SANDY CLAY LOAM OVER SODIC RED CLAY

General Description: *Massive grey sandy clay loam to sandy loam, over a red mottled coarsely structured clay, calcareous with depth*

Landform: Very gently undulating to level plains

Substrate: Tertiary age clay

Vegetation:

Type Site:

Site No.:	SE162A	1:50,000 mapsheet:	7024-1 (Frances)
Hundred:	State of Victoria	Easting:	499900
Section:	-	Northing:	5940410
Sampling date:	30/08/2007	Annual rainfall:	530 mm average

Flat plain. Hard setting surface (when dry and undisturbed) with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	Description
0-10	Dark brown soft light sandy clay loam with weak medium subangular structure and 2-10% ironstone nodules. Clear to:
10-20	Light yellowish brown, dark greyish brown and strong brown mottled soft massive light medium clay with more than 50% ironstone nodules. Abrupt to:
20-55	Red and pink firm light medium clay with strong very coarse columnar structure and 2-10% ironstone nodules. Diffuse to:
55-80	Strong brown, brownish yellow and yellowish red mottled hard light clay with strong very coarse prismatic structure and 2-10% ironstone nodules. Clear to:
80-105	Brownish yellow and yellowish red hard highly calcareous light clay with weak coarse subangular blocky structure, 10-20% soft carbonate segregations and 2-10% ironstone nodules. Gradual to:
105-150	Very pale brown and yellowish red friable light clay with 20-50% ironstone nodules and 2-10% soft carbonate segregations.

Classification: Calcic, Mottled-Subnatric, Red Sodosol; medium, slightly gravelly, loamy / clayey, very deep

Government of South Australia
Department of Environment, Water and Natural Resources

Summary of Properties

Drainage: Moderately well drained. Water can perch on top of the subsoil clay for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. This is due to the relatively low clay content and acidity of the surface layer. Laboratory data indicate adequate levels of all tested nutrient elements, with the possible exception of copper.

pH: Acidic at the surface, alkaline to strongly alkaline in the subsoil.

Rooting depth: 105 cm in sampling pit, but few roots below 55 cm.

Barriers to root growth:

Physical: The subsoil clay layer imposes a moderate restriction on root growth, mainly by confining many roots to the faces of coarse aggregates.

Chemical: Aluminium toxicity in surface soil affects sensitive species, and overall fertility is reduced by low pH. High pH from 55 cm restricts root growth below that depth.

Waterholding capacity: Approximately 90 mm in the potential rootzone.

Seedling emergence: Fair to satisfactory. Tendency to seal over can reduce establishment percentage.

Workability: Fair. Surface tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO_3+ NH_4 mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	React Fe mg/kg	Ext Al mg/kg	Boron mg/kg	Cu	Fe	Mn	Zn	Sum cations cmol (+)/kg	Ca	Mg	Na	K	Est. ESP
0-10	5.8	4.7	0	0.05	0.42	27	2.60	8	33	131	4.2	1785	3	0.6	0.22	607	10.5	2.21	6.3	4.28	1.60	0.11	0.27	1.8
10-20	7.2	6.0	0	0.09	0.40	35	0.55	-	5	288	6.1	1455	-	-	-	-	-	-	9.7	4.89	3.70	0.80	0.30	8.2
20-55	8.4	7.1	0	0.14	1.10	68	0.35	-	6	247	17.2	753	-	-	-	-	-	-	16.4	6.24	7.93	1.65	0.60	10.0
55-80	9.6	8.5	0	0.27	1.72	128	0.17	-	2	268	30.2	457	-	-	-	-	-	-	13.3	4.08	6.76	1.99	0.49	14.9
80-105	9.8	8.9	2	0.56	2.71	290	0.11	-	2	215	56.9	391	-	-	-	-	-	-	-	-	-	-	-	-
105-150	9.4	8.4	0	0.38	3.29	356	0.12	-	2	374	65.9	434	-	-	-	-	-	-	-	-	-	-	-	-

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.

Further information: DEWNR Soil and Land Program