SILTY LOAM OVER BROWN CLAY

General Description: *Hard loamy surface with a bleached A2 horizon over a grey or brown mottled blocky structured clayey subsoil*

Landform: Lower slopes and flats

Substrate: Alluvial clay

Vegetation: Red gum woodland

Type Site: Site No.: CH081

1:50,000 sheet:	6627-4 (Noarlunga)	Hundred:	Willunga
Annual rainfall:	625 mm	Sampling date:	30/05/95
Landform:	Creek flat, 1% slope		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-15	Dark grey weakly structured silty loam. Abrupt to:
15-28	Pale grey and rusty brown mottled weakly structured silty clay loam. Abrupt to:
28-55	Grey and dark brown mottled medium clay with strong blocky structure. Clear to:
55-90	Brown, grey and red mottled medium clay with strong blocky structure, and up to 10% manganese coatings. Diffuse to:
90-140	Dark reddish brown and dark greyish brown mottled medium clay with strong blocky structure.
140	Water table.

Classification: Bleached-Sodic, Eutrophic, Grey Chromosol; medium, non-gravelly, silty / clayey, deep

Summary of Properties

Drainage Imperfect drainage is caused by two factors. Firstly, the site is low lying and accumulates substantial runoff water from adjacent rising ground. Secondly, the slowly permeable subsoil clay prevents downward movement of water causing a "perched" water table to develop in the pale grey mottled subsurface layer. The soil may remain saturated for several weeks after heavy rain. Sub-optimal irrigation practices can also cause waterlogging.

Fertility Natural fertility is moderate, leaching of the upper layers of soil having resulted in loss of nutrient elements. The subsoil has low nutrient status, due to the type of clay. At the sampling site phosphorus levels are extremely high and potassium, sulphur, calcium, magnesium and trace elements are all adequate. Note however that all of these elements are deficient in the bleached subsurface layer.

pH Neutral at the surface, slightly acidic with depth.

Rooting depth 140 cm in pit, but few roots below 55 cm.

Barriers to root growth

Physical: The poorly structured upper layers and coarsely structured subsoil layers set very hard if allowed to dry out too much, thus restricting root proliferation. Waterlogging will also damage root systems.

Chemical: Salt, boron and exchangeable sodium levels are all acceptably low.

Water holding capacity Approximately 60 mm in the root zone, of which about 40 mm is readily available.

Workability Fair to poor, as the surface soil has a narrow moisture range between being too wet and too dry.

Erosion Potential Low.

Laboratory Data

Depth cm	Particle size analysis				pH H_2O	pH $CaC1_2$	CO_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	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
	Coarse sand	Fine sand	Silt	Clay												Ca	Mg	Na	K	
Row	-	-	-	-	7.0	6.5	0	0.10	0.67	2.8	207	362	15	1.7	11.9	9.81	2.45	0.36	1.05	3.0
0-15	11	40	37	12	6.7	6.4	0	0.11	0.75	2.1	187	287	20	1.3	10.0	8.15	1.88	0.36	0.65	3.6
15-28	-	-	-	-	6.9	6.6	0	0.07	0.48	0.6	6	119	15	0.8	7.1	4.16	1.65	0.31	0.27	4.3
28-55	3	35	25	37	6.8	6.4	0	0.09	0.45	0.4	<4	129	25	1.0	11.1	5.40	4.47	0.55	0.40	5.0
55-90	-	-	-	-	6.1	5.6	0	0.13	0.68	0.3	<4	154	50	1.2	11.2	3.50	5.42	1.05	0.47	9.4
90-140	-	-	-	-	6.5	5.7	0	0.12	0.66	0.4	<4	162	46	1.4	13.1	3.62	6.38	1.59	0.55	12.1

Note: Row sample bulked from 20 cores (0-10 cm) taken from the tree/vine lines around the pit.

DTPA trace element analyses from row sample (mg/kg): Cu = 11.3, Zn = 10.2, Mn = 10.0.

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.