LOAM OVER BROWN CLAY

General Description: *Dark brown loamy surface soil, paler coloured or bleached at base, overlying a brown, yellow and red mottled clay developing in deeply weathered fine grained metamorphic rock*

Landform: Slopes of undulating to rolling low hills in the Central and Northern Mt. Lofty Ranges

Substrate: Phyllites, metasiltstones and low grade schists of the Saddleworth, Balhannah and Tapley Hill Formations

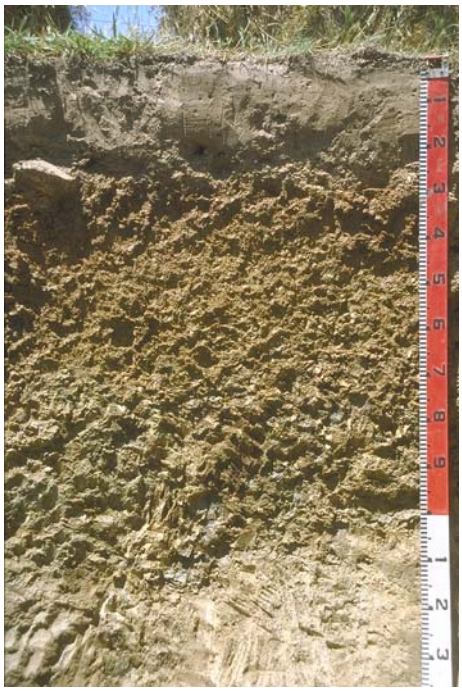
Vegetation: Red gum - blue gum woodland

Type Site:

Site No.:	CH044		
1:50,000 sheet:	6628-2 (Onkaparinga)	Hundred:	Talunga
Annual rainfall:	875 mm	Sampling date:	14/01/93
Landform:	Lower slope of an undulating low hill, 10% slope		
Surface:	Hard setting with no stone		

Soil Description:

Depth (cm)	*Description*
0-20	Dark greyish brown massive loam with 10% quartz gravel. Clear to:
20-30	Pale brown massive fine sandy loam with 10% quartz, phyllite and ironstone gravel. Clear to:
30-40	Dark yellowish brown and red mottled heavy clay with coarse prismatic structure, breaking to polyhedral. Clear to:
40-65	Yellowish brown and dark brown heavy clay with coarse prismatic structure, breaking to polyhedral. Gradual to:
65-110	Greyish brown and yellowish brown heavy clay with slickensides. Gradual to:
110-150	Weathering phyllite of the Balhannah Formation.



Classification: Vertic, Eutrophic, Brown Kurosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. The soil may remain wet for a week or so, due to water perching on top of the clay subsoil.

Fertility Inherent fertility is moderately high, as indicated by the exchangeable cation data. The lower figures for the surface layers reflect the lower clay contents and relatively low organic carbon levels. Acidification has reduced the soil's capacity to retain nutrient elements. Phosphorus, potassium and trace element levels are satisfactory, but calcium, magnesium and boron are deficient. Grass tetany in cattle, caused by magnesium - potassium imbalance, is likely.

pH Strongly acidic at the surface, acidic with depth. Dolomitic lime is needed for pH correction.

Rooting depth 110 cm in pit, but there are few roots below 65 cm.

Barriers to root growth

Physical: The firm clay subsoil may present a physical barrier to root extension.

Chemical: Acidity is the only apparent chemical barrier. Acidity reduces nitrogen fixing capacity, induces aluminium toxicity and causes nutrients to be lost by leaching.

Water holding capacity 150 mm in rootzone, but up to a third may be effectively unavailable due to poor root distribution.

Seedling emergence Fair to good. Soil tends to seal over after rain if organic carbon levels fall too far.

Workability Fair to good. Soil will shatter if worked too dry and puddle if worked too wet.

Erosion Potential

Water: Moderate (10% slope).

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	$CaCO_3$ %	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	4.6	4.3	0	0.13	0.72	2.2	34	340	-	0.4	2.90	460	100	6.22	6.8	3.54	0.90	0.10	0.64	1.5
0-20	4.8	4.2	0	0.07	0.31	1.5	26	360	-	0.5	-	-	-	-	5.8	2.08	0.66	0.13	0.73	2.2
20-30	4.9	4.2	0	0.03	0.11	0.21	6	240	-	0.3	-	-	-	-	6.2	3.66	1.90	0.16	0.32	2.6
30-40	5.0	4.5	0	0.07	0.12	0.50	3	350	-	1.3	-	-	-	-	25.0	12.4	13.2	0.27	0.90	1.1
40-65	5.3	4.9	0	0.09	0.12	0.35	3	480	-	1.3	-	-	-	-	28.4	14.6	25.5	0.28	1.12	1.0
65-110	6.2	5.7	0	0.08	0.14	0.21	3	590	-	0.6	-	-	-	-	26.1	11.1	25.5	0.31	1.04	1.2

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.