ACIDIC LOAMY SAND OVER BROWN CLAY ON ROCK

General Description: *Sandy surface soil with variable quartz and sandstone gravel, overlying a brown, yellow and red sandy clay subsoil grading to weathering micaceous sandstone within one metre.*

Landform: Slopes of undulating to rolling low hills of the north-eastern Mount Lofty Ranges

Substrate: Weathering micaceous sandstone of the Backstairs Passage Formation

Vegetation: Woodland of blue gum and sheoak

Type Site:

Site No.:	CH028		
1:50,000 sheet:	6728-3 (Tepko)	Hundred:	Tungkillo
Annual rainfall:	600 mm	Sampling date:	12/01/93
Landform:	Upper slope of undulating low hills, 8% slope		
Surface:	Firm with minor outcrop of metasandstone		

Soil Description:

Depth (cm)	*Description*
0-10	Dark greyish brown loamy sand. Clear to:
10-30	Very pale brown massive loamy sand with 10% quartz and metasandstone gravel and stones. Abrupt to:
30-50	Dark brown, yellowish brown and dark red fine sandy light clay with strong coarse prismatic structure and 10% quartz gravel. Gradual to:
50-70	Dark brown, yellowish brown and dark red sandy light clay with weak coarse prismatic structure and 50% weathering rock fragments. Gradual to:
70-140	Weathering micaceous sandstone with 20% sandy clay in fissures.

Classification: Bleached-Sodic, Eutrophic, Brown Chromosol; thick, slightly gravelly, sandy / clayey, moderate

Summary of Properties

Drainage Moderately well drained. The soil is unlikely to remain wet for more than a week or so.

Fertility Moderate natural fertility, as indicated by the relatively low cation exchange capacity in the upper subsoil. Exchangeable magnesium and potassium values are low, and the calcium / magnesium ratio is too high. Phosphorus and copper are low.

pH Slightly acidic at surface, neutral with depth, but acidic in weathering rock.

Rooting depth 120 cm in pit, but few roots below 70 cm.

Barriers to root growth

Physical: High clay strength, and poor structure of surface soil may restrict root development.

Chemical: Sub-optimal subsoil fertility is the main constraint.

Water holding capacity 90 mm in rootzone (moderate).

Seedling emergence Good, except where water repellent, or where surface structure has deteriorated due to organic matter decline.

Workability Good, except where rock outcrop and surface stone are significant. These soils are commonly associated with rock and stone.

Erosion Potential

Water: Moderate to moderately high.

Wind: Moderately 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	6.5	6.2	0	0.09	0.37	2.7	16	200	-	1.3	0.75	139	42	7.1	11.3	11.6	1.67	0.18	0.37	1.6
0-10	6.3	5.9	0	0.05	0.25	2.1	19	130	-	0.8	-	-	-	-	7.9	9.17	1.10	0.13	0.14	1.6
10-30	6.4	6.2	0	0.03	0.21	0.26	10	130	-	0.4	-	-	-	-	2.1	2.17	0.51	0.15	0.13	na
30-50	7.3	6.9	0	0.11	0.33	0.22	3	290	-	1.2	-	-	-	-	7.6	4.79	3.70	0.42	0.53	5.5
50-70	7.2	6.5	0	0.10	0.41	0.17	3	280	-	1.5	-	-	-	-	7.7	2.67	4.83	0.73	0.43	9.5
70-140	5.7	4.7	0	0.09	0.88	0.05	3	120	-	0.6	-	-	-	-	2.6	0.50	1.87	0.59	0.04	n.s.

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.