GRADATIONAL CALCAREOUS CLAY LOAM

General Description: *Grey calcareous clay loam becoming more clayey and calcareous with depth, grading to clayey substrate within 120 cm.*

Landform: Plains and very gentle slopes.

Substrate: Tertiary clay capped by fine and nodular carbonate.

Vegetation: Mallee.

Type Site:

Site No.:	MO032	1:50,000 mapsheet:	6727-4 (Monarto)
Hundred:	Monarto	Easting:	326910
Section:	305	Northing:	6110890
Sampling date:	1976	Annual rainfall:	420 mm average

Very gently inclined slope of 1%. Firm surface.

Soil Description:

Depth (cm)	*Description*
0-8	Dark brown soft massive highly calcareous sandy clay loam. Clear to:
8-15	Reddish brown firm highly calcareous sandy clay with moderate angular blocky structure. Gradual to:
15-30	Yellowish red massive very highly calcareous firm sandy clay. Clear to:
30-80	Reddish yellow massive to weakly platy very highly calcareous firm clay loam with about 25% carbonate nodules. Diffuse to:
80-115	Yellowish red and brown highly calcareous massive to weakly angular blocky very firm sandy light clay. Gradual to:
115-230	Brown and yellowish brown sandy medium clay with strong prismatic structure and pockets of fine carbonate segregations decreasing with depth.

Classification: Epihypersodic, Regolithic, Supracalcic Calcarosol; medium, non-gravelly, clay loamy / clayey, deep

Summary of Properties

Drainage: Moderately well to imperfectly drained. The soil may remain wet for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate. Although clay content is high to the surface, free carbonate and high pH at the surface tend to reduce availability of phosphate and the trace elements zinc, copper and manganese.

pH: Alkaline at the surface, strongly alkaline at depth.

Rooting depth: Not recorded. Estimate 40 cm in pit.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: High pH, highly calcareous clays, high sodicity and probably high boron concentrations combine to restrict rootzone depth.

Waterholding capacity: Approximately 60 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: The firm surface is easily worked.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	Coarse sand %	Fine sand %	Silt %	Clay %	pH H_2O	CO_3 %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-8	23	40	7	23	8.7	4.4	0.18	<50	27	16.4	3.6	0.77	2.9	2.9
8-15	17	46	4	28	8.5	2.8	0.10	<50	28	18.7	3.2	0.42	1.9	1.5
15-30	13	36	2	24	8.9	18	0.11	<50	23	9.0	6.9	4.1	1.5	17.8
30-80	9	20	3	16	9.9	51	0.40	218	22	5.4	6.3	8.4	1.8	38.2
80-115	6	14	1	22	10.0	55	1.02	1040	22	5.4	6.3	8.5	1.8	38.6
115-230	21	36	2	38	8.5	0	1.30	1470	25	0.53	7.9	10.4	2.0	41.6

Note: 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