

SHALLOW SANDY LOAM OVER BASEMENT ROCK

General Description: *Medium to thick gravelly sandy loam to loamy sand with a bleached subsurface layer, over hard coarse grained basement rock*

Landform: Undulating to rolling low hills and hills.

Substrate: Coarse grained basement rock. Quartzitic sandstone at this site.

Vegetation:



Type Site: Site No.: CH160

1:50,000 sheet: 6728-4 (Angaston) Hundred: Barossa
Annual rainfall: 750 mm Sampling date: 13/11/06
Landform: Upper slope of undulating low hills, 6% slope.
Surface: Firm with 2-10% quartzite stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Very dark greyish brown friable massive light sandy loam with 10-20% sandstone and quartzite fragments. Clear to:
15-30	Light grey friable massive loamy sand with 10-20% quartzitic sandstone fragments. Clear to:
30-43	Yellowish brown firm massive light sandy loam with more than 50% quartzitic sandstone fragments. Abrupt to:
43-60	Weathering quartzitic sandstone.



Classification: Basic, Lithic, Bleached-Leptic Tenosol; medium, gravelly, loamy / loamy, shallow

Summary of Properties

- Drainage:** Well drained. The soil is unlikely to remain wet for more than a day or so following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. There is minimal clay and organic matter in the topsoil, so there is little nutrient retention capacity. At the sampling site, potassium, zinc and manganese appear to be deficient. Magnesium levels are also low.
- pH:** Neutral throughout.
- Rooting depth:** 43 cm (depth to rock) in sampling pit.
- Barriers to root growth:**
- Physical:** Hard basement rock is a serious limitation, but depth is highly variable.
 - Chemical:** Low nutrient status and retention capacity is the most likely chemical reason for restricted root growth.
- Water holding capacity:** (Estimates for potential root zone of grape vines)
- Total available: 40 mm
 - Readily available: 20 mm

Seedling emergence: Satisfactory.

Workability: Soft sandy surface is easily worked.

Erosion Potential

Water: Moderate.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP	
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-15	7.7	6.7	0.58	0.045	0.39	0.89	49	53	6	3.8	0.3	657	8.39	170	11.0	1.15	5.5	4.61	0.6	0.17	0.12	3.1	
15-30	7.6	6.7	0.22	0.037	0.26	0.46	19	42	8	2.5	0.2	701	1.84	88	5.03	0.18	4.2	3.4	0.56	0.15	0.1	3.6	
30-43	7.3	6.3	0.22	0.052	0.44	0.44	16	93	15	4.1	0.3	1133	0.77	99	12.2	0.51	5.5	3.86	1.2	0.26	0.16	4.7	
43-60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.