

## SAND OVER SANDY CLAY LOAM ON CALCRETE

**General Description:** *Medium thickness sand to loamy sand over a brown sandy clay loam on calcreted calcarenite within 50 cm of the surface.*

**Landform:** Undulating rises and low hills.

**Substrate:** Weakly to moderately cemented sand of ancient coastal dunes, capped by calcrete.

**Vegetation:** Blue gum (*Eucalyptus leucoxylon*) and hill gum (*E. fasciculosa*) woodland.



**Type Site:** Site No.: SE073

1:50,000 sheet: 6825-1 (Laffer)      Hundred: Laffer  
 Annual rainfall: 480 mm      Sampling date: 13/09/04  
 Landform: Lower slope of gently undulating rise, 3% slope  
 Surface: Soft with 2-10% calcrete fragments to 60 mm

### Soil Description:

Depth (cm)	Description
0-4	Dark brown soft single grain loamy sand. Abrupt to:
4-13	Pink (bleached) soft single grain light loamy sand. Sharp to:
13-22	Strong brown friable sandy clay loam with weak coarse subangular blocky structure and 10-20% calcrete fragments (20-60 mm). Abrupt to:
22-40	Moderately cemented fragmented calcrete, with brown soft massive very highly calcareous light sandy clay loam between the fragments (20% of volume). Abrupt to:
40-110	Pale yellow firm massive very highly calcareous clayey sand.



**Classification:** Bleached, Lithocalcic, Brown Chromosol; medium, slightly gravelly, sandy/clay loamy, shallow

## Summary of Properties

- Drainage:** Well to rapidly drained. The soil is unlikely to remain wet for more than a day at a time.
- Fertility:** Inherent fertility is moderate, as indicated by the exchangeable cation data. Test data indicate that copper, zinc and manganese may be deficient. Regular phosphorus and nitrogen applications are also required.
- pH:** Alkaline throughout. Surface alkalinity due to location of site in rubble pit. Normally surface soil would be neutral.
- Rooting depth:** 40 cm in exposure.
- Barriers to root growth:**
- Physical:** The calcrete impedes root growth to varying degrees dependent on its level of fracturing. At this site, there is no significant physical barrier.
- Chemical:** No apparent chemical barriers. High salinity from 22 cm is abnormal in these soils and is probably due to evaporative concentration of salts due to long term exposure of profile in rubble pit face.
- Water holding capacity:** Approximately 30 mm to base of calcrete.
- Seedling emergence:** Satisfactory.
- Workability:** Sandy surface is easily worked.

### Erosion Potential

- Water:** Moderately low.
- Wind:** Moderately low.

## 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	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-4	8.2	7.6	3	0.15	0.87	2.02	51	241	47	9.2	0.9	0.35	33	0.82	8.40	12.4	10.0	1.78	0.06	0.56	0.5
4-13	8.3	7.7	0.5	0.10	0.40	0.59	10	175	11	3.2	0.5	0.32	100	0.28	4.83	6.9	5.41	1.07	0.04	0.42	0.6
13-22	8.4	7.7	1	0.33	3.30	0.45	5	158	341	8.8	0.7	0.19	61	0.20	7.91	12.9	10.0	2.14	0.31	0.41	2.4
22-40	8.2	7.7	37	4.81#	34.7#	0.61	4	92	6381	145	0.7	0.21	19	0.21	2.55	*	5.36	4.87	*	0.23	*
40-110	8.6	7.9	41	4.06#	34.3#	0.31	1	176	5549	128	1.1	0.24	6	0.21	0.97	*	5.0	4.55	*	0.47	*

**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 estimated by dividing the exchangeable sodium value by the sum of cations.

# High EC due to evaporative concentration of salts on exposed face.

\* Exchangeable sodium data not included as soluble salts were not adequately washed from sample in laboratory, resulting in high reading.