HARD CLAY LOAM OVER DISPERSIVE RED CLAY

General Description: *Hard sandy loam to clay loam abruptly overlying a coarsely structured dispersive red clay, calcareous with depth*

Landform: Gently inclined outwash fans.

Substrate: Gravelly clay alluvium.

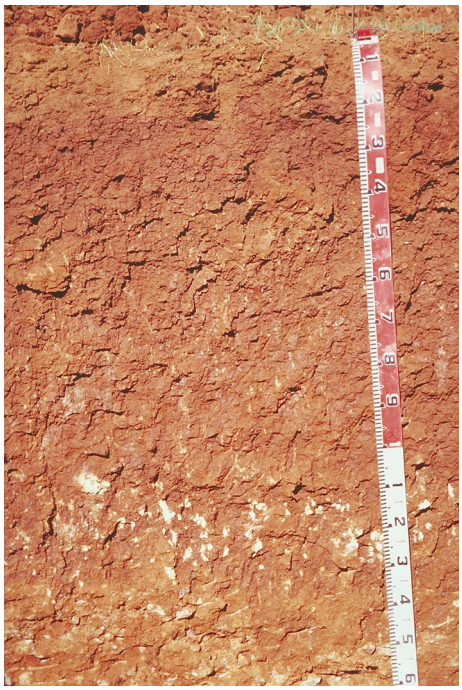
Vegetation:

Type Site:

Site No.:	CU052	1:50,000 mapsheet:	6532-4 (Wilmington)
Hundred:	Willochra	Easting:	231990
Section:	80	Northing:	6391760
Sampling date:	11/05/1995	Annual rainfall:	340 mm average

Midslope of a gently inclined outwash fan, 1% slope. Hard setting surface with 2-10% gravel.

Soil Description:



Depth (cm)	*Description*
0-12	Dark reddish brown firm fine sandy clay loam with coarse subangular blocky structure and minor quartzite gravel. Sharp to:
12-35	Dark reddish brown hard medium clay with coarse prismatic breaking to subangular blocky structure. Gradual to:
35-75	Dark reddish brown very hard slightly calcareous medium clay with coarse prismatic breaking to subangular blocky structure and 2-10% fine carbonate. Gradual to:
75-105	As above, but below rootzone. Clear to:
105-135	Red very hard slightly calcareous medium heavy clay with coarse prismatic breaking to subangular blocky structure, and 10-20% fine gypsum segregations. Clear to:
135-165	Dark reddish brown very hard moderately calcareous sandy medium clay with 20-50% gravel.

Classification: Calcic, Mesonatric, Red Sodosol; medium, slightly gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Moderately well to imperfectly drained. Water may perch on the dispersive clayey subsoil for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Regular phosphorus applications are necessary. Nitrogen level depends on cropping history and legume status of pastures. All tested nutrients are in good supply at the sampling site. Organic carbon levels are high.

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

Rooting depth: 75 cm in pit, but most roots are in the top 35 cm.

Barriers to root growth:

Physical: Tight subsoil clay restricts root growth.

Chemical: High sodicity, salinity and boron concentrations from 35 cm restrict deeper root growth.

Waterholding capacity: Approximately 60 mm in the rootzone.

Seedling emergence: Some emergence problems will occur if the soil dries out during germination.

Workability: Tilth of seed-bed will puddle if prepared when too wet. Soil will shatter if worked too dry.

Erosion Potential:

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4 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	
Paddock	6.6	5.9	0	0.09	0.54	1.7	30	696	-	2.5	-	-	-	-	16.5	8.50	6.34	0.51	2.24	3.1
0-12	6.6	5.5	0	0.10	1.01	1.0	10	477	-	1.5	-	-	-	-	10.6	5.15	3.94	0.69	1.37	6.5
12-35	8.3	7.6	<0.1	0.51	3.43	0.7	<4	276	-	5.9	-	-	-	-	31.0	12.16	12.21	6.01	1.33	19.4
35-75	8.9	8.4	5.5	1.62	8.74	0.2	5	161	-	15.2	-	-	-	-	26.1	7.81	12.07	9.22	0.77	35.3
75-105	8.7	8.3	3.3	2.17	10.49	0.1	6	164	-	16.8	-	-	-	-	24.6	7.15	11.49	9.01	0.74	36.7
105-135	8.5	8.3	13.3	2.53	12.36	0.1	6	150	-	13.1	-	-	-	-	22.8	8.02	10.23	8.61	0.64	37.8
135-165	8.3	8.2	4.1	2.71	12.12	0.1	6	116	-	4.1	-	-	-	-	13.1	7.59	6.03	5.59	0.39	42.7

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.
CEC (cation exchange 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