

THICK LOAMY SAND OVER BROWN CLAY

General Description: *Thick loamy sand with a bleached subsurface layer over a brown mottled clay grading to clayey sand*

Landform: Alluvial fans and plains

Substrate: Coarse textured alluvial sediments

Vegetation: Eucalyptus camaldulensis (red gum) woodland



Type Site: Site No.: CH158

1:50,000 sheet:	6728-4 (Angaston)	Hundred:	Jutland
Annual rainfall:	600 mm	Sampling date:	13/11/06
Landform:	Gently inclined alluvial fan, 3% slope.		
Surface:	Soft with no stones.		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark brown soft single grain loamy sand. Gradual to:
15-30	Dark brown soft single grain loamy sand. Gradual to:
30-42	Brown (light brown dry) soft single grain light loamy sand. Clear to:
42-55	Pink soft single grain light loamy sand with 10-20% ironstone gravel. Abrupt to:
55-67	Strong brown, dark greyish brown and yellowish brown mottled hard medium clay with strong fine angular blocky structure. Abrupt to:
67-100	Yellowish brown, strong brown and light yellowish brown firm light sandy clay loam with weak coarse subangular blocky structure. Diffuse to:
100-135	Yellowish brown and light yellowish brown firm massive clayey sand. Gradual to:
135-150	Yellowish brown and light brownish grey firm massive clayey sand with 2-10% carbonate nodules.



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

Summary of Properties

Drainage: Moderately well to imperfectly drained. The subsoil clay may perch water for a week or more (saturating the 30-55 cm layer), following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. There is minimal clay and organic matter in the topsoil, so there is little nutrient retention capacity. Subsoil capacity is significantly higher, but is below the main part of the rootzone. At the sampling site, zinc and manganese appear to be deficient, with levels of phosphorus and copper marginal. Although Ca:Mg ratios are satisfactory, there may be absolute deficiencies of both elements.

pH: Acidic at the surface, alkaline at depth.

Rooting depth: 110 cm in sampling pit, but few roots below 70 cm.

Barriers to root growth:

Physical: The dense massive sandy material from 67 cm impedes but doesn't prevent growth.

Chemical: There are no apparent chemical barriers.

Water holding capacity: (Estimates for potential root zone of grape vines)

Total available: 90 mm

Readily available: 45 mm

Seedling emergence: Satisfactory.

Workability: Soft sandy surface is easily worked.

Erosion Potential

Water: Moderately low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -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	6.1	5.3	0	0.047	0.43	0.80	34	178	9	6.5	0.6	626	3.23	115	8.55	1.37	3.2	2.22	0.44	0.07	0.42	2.2
15-30	6.2	5.0	0	0.023	0.18	0.29	7	96	4	3.4	0.3	646	0.13	74	4.83	0.08	2.2	1.59	0.37	0.05	0.21	na
30-42	6.4	5.7	0	0.022	0.19	0.22	2	77	5	4.7	0.3	493	0.15	60	2.95	0.08	1.9	1.33	0.34	0.06	0.19	na
42-55	6.5	5.7	0	0.031	0.35	0.19	2	57	7	10.3	0.4	409	0.18	42	3.94	0.13	2.2	1.22	0.73	0.15	0.13	na
55-67	6.4	5.6	0	0.122	0.92	0.49	2	123	39	66	1.8	1182	0.09	89	1.37	0.10	15.9	4.67	9.53	1.35	0.33	8.5
67-100	7.7	6.5	0	0.106	1.26	0.15	2	71	52	25.1	1.4	525	0.25	27	2.22	0.18	11.0	2.04	7.64	1.17	0.19	10.6
100-135	8.3	7.1	0	0.168	1.95	0.08	2	75	132	18.7	1.2	361	0.30	24	3.39	0.24	6.2	1.64	3.09	1.31	0.17	21.1
135-150	9.0	7.9	0	0.228	2.14	0.17	4	95	158	19.1	1.1	466	0.55	34	5.74	0.50	7.4	2.73	3.06	1.41	0.21	19.0

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.