

## SANDY LOAM OVER RED CLAY ON WEATHERED ROCK

**General Description:** *Medium thickness sandy loam with a paler coloured gravelly subsurface, over a yellowish red to brown strongly blocky clay forming in weathering fine sandstone basement rock*

**Landform:** Rolling low hills

**Substrate:** Fine sandstone

**Vegetation:** Eucalyptus oblique forest.  
Current land use - viticulture



<b>Type Site:</b>	Site No.:	CH174A	1:50,000 mapsheet:	6627-3 (Willunga)
	Hundred:	Kuitpo	Easting:	283860
	Section:		Northing:	6094740
	Sampling date:	08/03/2013	Annual rainfall:	845 mm average

Upper slope of low hill, 15% slope. Elevation is 325m, with SE aspect. Firm surface with 10% sandstone fragments.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark brown friable unstructured sandy loam with 5% sandstone gravel. Clear to:
12-20	Brown firm unstructured light sandy clay loam with 30-40% quartzite, sandstone and ironstone gravel. Clear to:
20-45	Yellowish red firm medium clay with strong subangular blocky structure. Gradual to:
45-100	Yellowish red firm medium clay with strong subangular blocky structure. Gradual to:
100-140	Very highly weathered fine sandstone, yellowish red in colour, with texture of light medium clay.



**Classification:** Sodic, Mesotrophic, Red Kurosol; medium, slightly gravelly, loamy / clayey, deep



## Summary of Properties

- Drainage:** Well drained. No part of the profile is likely to remain wet for more than a few days at a time.
- Fertility:** Inherent fertility is moderately low, as indicated by the exchangeable cation data. CEC of less than 10 cmol(+)/kg in deep subsoil indicates that the soil's clay minerals have a sub-optimal capacity to retain nutrient elements. This is largely due to high acidity. Nutrient retention capacity in the surface is high due to organic carbon levels. Phosphorus and potassium levels are marginal for maximum yield. P holding capacity is satisfactory. Trace element levels are low, and magnesium levels are high, in the subsoil.
- pH:** Acidic at the surface, strongly acidic with depth. However, irrigation water is making surface soil alkaline.
- Rooting depth:** Few roots below 45 cm.
- Barriers to root growth:**
- Physical:** There are no apparent physical barriers.
  - Chemical:** Aluminium is at toxic concentrations in the subsoil (due to low pH). Sodicity is elevated (exchangeable sodium greater than 6%) in subsurface (due to irrigation water), and in deep subsoil (probably natural). Salinity is slightly elevated at the surface under the drippers.
- Waterholding capacity:** Approximately 75 mm (total) in apparent rootzone (0-45 cm), but this could be almost doubled if the entire potential rootzone (i.e. to 100 cm) were available. Readily available capacity (RAW) is approximately 30 mm (but similarly, could increase to 55 mm).
- Seedling emergence:** Good.
- Workability:** The surface soil is readily worked.
- Erosion Potential:**
- Water:** Moderately high due to land slope. Perennial crop with good ground cover minimises hazard.
  - Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO <sub>3</sub> mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO <sub>4</sub> -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	
Under Drip	7.8	7.2	-	0.162	48	3.85	2	21	100	132	17.2	0.9	14.2	72	9.06	4.72	22	19	2.4	0.26	0.3	1
Between Drip	6.6	5.9	-	0.084	30	4.51	3	21	86	165	14.6	0.7	12.5	137	8.62	4.53	16	14	1.0	0.17	0.3	1
Mid Row	6.1	5.4	-	0.074	30	3.82	2	12	101	210	9.5	0.7	8.64	181	7.39	4.31	13	10	2.1	0.15	0.4	1
0-12	5.9	5.2	0.87	0.075	30	3.79	7	19	114	126	13.9	2.3	20.1	756	23.8	10.9	9	7.4	1.0	0.49	0.4	5
12-20	5.6	4.7	0.55	0.052	-	1.11	1	7	-	55	20.2	1.6	6.77	224	8.13	7.83	5	2.9	1.1	0.36	0.2	8
20-45	5.0	4.2	11.0	0.073	-	0.65	2	<2	488	69	95	1.1	0.24	12	0.33	2.85	7	3.5	3.0	0.16	0.2	2
45-100	4.9	4.2	3.10	0.074	-	0.11	<1	<2	-	24	107	1.2	0.13	20	0.15	0.19	8	1.7	6.2	0.33	0.1	4
100-140	5.3	4.3	3.99	0.079	-	0.12	<1	<2	-	23	42.8	1.3	0.14	10	0.15	0.01	7	1.0	5.6	0.65	0.1	9

**Note:** Trace elements in 0-12 cm layer analysed using EDTA.

CEC (exchangeable cation 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](#)

