GRADATIONAL LOAM OVER CLAY ON WEATHERED ROCK

General Description: *Medium thickness brown sandy loam to loam over a gravelly sandy clay loam to clay loam grading to red or orange well structured clay over weathering fine grained basement rock*

Landform: Rolling low hills

Substrate: Weathered shale

Vegetation: Eucalyptus oblique forest.
Current land use - viticulture

Type Site:

Site No.:	CH175C	1:50,000 mapsheet:	6628-2 (Onkaparinga)
Hundred:	Onkaparinga	Easting:	302200
Section:		Northing:	6136530
Sampling date:	09/12/2012	Annual rainfall:	920 mm average

Lower slope of low hill, 12% slope. Elevation is 510 m, with SW aspect. Firm surface.

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown friable sandy loam with strong granular structure. Gradual to:
15-50	Dark reddish brown firm loam with moderate granular structure. Clear to:
50-70	Reddish brown firm clay loam with strong sub angular blocky structure. Gradual to:
70-100	Reddish brown firm light medium clay with strong subangular blocky structure and 10% shale fragments. Gradual to:
100-120	Weathering shale.

Classification: Melanic, Eutrophic, Red Dermosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. No part of the profile is likely to remain wet for more than a week or so at a time.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. CEC of 10 cmol(+)/kg in deep subsoil indicates that the soil's clay minerals can satisfactorily retain nutrient elements. Retention capacity in the surface is high due to organic carbon levels. Phosphorus levels are slightly low, with good P holding capacity. Levels of copper and zinc are high in surface soil, and magnesium levels are high under the drippers.

pH: Alkaline at the surface, acidic with depth. This trend is presumed to be caused by alkaline irrigation water.

Rooting depth: Moderate to good root growth to 100 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers above the basement rock.

Chemical: There are no apparent chemical barriers, other than slightly elevated salinity at the surface (caused by irrigation water).

Waterholding capacity: Approximately 115 mm (total) in potential rootzone (to 100 cm), with readily available capacity (RAW) of approximately 45 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_2O	pH $CaC1_2$	Ext. Al mg/kg	EC 1:5 dS/m	Cl mg/kg	Org.C %	NO_3 mg/kg	Avail. P mg/kg	PBI	Avail. K mg/kg	SO_4-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	8.1	7.4	-	0.32	199	3.66	13	32	198	490	23.0	1.2	29.7	52	16.5	16.6	29	20	6.3	1.6	1.2	5
Between Drip	7.3	6.8	-	0.31	231	4.16	38	27	181	578	11.8	1.0	20.5	31	7.05	5.22	24	21	1.6	0.48	1.4	2
Mid Row	7.1	6.5	-	0.14	75	4.26	20	12	155	360	6.6	1.0	12.2	38	6.65	2.68	24	21	1.5	0.14	0.8	1
0-15	7.5	7.0	0.27	0.24	146	3.61	36	46	139	609	10.0	1.1	21.8	125	23.5	6.47	23	18	2.4	0.41	1.6	2
15-27	7.1	6.5	< 0.20	0.16	-	2.48	9	16	172	406	5.1	0.7	5.0	26	2.05	3.27	15	12	1.6	0.33	1.1	2
27-45	6.3	5.4	< 0.20	0.05	-	0.84	4	6	182	153	7.8	0.5	1.3	20	0.65	1.33	11	5.6	4.3	0.33	0.4	3
45-90	5.8	4.9	0.34	0.04	-	0.71	2	2	-	120	13.3	0.6	0.6	13	0.49	0.51	11	3.3	6.7	0.33	0.3	3

Note: Trace elements in 0-15cm 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