LOAM OVER RED CLAY ON ROCK

General Description: *Loamy to clay loamy surface soil overlying red clay forming in weathering schist rock*

Landform: Undulating to rolling low hillslopes of the Fleurieu Peninsula and the South Coast.

Substrate: Weathering schists of the Tunkalilla Formation (a member of the Kanmantoo Group).

Vegetation: Blue gum woodland.

Type Site: Site No.: CH022

1:50,000 sheet:	6526-1 (Torrens Vale)	Hundred:	Waitpinga
Annual rainfall:	700 mm	Sampling date:	31/07/92
Landform:	Upper slope in a landform of rolling low hills, slope 14%		
Surface:	Hard setting when dry, no stones		

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown strongly granular clay loam. Clear to:
15-25	Light reddish brown clay loam with up to 10% quartz gravel. Abrupt to:
25-45	Dark red and brown mottled heavy clay with strong blocky structure. Gradual to:
45-70	Brown and yellowish red mottled medium heavy clay with weak blocky structure and fragments of very soft weathered schist rock. Gradual to:
70-160	Soft weathering dark grey schist bedrock.

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

Summary of Properties

Drainage Moderately well drained: the heavy clay subsoil is dispersive and does not allow free movement of water. Some layers may remain wet for a week or so at a time.

Fertility High natural fertility, as indicated by high exchangeable cations in the clay layer. Note the significantly lower values in the topsoil, due in part to the lower pH at the surface. Test results indicate low phosphorus and marginally low calcium, copper and zinc.

pH Acidic in the surface, grading to alkaline in the deeper subsoil. Acidity should be corrected by the application of lime which will also rectify the low calcium / magnesium ratio.

Rooting depth 70 cm at type site, but very few roots below 45 cm.

Barriers to root growth

Physical: The only apparent barrier to root growth is the clay subsoil which may restrict root development as it dries and becomes hard. This is only likely to be a problem in quick, early finishes, particularly after a wet winter.

Chemical: None apparent. Salt and toxic elements are low.

Water holding capacity 110 mm in rootzone (high). Some of this (in the subsoil) may be effectively unavailable if there are insufficient roots to take up the water.

Seedling emergence Fair to good, provided that organic matter levels are maintained, otherwise surface sealing and patchy emergence are likely. Gypsum may be of some value.

Workability Fair to good. Structure damage is likely unless organic matter levels are maintained. Some of this land is too steep for contour working.

Erosion Potential

Water: High. Moderate slope and low subsoil permeability leads to high runoff.

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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	5.3	4.7	0	0.10	0.38	3.8	15	270	-	0.9	0.9	465	21.9	1.2	10.8	5.9	2.5	0.30	0.40	2.8
											*1.3	*540	*52	*1.7						
0-15	5.3	4.8	0	0.12	0.63	5.6	14	330	-	1.2	1.1	428	30.6	1.5	14.8	9.7	3.7	0.26	0.56	1.8
15-25	5.6	4.9	0	0.06	0.19	1.8	2	240	-	1.1	0.9	139	11.3	0.3	13.4	7.5	3.7	0.30	0.45	2.2
25-45	6.3	5.5	0	0.07	0.13	0.8	<2	480	-	2.3	0.8	38	0.6	0.2	27.0	11.7	10.8	0.70	1.16	2.6
45-70	7.2	6.6	0	0.09	0.27	0.2	<2	360	-	2.1	0.4	18	0.2	0.1	17.8	8.2	9.2	0.96	0.62	5.4
70-160	7.8	7.0	<0.1	0.10	0.45	0.1	<2	280	-	1.1	1.8	10	<0.1	0.2	7.2	3.3	3.5	1.10	0.32	15.3

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

* EDTA 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.