ACIDIC SANDY LOAM OVER RED CLAY ON ROCK

General Description: *Brown sandy loam to loam with a bleached A2 horizon overlying a red and brown mottled clay subsoil grading to weathering medium to fine grained metamorphosed rock within 150 cm*

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

Substrate: Metamorphosed fine sandstone or siltstone

Vegetation: Blue gum woodland

Type Site: Site No.: CH062

1:50,000 sheet:	6627-1 (Echunga)	Hundred:	Macclesfield
Annual rainfall:	700 mm	Sampling date:	17/03/94
Landform:	Midslope of rolling low hills, 10% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-18	Dark greyish brown massive sandy loam. Clear to:
18-30	Very pale brown light sandy loam with more than 50% sandstone gravel. Abrupt to:
30-45	Red, brown and yellowish brown mottled medium heavy clay with strong very coarse prismatic structure. Gradual to:
45-70	Red, dark brown and olive brown mottled medium clay with strong very coarse prismatic structure. Gradual to:
70-100	Red, olive brown and yellow mottled medium clay with strong very coarse prismatic structure. Clear to:
100-140	Weathering metamorphosed sandstone with 50% red, brown and grey blocky light medium clay in rock fissures.

Classification: Bleached-Sodic, Eutrophic, Red Chromosol; thick, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well to imperfectly drained. A perched water table will develop above the clay layer in most years, causing waterlogging for a week to several weeks at a time.

Fertility The subsoil clay has a moderately high capacity to store and supply nutrients but the low clay content surface soil relies on high organic matter content to maintain fertility. Organic carbon levels are moderate. Phosphorus is low. Calcium, magnesium and sulphur are marginal. Potassium is adequate, but should be monitored.

pH Acidic at the surface, neutral with depth. Lime is required to correct surface acidity.

Rooting depth 140 cm in pit, but few roots below 100 cm.

Barriers to root growth

Physical: Waterlogging on clay layer stunts root growth resulting in insufficient root volume to exploit subsoil moisture and nutrient reserves.

Chemical: There are no chemical barriers (salt or boron), although aluminium toxicity (currently sufficient to affect sensitive species) may become a problem if acidification develops further.

Water holding capacity 130 mm in root zone, but a proportion is unavailable due to low root densities.

Seedling emergence Fair to good.

Workability Fair to good. Poor structure limits cultivation opportunities to a degree.

Erosion Potential

Water: Moderately high.

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	Ext Al mg/kg
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
Paddock	5.4	4.6	0	0.06	0.49	1.7	15	131	6.2	0.6	1.5	630	23	2.2	7.4	3.39	0.55	0.19	0.28	2.6	3
											*0.5	*278	*8.6	*1.6							
0-18	5.4	4.5	0	0.05	0.38	1.7	13	132	4.9	0.6	1.3	710	20	1.9	6.6	2.62	0.50	0.20	0.32	3.0	4
18-30	5.1	4.3	0	0.02	0.24	0.7	8	111	2.3	0.7	0.6	280	17	0.43	3.5	0.93	0.26	0.16	0.16	na	6
30-45	5.7	4.8	0	0.05	0.38	1.0	<4	312	5.1	2.7	3.1	160	36	0.27	17.7	7.33	4.72	0.48	1.30	2.7	<1
45-70	6.2	5.5	0	0.06	0.24	0.5	5	313	-	3.1	-	-	-	-	18.3	7.45	6.14	0.51	1.23	2.8	-
70-100	7.0	6.1	0	0.05	0.26	0.3	<4	197	-	2.4	-	-	-	-	13.0	5.03	5.41	0.57	0.60	4.4	-
100-140	7.1	6.1	0	0.06	0.44	0.1	<4	238	-	1.8	-	-	-	-	10.0	3.66	4.60	0.73	0.41	7.3	-

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

* DTPA 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.