

SHALLOW LOAM OVER CALCAREOUS ROCK

General Description: *Brown loam, becoming clay loamy and stony with depth, grading to calcareous siltstone bedrock within a metre of the surface*

Landform: Gently undulating low hills.

Substrate: Weathered siltstone mantled by soft windblown carbonates.

Vegetation:



Type Site:	Site No.:	CM116	1:50,000 mapsheet:	6630-1 (Burra)
	Hundred:	Kingston	Easting:	312410
	Section:	402	Northing:	6288100
	Sampling date:	12/02/2013	Annual rainfall:	430 mm average

Lower slope of undulating low hill, 5% slope. Firm surface, with 2-10% siltstone fragments.

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown firm loam with moderate granular structure and 2-10% siltstone fragments. Clear to:
10-25	Reddish brown firm clay loam with moderate medium polyhedral structure and 2-10% siltstone fragments. Abrupt to:
25-30	Discontinuous calcrete cap. Clear to:
30-38	Reddish brown massive very highly calcareous clay loam. Clear to:
38-60	Pale brown massive very highly calcareous light clay with more than 50% siltstone fragments and 2-10% calcrete nodules. Gradual to:
60-100	Weathering very highly calcareous siltstone.



Classification: Haplic, Petrocalcic, Red Dermosol; medium, slightly gravelly, loamy / clay loamy, moderate



Summary of Properties

Drainage: Well drained. No part of the soil is likely to remain wet for more than a day following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. This is due to the moderate clay content, high calcium saturation, and high organic matter content. There are no apparent nutrient element deficiencies, other than a marginal zinc levels.

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

Rooting depth: Some roots to 40 cm, but most in upper 30 cm.

Barriers to root growth:

Physical: Underlying basement rock is a barrier, but is usually fractured sufficiently to allow root penetration. In this profile, the calcrete cap also impedes root growth, but as it is discontinuous, roots can be expected to extend deeper.

Chemical: There are no apparent chemical barriers apart from low nutrient availability in highly calcareous subsoil layers.

Waterholding capacity: Approximately 55 mm in potential rootzone.

Seedling emergence: Satisfactory. Surface may seal over, but generally does not set hard.

Workability: The surface soil is readily worked over a range of moisture conditions.

Erosion Potential

Water: Moderate due to slope.

Wind: Moderately low. Soil tends to pulverise if over-worked.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	NO ₃ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	7.9	7.3	0.6	0.195	0.68	1.99	14	36	220	6.7	0.9	1.23	9	24.5	0.53	20.0	17.4	1.86	0.24	0.46	1.2
0-10	7.6	7.1	0.5	0.169	0.85	1.88	28	38	185	6.8	1.0	1.29	10	23.0	0.44	19.9	17.5	1.73	0.25	0.43	1.3
10-25	8.3	7.5	0.8	0.114	0.38	1.13	2	9	116	5.6	1.1	1.20	8	7.89	0.28	21.9	19.8	1.42	0.30	0.30	1.4
25-30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-38	7.8	7.5	17.6	0.214	0.92	1.37	8	6	84	9.0	1.2	0.91	9	6.09	0.27	20.2	17.9	1.39	0.67	0.21	3.3
38-60	8.7	7.7	24.7	0.156	0.91	0.45	8	3	59	9.4	0.3	0.59	11	9.44	0.93	9.2	8.28	0.50	0.35	0.09	3.8
60-100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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](#)

