

CALCAREOUS CLAY LOAM

General Description: *Up to 50 cm grey calcareous loam to clay loam over a buried sand or sand over clay soil on calcrete*

Landform: Flats and swamps of interdune corridors of the South East stranded beach ridge system.

Substrate: Calcreted limestone, clay and sand of the Padthaway Formation (near coastal lagoon deposits).

Vegetation: Swamp tea-tree (*Melaleuca halmaturum*).



Type Site: Site No.: SE075

1:50,000 sheet:	6825-2 (Tilley Swamp)	Hundred:	Neville
Annual rainfall:	500 mm	Sampling date:	13/09/04
Landform:	Flat.		
Surface:	Firm, minor calcrete stones to 200 mm		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark greyish brown friable highly calcareous light clay loam with weak subangular blocky structure. Gradual to:
10-35	Pale brown friable massive very highly calcareous clay loam. Clear to:
35-42	Greyish brown soft highly calcareous loamy sand with 2-10% shell fragments (2-6 mm). Abrupt to:
42-48	White soft slightly calcareous sand. Sharp to:
48-51	Very dark grey soft highly calcareous loamy sand underlain by occasional pockets of grey brown sandy clay up to 4 cm thick. Sharp to:
51-110	Massive strongly cemented calcrete. Clear to:
110-160	Dark greyish brown and olive brown mottled firm heavy clay with strong very coarse blocky structure and 10-20% soft carbonate segregations. Clear to:
160-190	Yellowish brown and olive mottled friable massive clayey sand.



Classification: Epihypersodic, Regolithic, Calcic Calcarosol; medium, non-gravelly, clay loamy / clay loamy, shallow - overlying: Hypervescent, Petrocalcic, Hypercalcic Calcarosol; medium, non-

gravelly, sandy / sandy, very shallow

Summary of Properties

Drainage: Imperfectly to poorly drained. The soil may remain saturated for several weeks to several months in wet seasons.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. However, high carbonate levels reduce availability of phosphorus, manganese and zinc. Concentrations of all tested trace elements are low at sampling site

pH:

Rooting depth: Some growth to 160 cm, but most growth (of mainly halophytic plants) occurs in the upper 42 cm.

Barriers to root growth:

Physical: The calcrete imposes a significant barrier, although some roots penetrate fractures.

Chemical: High salinity, sodicity and pH severely restrict root growth of non-halophytic plants.

Water holding capacity: Approximately 65 mm above the calcrete.

Seedling emergence: Limited by the high salt content.

Workability: Not applicable.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl 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	Zn	Mn		Ca	Mg	Na	K	
0-10	9.7	8.5	-	0.49	1.94	3.04	21	342	42	10.1	8.5	0.81	16	0.80	9.32	28.6	11.9	10.9	4.97	0.89	17.4
10-35	10.4	8.7	-	1.16	7.95	1.63	7	278	479	44.7	7.2	0.63	29	0.48	6.85	26.5	7.24	7.30	11.3	0.71	42.5
35-42	10.4	8.7	-	0.51	5.98	0.42	2	153	146	18.2	2.6	0.87	55	0.67	9.80	13.7	5.50	3.98	3.81	0.37	27.9
42-48	10.3	8.8	-	0.27	2.54	0.13	1	118	53	6.9	1.7	0.80	44	0.46	11.2	8.4	4.21	2.47	1.40	0.28	16.7
48-51	10.5	9.2	-	0.81	6.72	0.22	1	396	192	17.2	5.0	0.68	51	0.56	9.49	12.2	3.76	1.44	5.99	0.97	49.3
51-110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110-160	8.8	8.4	-	5.52	52.4	0.22	1	984	8934	251	2.3	1.13	30	0.70	7.78	48.9	5.33	9.46	31.6	2.56	64.5
160-190	9.3	8.4	-	0.88	7.96	0.09	1	243	1014	43.7	1.1	0.80	45	0.48	7.46	10.3	2.22	3.46	4.08	0.56	39.5

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 exchangeable sodium value by the CEC, in this case estimated by the sum of cations.