

THICK LOAM OVER BROWN CLAY

General Description: *Thick loamy surface soil with variable gravel, over a brown mottled clayey subsoil grading to alluvium*

Landform: Creek flats between rolling to steep low hills

Substrate: Medium to fine grained alluvium derived from adjacent hillslopes

Vegetation: Eucalyptus ovata woodland



Type Site: Site No.: CH126
 1:50,000 sheet: 6628-2 (Onkaparinga) Hundred: Onkaparinga
 Annual rainfall: 950 mm Sampling date: 02/11/00
 Landform: Narrow footslope between a moderately steep hillslope and a creek flat
 Surface: Firm, with 45 cm of recent sediment overlying the original soil surface

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-25	Dark brown firm massive loam with 10-20% siltstone fragments (20-60 mm). Clear to:
25-45	Dark reddish brown massive loam with 10-20% siltstone fragments (20-60 mm). Clear to:
-----Original soil surface-----	
45-65	Very dark greyish brown firm loam with weak granular structure. Gradual to:
65-80	Brown firm massive clay loam. Clear to:
80-140	Dark greyish brown, dark yellowish brown and yellowish red mottled firm heavy clay with strong medium polyhedral structure. Gradual to:
140-160	Yellowish brown and dark yellowish brown mottled friable medium clay with 20-50% siltstone and quartz fragments (20-200 mm). Water table at 150 cm.



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

Summary of Properties

Drainage: Imperfectly drained. Water perches on subsoil clay for weeks at a time, but the layer is sufficiently deep (because of the overlying sediment), that near surface effects are unlikely.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. At the sampling site potassium and sulphur levels are low. Calcium : magnesium ratio is also slightly low for optimum apple quality. Organic carbon levels are high.

pH: Slightly acidic throughout.

Rooting depth: 140 cm in pit, but few roots below 80 cm. Most activity is in the upper 25 cm.

Barriers to root growth:

Physical: There are no significant barriers to root growth above the clayey subsoil. This presents a minor impediment.

Chemical: There are no chemical barriers

Water holding capacity: Approximately 170 mm (total available), and approximately 75 mm (readily available).

Seedling emergence: Satisfactory (for cover crops).

Workability: Satisfactory

Erosion Potential

Water: Moderate (due to run on from adjacent slope).

Wind: Low

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	Cl mg/kg	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		
Orchard	7.0	6.1	0	0.07	11	3.2	68	233	6.7	1.2	65.5	361	41.1	14.7	-	15.21	3.45	0.43	0.55	-	ns
0-25	6.3	5.2	0	0.06	8	3.8	56	287	5.7	1.2	69.9	464	37.0	23.1	-	11.02	2.42	0.67	0.64	-	1.2
25-45	6.4	5.3	0	0.06	10	2.8	45	366	9.0	1.2	40.6	288	11.7	0.2	-	8.97	2.29	0.73	0.94	-	0.6
45-65	6.1	5.0	0	0.07	20	2.8	20	324	16.8	1.4	4.0	437	3.4	0.7	-	7.69	2.71	0.69	0.80	-	1.0
65-80	6.2	5.9	0	0.08	48	1.2	5	158	19.9	0.9	2.4	206	2.6	0.4	-	5.27	3.45	0.62	0.40	-	0.4
80-140	6.2	5.5	0	0.11	46	0.7	5	154	41.1	0.4	2.6	75	7.9	0.3	-	4.40	8.62	0.75	0.35	-	0.4

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