

DARK CLAY LOAM OVER RUBBLY CALCRETE

General Description: *Medium thickness well structured dark reddish brown clay loam over calcreted calcarenite*

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

Substrate: Calcreted calcarenite

Vegetation:



Type Site: Site No.: SE115A

1:50,000 sheet:	7023-2 (Penola)	Hundred:	Penola
Annual rainfall:	625 mm	Sampling date:	01/12/06
Landform:	Lower slope of very low rise, 0.5% slope.		
Surface:	Hard setting with minor calcrete stone.		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-18	Dark reddish brown firm clay loam with strong fine granular structure and 10-20% calcrete fragments (6-20 mm). Sharp to:
18-40	Nodular calcrete pan with 20% dark reddish brown firm highly calcareous light clay with fine angular blocky structure, between nodules. Abrupt to:
40-70	Mixture of 50% fine carbonate, 30% dark reddish brown friable highly calcareous sandy clay loam with weak subangular blocky structure, and 20% carbonate nodules to 60 mm. Clear to:
70-110	Very pale brown friable massive very highly calcareous light clayey coarse sand (weathered calcarenite) with 20-50% calcrete fragments. Diffuse to:
110-160	Yellow friable massive very highly calcareous light clayey coarse sand (weathered calcarenite) with 20-50% calcrete fragments.



Note that ripping has disrupted the calcrete, and mixed the second and third layers, changing a Petrocalcic Calcarosol to a Lithocalcic Calcarosol.

Classification: Epibasisc, Pedal, Lithocalcic Calcarosol; medium, 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, although high reactive iron figures indicate high phosphate fixing capacity.

pH: Alkaline throughout.

Rooting depth: 160 cm in sampling pit, but few roots below 110 cm.

Barriers to root growth:

Physical: Shallow calcrete would have restricted root growth prior to ripping.

Chemical: Low nutrient status / retention capacity below 70 cm limits vigorous deep root growth.

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

Total available: 100 mm

Readily available: 45 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 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	
0-18	8.5	7.6	3.4	0.169	0.75	2.3	38	431	28	7.9	1.6	1288	33.5	38	227	3.68	32.6	25.8	4.49	1.19	1.12	3.7
18-40	8.6	7.9	39.8	0.283	1.16	1.6	8	215	127	18.9	1.1	936	2.63	13	28.6	0.59	30.4	25.9	2.51	1.34	0.57	4.4
40-70	8.8	7.7	61.1	0.281	2.00	0.9	3	105	171	14.2	1.0	704	0.56	15	11.7	0.26	23.8	20.6	1.50	1.45	0.29	6.1
70-110	9.1	8.0	98.2	0.263	2.98	0.59	2	36	200	34	0.3	229	0.48	12	6.12	0.3	15.2	13.2	0.73	1.19	0.09	7.8
110-160	9.2	7.9	98.2	0.239	2.93	0.23	2	19	140	51.9	0.2	315	0.48	14	2.21	0.27	13.4	11.7	0.65	1.01	0.07	7.5

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.