THICK LOAMY SAND OVER BROWN SANDY CLAY LOAM

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

Landform: Alluvial fans and plains

Substrate: Coarse textured alluvial sediments

Vegetation: Eucalyptus camaldulensis (red gum) woodland

Type Site: Site No.: CH159

1:50,000 sheet:	6728-4 (Angaston)	Hundred:	Jutland
Annual rainfall:	650 mm	Sampling date:	13/11/06
Landform:	Alluvial flat, 1% slope.		
Surface:	Soft with no stones.		

Soil Description:

Depth (cm)	*Description*
0-15	Brown soft single grain loamy sand. Gradual to:
15-35	Brown soft single grain light loamy sand. Gradual to:
35-55	Very pale brown, pale brown and yellowish brown soft single grain light loamy sand. Abrupt to:
55-70	Brown, dark greyish brown and yellowish brown mottled firm sandy clay loam with moderate subangular blocky structure. Clear to:
70-100	Yellowish brown friable massive clayey sand. Diffuse to:
100-160	Yellowish brown firm massive light sandy clay loam to clayey sand.

Classification: Bleached-Sodic, Eutrophic, Brown Chromosol; thick, non-gravelly, sandy / clay loamy, deep

Summary of Properties

Drainage: Moderately well drained. The subsoil sandy clay loam may perch water for up to a week (saturating the 35-55 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, potassium, zinc, manganese and copper appear to be deficient, with marginal levels of phosphorus. Calcium and magnesium may also be deficient.

pH: Neutral to slightly acidic at the surface, neutral at depth.

Rooting depth: 100 cm in sampling pit, but few roots below 70 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers to root growth.

Chemical: Low nutrient status and retention capacity is the most likely reason for restricted root growth at depth.

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

Total available: 90 mm
Readily available: 50 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_2O	pH $CaC1_2$	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	6.5	6.0	0	0.119	1.12	0.75	25	106	101	9	0.4	600	2.32	114	7.38	2.18	3.4	2.04	0.76	0.34	0.21	10.1
15-35	6.1	5.1	0	0.052	0.42	0.16	15	57	38	4	0.4	574	0.18	109	2.19	0.28	1.3	0.68	0.31	0.14	0.13	na
35-55	5.8	5.0	0	0.048	0.64	0.16	5	50	42	5	0.2	557	0.13	70	1.84	0.1	1.3	0.51	0.51	0.16	0.12	na
55-70	6.3	5.2	0	0.094	0.92	0.29	2	140	49	23.1	0.3	1139	0.21	87	2.01	0.16	10.5	1.71	7.92	0.56	0.33	5.3
70-100	6.1	5.3	0	0.126	0.81	0.20	2	120	47	42.5	0.3	742	0.16	40	1.65	0.1	7.5	0.99	5.46	0.73	0.27	9.8
100-160	7.7	6.6	0	0.079	1.08	0.19	7	97	30	19.9	0.2	638	1.11	43	3.27	0.23	6.5	1.26	4	0.98	0.21	15.2

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.