RED CLAY LOAM OVER FRIABLE CLAY

General Description: *Red friable clay loam grading to a red light clay over a brown clay (buried subsoil),overlying calcreted calcarenite*

Landform: Very low rises within flat plains (ancient coastal back lagoons)

Substrate: Calcreted calcarenite

Vegetation:

Type Site: Site No.: SE115B

1:50,000 sheet:	7023-2 (Penola)	Hundred:	Penola
Annual rainfall:	625 mm	Sampling date:	01/12/06
Landform:	Flat crest of very low rise, 0% slope.		
Surface:	Firm with minor calcrete stone.		

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown firm clay loam with weak medium subangular blocky structure. Gradual to:
15-40	Red and dark reddish brown friable light clay with moderate polyhedral structure. Diffuse to:
40-65	Red friable clay loam with weak subangular blocky structure, and 10-20% manganese coatings. Diffuse to:
65-105	Dark brown, reddish yellow and red firm light clay with moderate subangular blocky structure and 20-50% manganese coatings. Sharp to:
105-130	Calcreted calcarenite.

Classification: Haplic, Eutrophic, Red Dermosol; medium, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain wet for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data, and the clay content. Levels of all tested nutrient elements are satisfactory. High reactive iron values indicate high phosphate fixation potential.

pH: Alkaline at the surface (probably effect of lime dust and calcrete fragments associated with tracks and ripping at establishment), neutral in the subsoil, and alkaline at depth.

Rooting depth: 105 cm in sampling pit.

Barriers to root growth:

Physical: There are no apparent physical barriers above the calcrete, but variable depth to this layer will cause uneven rootzone depth.

Chemical: There are no apparent chemical barriers to root growth.

Water holding capacity: (Estimates for potential root zone of grape vines)

Total available: 150 mm
Readily available: 60 mm

Seedling emergence: Satisfactory.

Workability: The well structured surface can be worked over a range of moisture conditions.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	8.3	7.6	0	0.337	2.21	1.76	57	546	241	17.6	1.4	1043	32.4	135	734	4.46	24.5	18.6	2.55	1.93	1.45	7.9
15-40	8.3	7.3	0	0.185	1.03	1.14	11	437	87	21.2	1.3	1012	5.38	115	578	0.62	23.1	17.7	2.82	1.47	1.08	6.4
40-65	7.5	6.7	0	0.188	0.78	0.65	7	404	56	49.3	2.0	1180	1.14	113	473	0.13	20.0	11.4	6.38	1.19	0.98	6.0
65-105	7.3	7.0	0.4	0.464	1.94	0.60	5	358	166	126	2.5	1115	0.94	121	1194	0.22	23.2	13.2	6.96	2.12	0.92	9.1
105-130	8.9	7.9	92.5	0.243	2.52	0.57	2	110	62	88.5	0.6	433	0.33	13	20.2	0.15	16.3	13.7	1.57	0.73	0.28	4.5

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.