ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

General Description: *Thin sandy to loamy surface soil overlying a yellowish or brownish clay grading to weathering micaceous sandstone.*

Landform: Slopes of undulating to rolling low hills

Substrate: Weathering micaceous sandstone of the Backstairs Passage Formation in the southern Mount Lofty Ranges

Vegetation: Eucalyptus baxteri / Euc. fasciculosa scrub

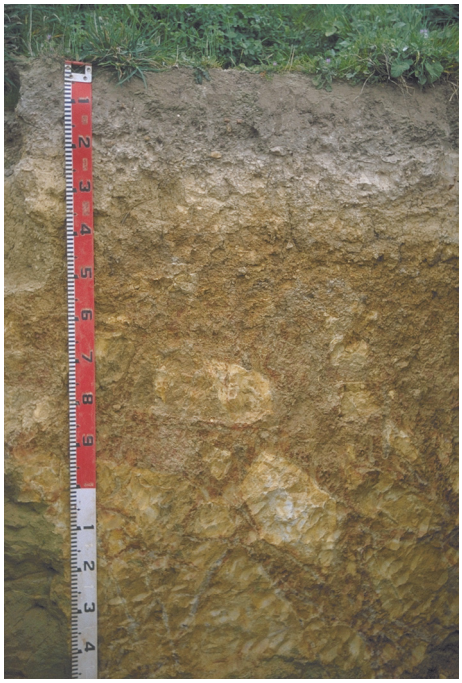
Type Site:

Site No.:	CH017	1:50,000 mapsheet:	6627-3 (Willunga)
Hundred:	Goolwa	Easting:	285500
Section:	133	Northing:	6074700
Sampling date:	29/07/92	Annual Rainfall:	805 mm average

Lower slope of undulating low hills, slope 8%. Firm surface with trace of sandstone.

Soil Description:

Depth (cm)	*Description*
0-13	Brown light sandy loam with weak granular structure and 10% quartz and metasandstone gravel. Abrupt to:
13-30	White massive sandy loam with 20-50% metasandstone gravel. Clear to:
30-42	Yellowish brown weakly structured light clay. Clear to:
42-56	Yellowish brown and red medium clay with strong polyhedral structure. Clear to:
56-78	Yellow, red and light brown light clay with moderate polyhedral structure and 10% weathering rock fragments. Gradual to:
78-115	Yellowish brown, red and light brown weakly structured fine sandy clay loam with 50% weathering rock fragments. Gradual to:
115-180	Soft weathering micaceous sandstone



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

Summary of Properties

Drainage: Well drained. Soil is unlikely to remain wet for more than a few days.

Fertility: Natural fertility is moderately low, as indicated by the exchangeable cation data. There are deficiencies of phosphorus, sulphur and possibly copper, zinc and manganese. Cation ratios are good, but absolute values are low. Nutrient retention capacity is low, caused by acidification weakening the exchange complex.

pH: Acidic throughout. Dolomitic lime is needed to correct the problem.

Rooting depth: 78 cm at type site, but density from 56 cm is low.

Barriers to root growth:

Physical: None.

Chemical: Low natural fertility accentuated by acidity. Apart from possible aluminium toxicity caused by the acidity, there are no other potential problems.

Waterholding capacity: 100 mm in rootzone, but only about 70 mm is effectively available because of poor root density.

Seedling emergence: Good to fair. Surface compaction is a risk, especially if organic matter levels fall.

Workability: Good, provided that surface structure is maintained.

Erosion Potential:

Water: Moderate due to the 8% slope.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	5.5	4.8	0	0.08	-	2.9	9	170	6.5	0.7	0.3	116	2.6	0.9	6.5	3.7	1.1	0.10	0.31	1.5	2
											*0.6	*154	*4.6	*1.3							
0-13	5.2	4.5	0	0.06	-	3.1	9	190	5.9	0.9	0.3	141	1.1	0.4	6.7	2.8	1.1	0.11	0.33	1.6	2
13-30	5.0	4.4	0	0.04	-	0.5	2	57	2.6	0.5	0.3	147	0.1	0.2	3.0	0.5	0.4	0.12	0.09	na	6
30-42	5.1	4.4	0	0.05	-	0.5	<2	58	3.7	0.8	0.1	45	<0.1	0.1	5.1	0.8	1.4	0.40	0.13	5.9	5
42-56	5.0	4.6	0	0.06	-	0.5	<2	120	23	1.2	<0.1	8	<0.1	<0.1	9.8	1.1	6.2	0.26	0.28	2.7	1
56-78	5.5	5.2	0	0.05	-	0.1	<2	220	44	1.8	<0.1	3	<0.1	<0.1	10.7	0.5	9.0	0.33	0.61	3.1	<1
78-115	5.4	5.0	0	0.04	-	<0.1	<2	170	27	1.2	<0.1	4	<0.1	<0.1	7.9	<0.4	5.4	0.23	0.39	2.9	<1
115-180	5.1	4.4	0	0.04	-	<0.1	<2	68	9.8	0.4	<0.1	5	<0.1	<0.1	2.4	<0.4	1.5	0.11	0.06	na	2

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
* EDTA trace element analyses for "paddock" sample.
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.

Further information: DEWNR Soil and Land Program