

## ACIDIC LOAM OVER RED CLAY ON ROCK

**General Description:** *Sandy loam to loam surface soil with an (ironstone) gravelly A2 horizon, overlying a red and brown friable clay subsoil forming in weathering medium to coarse grained metamorphic rock*

**Landform:** Slopes of rises and low hills in the central and northern Mt. Lofty Ranges

**Substrate:** Metamorphosed medium to fine grained sandstones.

**Vegetation:** Blue gum, pink gum and sheoak woodland



**Type Site:** Site No.: CH065

1:50,000 sheet:	6628-2 (Onkaparinga)	Hundred:	Onkaparinga
Annual rainfall:	825 mm	Sampling date:	17/03/94
Landform:	Footslope of low hill, 8% slope		
Surface:	Firm with minor ironstone		

### Soil Description:

Depth (cm)	Description
0-10	Dark brown loam with strong granular structure. Clear to:
10-18	Brown (bleached when dry) massive sandy loam with 10-20% ironstone gravel. Abrupt to:
18-40	Red and yellow heavy clay with strong coarse prismatic structure. Gradual to:
40-75	Yellow, red and light brown mottled medium clay with strong blocky structure. Gradual to:
75-110	Light grey, reddish yellow and red medium clay with moderate polyhedral structure (kaolinized fine sandstone).



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

## Summary of Properties

**Drainage:** Moderately well drained. The soil may suffer temporary waterlogging from a perched water table lying on the clay subsoil.

**Chemical fertility:** The nutrient holding capacity of the soil is moderate at the surface (due to organic matter), low in the pale coloured subsurface layer and high in the clay subsoil. Phosphorus and copper are low, potassium and magnesium are marginal. Organic matter levels (and therefore nitrogen reserves) are satisfactory.

**pH:** Acidic throughout. Surface pH is sufficiently low to warrant correction with dolomite.

**Rooting depth:** 110 cm in pit but there are few roots below 40 cm.

### Barriers to root growth

**Physical:** There are no apparent physical barriers.

**Chemical:** Generally low nutrient levels and acidity are the most likely causes of poor root densities below 40 cm. There is marginal aluminium toxicity.

**Water holding capacity:** 150 mm in root zone, but over half of this may be effectively unavailable due to low root densities.

**Seedling emergence:** Fair to good.

**Workability:** Fair to good.

**Erosion Potential:** Water erosion potential is moderate, due to the slope and potential for run-on from upslope. Wind erosion potential is low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CaCO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -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	5.0	4.4	0	0.11	0.97	3.6	12	102	-	0.8	0.80	970	24	3.8	9.8	5.16	1.02	0.14	0.30	1.4	6	
											*0.3	*328	*15	*2.9								
0-10	5.8	5.3	0	0.20	1.32	7.8	35	937	-	1.6	2.2	800	100	100	22.8	15.29	5.07	0.21	1.52	0.9	7	
10-18	5.6	4.7	0	0.03	0.27	0.7	5	755	-	0.6	0.35	190	3.3	9.5	4.7	1.87	0.79	0.18	0.23	3.8	<1	
18-40	6.1	5.3	0	0.07	0.76	0.6	6	779	-	1.6	0.59	82	1.3	24	13.3	4.77	6.22	0.43	1.20	3.2	<1	
40-75	5.8	5.2	0	0.12	0.62	0.4	5	477	-	1.9	-	-	-	-	15.2	3.82	8.93	0.64	1.19	4.2	<1	
75-110	5.4	4.9	0	0.12	0.64	0.2	<4	91	-	1.2	-	-	-	-	9.5	2.10	6.22	0.65	0.29	6.8	<1	

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

\* DTPA trace element analyses for "paddock" sample.

The analyses of the paddock and 0-10 cm sample from the pit are highly variable due to the pit being located on a fence line. These variations highlight the differences between farmed and unfarmed land.

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.