

ACIDIC SANDY LOAM OVER BROWN CLAY ON ROCK

General Description: *Sandy to loamy surface soil overlying brown, yellow and red clay subsoil grading to weathering metamorphosed sandstone or schist.*

Landform: Slopes of undulating low hills in the northern Mount Lofty Ranges

Substrate: Metamorphosed sandstones or schists of the Backstairs Passage Formation

Vegetation: Eucalyptus camaldulensis / E. leucoxydon woodland



Type Site:	Site No.:	CH027	1:50,000 mapsheet:	6728-3 (Tepko)
	Hundred:	Tungkillo	Easting:	317750
	Section:	37	Northing:	6142950
	Sampling date:	16/10/92	Annual rainfall:	775 mm average

Upper slope of undulating low hills, 9% slope. Soft surface with no stones.

Soil Description:

Depth (cm)	Description
0-10	Dark brown soft sandy loam. Clear to:
10-20	Greyish brown soft loamy sand. Clear to:
20-31	Light brownish grey soft loamy sand with 15% sandstone gravel. Sharp to:
31-50	Yellowish brown, olive brown and red medium heavy clay, with strong prismatic structure and 10% sandstone gravel. Gradual to:
50-75	Yellowish brown, light brown and red medium heavy clay, with strong prismatic structure. Diffuse to:
75-110	Pale yellow, yellowish brown and red light medium clay, with moderate prismatic structure. Diffuse to:
110-120	Weathering metasandstone.



Classification: Bleached-Mottled, Eutrophic, Brown Chromosol; thick, non-gravelly, loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well to imperfectly drained. The clay subsoil may prevent adequate downward movement of water and the soil may remain wet for several weeks.
- Fertility:** The soil has moderate inherent fertility, as indicated by the sub-optimal exchangeable cation values. Calcium, magnesium and potassium are all marginally deficient, and there is a disproportionately high amount of magnesium in the lower part of the profile. Phosphorus is low, and copper may also be deficient.
- pH:** Slightly acidic to acidic throughout. Lime is required to correct the problem.
- Rooting depth:** 75 cm at type site, although there are few roots below 50 cm.
- Barriers to root growth:**
- Physical:** Waterlogging in the layer immediately above the clay retards root development. If this layer dries too quickly in spring, roots may be unable to extend through it to exploit subsoil moisture.
 - Chemical:** Provided that acidity does not develop and surface organic matter levels are maintained, there are no chemical barriers to root growth. Where these soils have thick pale coloured layers above the clay, root growth is restricted.
- Waterholding capacity:** 90 mm at type site, but 15 mm is unavailable due to low root density.
- Seedling emergence:** Good.
- Workability:** Good.
- Erosion Potential:**
- Water:** Moderately high due to the high erodibility of the soil and the slope.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	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		
0-10	5.6	5.0	0	0.08	0.38	2.8	14	159	-	1.6	0.2	285	18.7	4.7	5.2	4.1	1.36	0.21	0.28	4.0	<1
10-20	5.6	5.0	0	0.05	0.20	0.5	14	131	-	0.4	0.1	149	5.7	0.4	2.1	1.2	0.60	0.21	0.19	na	<1
20-31	5.5	4.8	0	0.05	0.30	0.3	6	104	-	1.1	<0.1	108	1.8	0.2	1.7	0.8	0.68	0.22	0.23	na	<1
31-50	6.0	5.5	0	0.09	0.27	0.5	<4	398	-	2.5	0.2	16	0.2	0.1	17.0	3.1	11.5	0.68	1.00	4.0	<1
50-75	5.8	5.4	0	0.09	0.25	0.3	<4	281	-	2.3	0.2	8	<0.1	0.1	17.3	2.3	11.3	0.65	0.68	3.8	<1
75-110	5.6	5.2	0	0.09	0.35	0.1	<4	157	-	1.6	0.3	5	<0.1	0.1	13.2	1.3	10.3	0.61	0.35	4.6	<1

Note: 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](#)

