

## SANDY LOAM OVER BROWN MOTTLED CLAY

**General Description:** *Thick brown gritty sandy loam abruptly overlying a brown, grey and red mottled poorly structured clay, becoming sandier with depth*

**Landform:** Alluvial fans.

**Substrate:** Medium textured alluvium with variable quartzite fragments.

**Vegetation:**



**Type Site:** Site No.: CL045

1:50,000 sheet:	6628-1 (Barossa)	Hundred:	Moorooroo
Annual rainfall:	550 mm	Sampling date:	29/11/04
Landform:	Lower slope of alluvial fan, 5% slope		
Surface:	Soft with no stones		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark brown soft massive loamy sand. Clear to:
15-35	Reddish brown soft massive light sandy loam. Gradual to:
35-55	Light reddish brown friable massive coarse sandy loam with 2-10% quartzite gravel (6-20 mm). Abrupt to:
55-85	Yellowish brown, greyish brown and yellowish red mottled hard medium clay with weak coarse prismatic structure, breaking to moderate medium polyhedral. Gradual to:
85-130	Red, strong brown and brown mottled firm light medium clay with weak coarse prismatic structure, breaking to weak medium subangular blocky. Diffuse to:
130-190	Reddish brown and brown friable sandy clay loam with weak subangular blocky structure and 10-20% quartzite cobbles (60-200 mm).



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

## Summary of Properties

**Drainage:** Moderately well drained. Water perches on top of the clay subsoil for a week or so at a time following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is moderately low, as indicated by the exchangeable cation data. Organic matter provides a significant proportion of nutrient retention capacity in the surface, due to low clay content. Apart from a possible zinc deficiency, concentrations of all tested nutrient elements are satisfactory.

**pH:** Slightly acidic at the surface, slightly alkaline with depth.

**Rooting depth:** 130 cm in pit.

### Barriers to root growth:

**Physical:** The coarsely structured clay subsoil does not prevent root growth, but it restricts uniform distribution, leading to inefficient water use.

**Chemical:** Marginally high salinity and sodicity from 130 cm are the only chemical barriers.

**Water holding capacity:** (Estimates for potential root zone of irrigated crops)

Total available: 155 mm  
Readily available: 75 mm

**Seedling emergence:** Satisfactory.

**Workability:** The sandy surface is easily worked over a range of moisture conditions.

### Erosion Potential

**Water:** Moderate, due to slope.

**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	Mn	Zn		Ca	Mg	Na	K	
0-15	6.5	5.7	0	0.062	0.55	1.19	94	371	6	4.4	0.6	7.97	191	91.6	3.33	6.2	4.17	1.00	0.12	0.90	1.9
15-35	7.1	6.2	0	0.038	0.59	0.20	45	266	9	2.2	0.3	2.46	103	126	0.70	3.5	2.15	0.61	0.08	0.64	2.3
35-55	7.3	6.5	0	0.027	0.46	0.11	29	259	4	1.9	0.3	1.32	90	105	0.31	3.1	1.76	0.65	0.15	0.54	4.8
55-85	7.5	6.5	0	0.065	0.49	0.25	2	235	24	24.5	0.9	1.61	44	38.4	0.35	18.7	8.43	8.39	1.24	0.64	6.6
85-130	7.5	6.5	0	0.118	1.16	0.15	2	157	72	23.4	0.8	1.84	46	49.8	0.09	8.9	3.76	3.92	0.91	0.31	10.2
130-190	7.7	6.7	0	0.164	2.08	0.12	2	135	130	20.9	0.8	1.85	62	111	0.08	12.8	6.03	4.83	1.64	0.32	12.8

**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.