SANDY LOAM OVER RED CLAY ON ROCK

General Description: *Medium thickness hard massive sandy loam overlying a well structured red clay, calcareous with depth, forming in weathering basement rock*

Landform: Gently undulating rises.

Substrate: Mica schists of the Kanmantoo Group.

Vegetation:

Type Site: Site No.: MO057

1:50,000 sheet:	6727-4 (Monarto)	Hundred:	Monarto
Annual rainfall:	375 mm	Sampling date:	09/03/06
Landform:	Midslope of gentle rise, 2% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-12	Dark reddish brown hard massive sandy loam. Abrupt to:
12-30	Dark red hard medium clay with strong medium angular blocky structure. Gradual to:
30-65	Reddish yellow firm massive very highly calcareous silty light clay with more than 50% fine carbonate segregations. Gradual to:
65-110	Olive brown, strong brown and pale yellow firm massive very highly calcareous silty clay loam with more than 50% fine carbonate segregations. Diffuse to:
110-130	Weathering micaceous schist.

Classification: Hypercalcic, Mesonatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Well drained. The soil is unlikely to remain saturated for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Levels of all tested elements (with the possible exception of copper) are adequate.

pH: Slightly acidic at the surface, strongly alkaline with depth.

Rooting depth: 65 cm in sampling pit, but few roots below 30 cm.

Barriers to root growth:

Physical: The hardness of the topsoil may impede optimal root development.

Chemical: High pH and sodicity, and moderate salinity below 30 cm restrict deeper root growth.

Water holding capacity: Approximately 60 mm in potential rootzone of annual plants.

Seedling emergence: The poorly structured surface soil is likely to seal, causing uneven emergence if soil dries after germination.

Workability: Hard massive surface soil is prone to puddling if worked too wet, and shattering if worked too dry.

Erosion Potential

Water: Moderately 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	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	
0-12	6.3	5.4	0	0.14	1.60	1.08	52	333	8.0	0.9	1.08	92	62.2	5.91	8.0	4.70	1.90	0.51	0.85	6.4
12-30	8.8	8.0	0	0.52	3.27	0.68	9	385	13	6.7	2.81	55	71.7	1.14	33.0	11.8	13.5	6.63	1.03	20.1
30-65	9.5	8.4	32	0.98	9.84	0.41	2	264	155	6.0	1.1	20	5.17	0.82	33.5	11.7	10.7	10.4	0.68	31.0
65-110	9.5	8.5	10	1.18	10.63	0.22	1	215	190	2.6	0.64	21	2.03	0.66	31.2	8.79	11.4	10.4	0.58	33.5
110-130	9.5	8.7	1	1.02	10.22	0.11	0	235	135	2.2	0.63	51	18.4	2.22	24.7	4.86	10.2	9.03	0.62	36.5

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 estimated exchangeable sodium value by the sum of cations.