

THICK LOAMY SAND OVER BROWN MOTTLED CLAY

General Description: *Thick soft sand to light sandy loam with a bleached subsurface layer, sharply overlying a brown mottled clayey subsoil grading to medium or fine grained alluvium*

Landform: Very gently sloping alluvial fans

Substrate: Fine to medium grained alluvium

Vegetation:



Type Site: Site No.: CL038

1:50,000 sheet: 6728-4 (Angaston) Hundred: Moorooroo

Annual rainfall: 530 mm Sampling date: 18/11/04

Landform: Mid slope of gently inclined alluvial fan, 2% slope

Surface: Soft with no stones

Soil Description:

Depth (cm)	Description
0-15	Dark brown soft single grain light sandy loam. Gradual to:
15-25/40	Brown soft single grain light sandy loam. Sharp but irregular boundary to:
25/40-54	Very pale brown (bleached) soft single grain light loamy sand. Abrupt to:
54-70	Dark yellowish brown, dark greyish brown and dark red mottled firm light medium clay with strong fine polyhedral structure. Gradual to:
70-95	Dark red, dark greyish brown and dark yellowish brown mottled firm light medium clay with weak coarse prismatic (breaking to moderate medium polyhedral) structure. Gradual to:
95-150	Brown, dark reddish brown and dark yellowish brown mottled firm fine sandy light clay with weak coarse prismatic structure.



Classification: Hypocalcic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, loamy / clayey, very deep

Summary of Properties

Drainage: Moderately well drained. The clayey subsoil has restricted permeability and may remain saturated for a week or so following heavy or prolonged rainfall. Some perching of water at the base of the topsoil can also be expected from time to time.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Organic matter is the main factor controlling nutrient retention in the low clay surface soil. The subsoil provides ample reserves of calcium, magnesium and potassium. There are no apparent deficiencies according to the test data.

pH: Slightly alkaline at the surface, alkaline with depth.

Rooting depth: 150 cm in pit, but most growth occurs in the upper 70 cm.

Barriers to root growth:

Physical: The coarsely structured clay subsoil from 70 cm restricts root growth to a moderate extent.

Chemical: Slight restrictions are due to marginal salinity from 95 cm and marginal sodicity from 70 cm.

Water holding capacity: Estimates for potential grape vine root zone:

Total available water 90 mm

Readily available water 45 mm

Seedling emergence: Satisfactory.

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

Erosion Potential

Water: Low (soil is highly erodible, but slope is low).

Wind: Moderately low (excessive cultivation will predispose soil to wind erosion).

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 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	7.7	7.3	0	0.061	0.40	0.87	113	330	4	3.8	0.9	9.81	158	30.6	27.4	8.3	6.54	0.98	0.05	0.71	0.6
15-30	8.6	7.7	0	0.092	0.57	0.52	137	221	5	4.8	1.3	10.6	219	30.1	33.2	8.6	5.83	1.98	0.32	0.44	3.7
30-54	7.9	7.2	0	0.038	0.35	0.11	49	45	0	2.0	0.4	0.88	134	3.41	1.35	1.9	1.29	0.42	0.09	0.13	na
54-70	8.3	7.4	0	0.212	1.15	0.55	66	392	48	38.6	1.3	1.15	65	0.28	0.81	24.9	14.3	6.58	2.97	1.00	11.9
70-95	8.2	7.2	0	0.271	1.73	0.29	10	267	84	75.3	1.0	0.96	32	5.58	0.41	16.8	8.80	4.53	2.73	0.69	16.3
95-150	8.0	7.2	0	0.300	2.52	0.19	2	198	170	75.4	1.4	0.78	20	4.61	0.42	13.7	5.96	4.66	2.58	0.51	18.8

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.