

THICK SAND OVER RED MOTTLED CLAY

General Description: *Thick brown loamy sand with a yellowish quartz gravelly subsurface layer, abruptly overlying a red and brown mottled clay*

Landform: Gently inclined alluvial fans.

Substrate: Medium textured micaceous alluvium.

Vegetation:



Type Site: Site No.: CL039
 1:50,000 sheet: 6728-4 (Angaston) Hundred: Moorooroo
 Annual rainfall: 555 mm Sampling date: 29/11/04
 Landform: Upper slope of alluvial fan, 4% gradient
 Surface: Firm with less minor sandstone and ironstone fragments (6-20 mm)

Soil Description:

Depth (cm)	Description
0-10	Dark brown soft single grain loamy sand. Gradual to:
10-30	Brown soft single grain loamy sand. Gradual to:
30-43	Reddish yellow soft single grain loamy sand with 10-20% quartz fragments (20-60 mm). Abrupt to:
43-80	Dark reddish brown and brown mottled hard medium clay with strong coarse (breaking to fine) polyhedral structure. Diffuse to:
80-120	Dark reddish brown and brown mottled hard light medium clay with strong coarse subangular blocky structure, breaking to fine polyhedral. Diffuse to:
120-160	Reddish brown, strong brown and brown mottled friable micaceous fine sandy clay loam with weak coarse subangular blocky structure, 2-10% soft and nodular carbonate, and 2-10% soft manganese segregations.



Classification: Mottled-Sodic, Hypocalcic, Red Chromosol; thick, non-gravelly, sandy / clayey, very deep

Summary of Properties

- Drainage:** Moderately well to well drained. The soil is unlikely to remain wet for more than a few days following heavy or prolonged rainfall. This condition is unlikely to affect grape vines except in very wet springs.
- Fertility:** Inherent fertility is moderately low as indicated by the exchangeable cation data, and low surface clay content. However, the clayey subsoil has good reserves of the major base elements. Phosphorus, zinc and copper deficiencies are apparent according to the test data. Sulphur levels are also low, but adequate in the subsoil.
- pH:** Neutral at the surface, alkaline with depth.
- Rooting depth:** 135 cm in pit.
- Barriers to root growth:**
- Physical:** The coarsely structured clay subsoil restricts uniform root proliferation, but does not prevent growth.
- Chemical:** There are no apparent chemical barriers.
- Water holding capacity:** (Estimates for potential root zone of irrigated crops)
- Total available: 175 mm
- Readily available: 85 mm
- Seedling emergence:** Satisfactory.
- Workability:** Good. The sandy surface is workable over a wide range of moisture conditions.

Erosion Potential

- Water:** Moderately low.
- 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	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	6.9	6.0	0	0.033	0.20	0.43	26	132	5	2.4	0.3	1.61	54	40.7	0.34	3.8	3.36	0.12	0.04	0.25	1.1
10-30	6.9	6.1	0	0.025	0.22	0.35	25	127	2	2.3	0.3	1.26	53	44.2	0.35	3.7	3.24	0.23	0.03	0.22	0.8
30-43	7.2	6.7	0	0.049	0.34	0.29	6	133	2	2.8	0.3	0.64	43	25.3	0.35	3.8	2.82	0.66	0.06	0.25	1.6
43-80	6.6	5.6	0	0.059	0.38	0.61	2	276	13	17.8	0.8	1.71	79	13.2	0.32	18.0	10.3	6.48	0.52	0.71	2.9
80-120	7.3	6.4	0	0.104	0.75	0.28	2	300	19	39.9	1.3	1.70	48	93.5	0.39	18.5	8.86	7.65	1.27	0.73	6.9
120-160	8.4	7.5	0.5	0.145	0.84	0.14	2	218	38	16.2	1.4	1.19	42	154	0.32	13.5	6.82	4.99	1.15	0.51	8.5

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.