

THICK SAND OVER CLAY

General Description: *Thick sand to sandy loam surface soil overlying a yellow, brown and grey mottled sandy clay to clay subsoil.*

Landform: Lower slopes and flats adjacent to rises and low hills in the ancient glacial valleys of the southern Mount Lofty Ranges

Substrate: Alluvium derived from the sand over clay soils of the adjacent rising ground

Vegetation: Woodland of Eucalyptus leucoxyton & E. ovata



Type Site:	Site No.:	CH024	1:50,000 mapsheet:	6627-3 (Willunga)
	Hundred:	Nangkita	Easting:	286500
	Section:	231	Northing:	6081900
	Sampling date:	14/10/92	Annual rainfall:	755 mm average

Upper slope of very gently inclined outwash fan, 2% slope. Soft surface with no stone.

Soil Description:

Depth (cm)	Description
0-13	Very dark grey soft loamy sand. Clear to:
13-35	Dark grey soft loamy sand. Gradual to:
35-46	White soft light loamy sand. Clear to:
46-55	Dark brown and pale brown soft sandy loam with 10% ortstein (cemented iron and organic matter) nodules. Clear to:
55-75	Brownish yellow, pale yellow and orange light clay with strong prismatic structure. Diffuse to:
75-120	Yellowish brown, light grey and orange fine sandy light clay with strong prismatic structure. Diffuse to:
120-150	Light grey clay loam with weak prismatic structure.



Classification: Bleached-Mottled, Mesotrophic, Yellow Kurosol; thick, non-gravelly, sandy / clayey, deep



Summary of Properties

Drainage:	Imperfectly to poorly drained, due to the slowly permeable subsoil clay and the position of the soil in the landscape. The profile may remain wet for several weeks to some months.
Fertility:	Natural fertility is low, as indicated by the exchangeable cation data, although nutrient status is reasonable. Magnesium is low relative to calcium, and manganese also appears to be low. Acidification will contribute to fertility reduction.
pH:	Slightly acidic at surface, strongly acidic at base. Applications of dolomite are needed.
Rooting depth:	120 cm at type site, but there are few roots below 75 cm.
Barriers to root growth:	
Physical:	Waterlogging in 35 to 55 cm layer. This layer may dry rapidly in spring preventing root growth into the clay.
Chemical:	Low fertility.
Waterholding capacity:	140 cm in rootzone, but 30 - 40 mm is unavailable due to low root density.
Seedling emergence:	Good.
Workability:	Good.
Erosion Potential:	
Water:	Low.
Wind:	Low to 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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-13	6.5	6.2	0	0.10	0.52	2.5	58	182	-	0.9	0.9	67	3.4	5.2	6.3	6.65	0.91	0.12	0.38	1.9
13-35	6.6	6.2	0	0.04	0.25	0.3	10	48	-	0.5	<0.1	9	<0.1	0.1	0.6	0.90	0.12	0.13	0.12	na
35-46	6.6	6.3	0	0.04	0.41	0.1	6	55	-	0.4	<0.1	7	<0.1	0.1	0.6	0.52	0.08	0.12	0.08	na
46-55	5.9	5.4	0	0.09	0.47	0.8	224	204	-	0.5	0.4	196	<0.1	0.2	3.4	3.63	0.55	0.10	0.44	na
55-75	5.0	4.3	0	0.09	0.50	0.6	5	355	-	1.9	0.4	179	0.1	0.3	5.4	1.99	0.47	0.23	0.91	4.3
75-120	4.4	4.1	0	0.12	0.54	0.4	<4	189	-	1.3	<0.1	54	<0.1	0.1	4.0	0.69	0.16	0.22	0.46	5.5
120-150	4.9	4.3	0	0.08	0.45	0.3	<4	228	-	1.3	<0.1	25	<0.1	0.2	4.3	0.95	0.26	0.20	0.62	4.7

Note: 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](#)

