

SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: Grey massive loamy sand to sandy loam sharply overlying a brown mottled columnar to prismatic clay with variable carbonate at depth

Landform: Gently sloping alluvial fans and flats

Substrate: Alluvial heavy clay.

Vegetation: Blue gum - red gum woodland



Type Site:	Site No.:	CH092	1:50,000 mapsheet:	6627-4 (Noarlunga)
	Hundred:	Willunga	Easting:	280200
	Section:	460	Northing:	6098900
	Sampling date:	29/04/96	Annual rainfall:	610 mm average

Very gently inclined alluvial fan with a slope of 2%. Firm surface, no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-19	Dark greyish brown massive soft light sandy loam. Abrupt to:
19-37	Pale brown (bleached when dry), with yellowish mottles, massive loamy sand. Abrupt to:
37-65	Brown and orange mottled hard fine sandy medium heavy clay with coarse columnar structure. Clear to:
65-90	Brown, olive brown and yellow mottled hard heavy clay with coarse prismatic structure and slickensides. Clear to:
90-120	Olive brown, light brown and yellow mottled slightly calcareous heavy clay with coarse lenticular structure, slickensides and 2-10% soft carbonate segregations. Diffuse to:
120-160	Light brown, olive and yellow mottled slightly calcareous heavy clay with coarse lenticular structure and slickensides.



Classification: Vertic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, loamy / clayey, very deep



Summary of Properties

Drainage: Imperfectly drained. Water will perch on top of the dispersive clay subsoil, saturating the bleached layer for up to several weeks after prolonged rain.

Fertility: Natural fertility is moderate, the sandy surface relying on satisfactory organic matter levels for adequate nutrient retention capacity. All tested elements were in adequate supply, with the possible exception of calcium which is low relative to other cations.

pH: Neutral to mildly acidic at the surface; alkaline with depth.

Rooting depth: Few roots below 120 cm in pit.

Barriers to root growth:

Physical: The poorly structured dispersive clay subsoil retards uniform root growth. Most roots are confined to the cracks between the clay columns.

Chemical: High sodicity from 65 cm affects root growth.

Waterholding capacity: Approximately 120 mm in rootzone, but a significant proportion is effectively unavailable due to poor root distribution patterns. Readily available water capacity in potential rootzone for irrigated crops (i.e. 60 cm) is about 35 mm.

Seedling emergence: Good, provided that organic matter levels are maintained.

Workability: Good, provided that organic matter levels are maintained.

Erosion Potential:

Water: Moderately low.

Wind: Moderately 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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	7.0	6.6	0	0.18	2.08	1.1	86	260	14	0.8	17	245	92	12	6.2	4.60	2.15	0.29	0.56	4.6
0-19	6.1	5.5	0	0.07	0.72	1.2	234	231	7	0.6	-	-	-	-	6.4	4.79	1.21	0.16	0.45	2.5
19-37	6.5	6.1	0	0.12	2.28	0.2	80	98	16	0.1	-	-	-	-	2.3	1.51	0.62	0.12	0.11	5.1
37-65	6.4	5.6	0	0.16	0.74	0.5	7	195	19	1.6	-	-	-	-	21.8	10.1	8.64	1.85	0.58	8.5
65-90	8.4	7.7	0.6	0.37	1.44	0.3	4	165	25	3.1	-	-	-	-	24.7	11.1	9.51	3.48	0.42	14.1
90-120	9.0	8.2	3.2	0.43	1.43	0.2	4	165	38	4.0	-	-	-	-	27.1	12.2	10.5	4.83	0.48	17.8
120-160	8.5	7.7	0.1	0.47	1.65	0.1	<4	160	32	3.7	-	-	-	-	31.7	12.2	11.5	7.06	0.44	22.3

Note: Row sample bulked from 20 cores (0-10 cm) taken along planting lines.

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](#)

