- Drainage:** Rapidly drained. Except during extreme events, no part of the profile is likely to be saturated for more than a couple of hours at a time.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data, due to low clay content. Phosphorus and potassium levels are high for field crops but marginal for more intensive crops. Copper and manganese levels are low according to soil test, but tissue analysis required for reliable assessment. Organic matter levels are low.
- pH:** Neutral at the surface, alkaline with depth
- Rooting depth:** 120 cm in sampling pit, but low density below 30 cm.
- Barriers to root growth:**
- Physical:** There are no physical barriers above the calcrete, although sandy soils are susceptible to compaction.
- Chemical:** Low nutrient retention capacity is the only likely chemical barrier. Soluble salt, pH, sodicity and boron concentrations are all acceptable.
- Waterholding capacity:** (Estimates for total irrigable rootzone)  
Total available: 90 mm  
Readily available: 55 mm
- Seedling emergence:** Satisfactory where not water repellent.
- Workability:** Sandy soils are easily worked
- Erosion Potential:**
- Water:** Low.
- Wind:** Moderately high due to deep sandy soil and exposed position.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-15	6.9	6.4	0	0.08	0.81	0.25	34	188	20	7.6	0.8	263	0.53	32	8.58	4.78	4.4	3.24	0.61	0.03	0.47	0.7
15-28	7.7	6.7	0	0.05	0.45	0.35	11	93	5	4.5	0.9	216	0.16	50	6.76	0.93	4.8	3.88	0.53	0.09	0.25	1.9
28-55	8.2	7.2	0	0.07	0.50	0.18	7	105	6	5.1	0.8	280	0.24	25	5.70	0.31	4.4	3.52	0.45	0.15	0.26	3.4
55-76	8.3	7.4	0	0.07	0.46	0.16	3	109	7	5.5	0.8	288	0.25	29	7.91	0.22	4.6	3.70	0.44	0.16	0.26	3.5
76-90	8.3	7.4	0	0.06	0.41	0.24	1	94	6	4.4	0.9	327	0.28	59	15.4	0.24	4.7	3.81	0.52	0.12	0.23	2.6
90-132	8.3	7.5	0	0.07	0.61	0.14	1	74	16	7.0	0.8	398	0.13	21	9.19	0.31	6.0	4.99	0.67	0.14	0.21	2.3
132-160	8.6	7.7	11	0.15	1.03	0.54	2	108	43	20.6	1.8	133	0.15	13	0.39	0.35	15.4	12.1	2.68	0.32	0.28	2.1

**Note:** 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](#)

