

SANDY LOAM OVER SODIC GREY CLAY

General Description: *Sandy loam surface soil, paler coloured and gravelly at base, overlying yellow brown, grey brown and red mottled clay subsoil, grading to micaceous sandstone or schist*

Landform: Slopes of undulating to rolling low hills of the north eastern Mt. Lofty Ranges

Substrate: Micaceous sandstone or mica schist of the Backstairs Passage Formation

Vegetation: Red gum woodland



Type Site: Site No.: CH036

1:50,000 sheet:	6728-4 (Angaston)	Hundred:	Moorooroo
Annual rainfall:	600 mm	Sampling date:	11/12/92
Landform:	Upper slope of undulating low hills, slope 8%		
Surface:	Firm with 2% metasandstone outcrop		

Soil Description:

Depth (cm)	Description
0-10	Very dark grey soft sandy loam with weak granular structure. Gradual to:
10-35	Very dark grey soft massive loamy sand. Clear to:
35-55	White massive clayey sand with brown mottles and 10% quartz gravel. Clear to:
55-80	Dark greyish brown, dark yellowish brown and red mottled heavy clay with strong polyhedral structure, and dark brown coatings on surfaces of the aggregates. Diffuse to:
80-100	Dark yellowish brown, dark greyish brown and orange mottled silty light clay, with strong polyhedral structure. Clear to:
100-135	Weathering micaceous sandstone.



Classification: Magnesian, Mottled-Subnatric, Grey Sodosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage	Moderately well to imperfectly drained. The soil may remain wet for a week to several weeks.
Fertility	Moderate natural fertility. Exchangeable cations are marginally deficient in the surface soil, although in satisfactory proportions. However in the subsoil, the exchange complex is dominated by magnesium and sodium, with calcium levels extremely low. Copper, manganese and boron also appear to be deficient.
pH	Acidic throughout. Lime is required for pH correction.
Rooting depth	100 cm in pit. Few roots below 35 cm.
Barriers to root growth	
Physical:	Sodic clay subsoil and associated temporary waterlogging affect root penetration.
Chemical:	Fertility is marginal. Magnesium and sodium saturation of the clay reduce subsoil fertility and may reduce root growth.
Water holding capacity	110 mm in rootzone (high), but up to half may be effectively unavailable due to poor root distribution.
Seedling emergence	Good, provided that organic matter levels are not depleted.
Workability	Good.
Erosion Potential	
Water:	Moderate (8% slope).
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	5.6	5.1	0	0.06	-	1.5	26	330	-	0.4	0.31	308	9.78	2.25	5.3	3.74	0.96	0.13	0.33	2.5
0-10	5.5	4.8	0	0.03	0.13	1.3	18	200	-	0.4	-	-	-	-	4.7	2.99	0.92	0.16	0.22	3.4
10-35	5.7	4.9	0	0.03	0.11	0.50	10	310	-	0.3	-	-	-	-	3.5	2.18	0.99	0.13	0.23	3.7
35-55	6.2	5.5	0	0.03	0.13	0.06	4	630	-	0.1	-	-	-	-	2.4	0.98	1.31	0.18	0.12	7.5
55-80	5.7	4.8	0	0.11	0.30	0.31	<2	590	-	0.8	-	-	-	-	20.2	0.47	16.6	2.44	0.71	12.1
80-100	5.9	4.8	0	0.11	0.35	0.18	<2	450	-	0.3	-	-	-	-	16.9	0.33	15.9	3.85	0.55	22.8
100-135	6.2	4.9	0	0.06	0.42	<0.01	<2	330	-	0.1	-	-	-	-	5.6	0.14	5.07	2.44	0.13	43.6

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

CEC (cation exchange capacity) is 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.