

## WET GREY CLAY

**General Description:** *Coarsely structured grey cracking clay, saturated for more than three months per year*

**Landform:** Very gently undulating plain.

**Substrate:** Clayey lake floor sediments of Tertiary / Pleistocene age.

**Vegetation:**



<b>Type Site:</b>	Site No.:	SE050	1:50,000 mapsheet:	7024-4 (Keppoch)
	Hundred:	Beeamma	Easting:	473450
	Section:	31	Northing:	5958050
	Sampling date:	31/01/1996	Annual rainfall:	540 mm average

Depression on plain, 0% slope. Hard surface with no stones.

### Soil Description:

Depth (cm)	Description
0-16	Dark grey hard heavy clay with strong very coarse prismatic structure. Clear to:
16-65	Grey firm medium heavy clay with coarse subangular blocky structure. Diffuse to:
65-95	Grey and light olive brown friable medium heavy clay. Abrupt to:
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Buried soil	
95-105	Brown and yellowish red soft single grain loamy sand. Abrupt to:
105-115	Brown and strong brown friable fine sandy medium clay with strong coarse columnar structure. Clear to:
115-140	Grey and yellowish red firm medium clay with strong subangular blocky structure. Abrupt to:
140-160	Light yellowish brown and yellowish brown friable sandy light clay with strong fine polyhedral structure. Clear to:
160-170	Light olive brown and yellowish brown firm sandy medium clay with strong fine polyhedral structure and 2-10% carbonate concretions (2-6 mm).



**Classification:** Episodic, Massive, Aquic Vertosol; non-gravelly, medium fine / medium fine, moderate



## Summary of Properties

**Drainage:** Poorly drained. The soil remains saturated for more than three months per year due to the clayey texture and low lying position.

**Fertility:** Inherent fertility is high as indicated by the exchangeable cation data. There is ample nutrient retention capacity (high surface clay content), although cation balance is sub-optimal. Magnesium and sodium concentrations are excessive while zinc appears to be marginally deficient. Phosphorus and organic carbon levels are also low.

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

**Rooting depth:** 160 cm in pit, but few roots below 95 cm.

### Barriers to root growth:

**Physical:** The hard coarsely structured clay does not provide ideal conditions for root growth - roots concentrate on the aggregate surfaces rather than penetrating. The coarse columnar structure of the buried subsoil (from 105 cm) is a further barrier.

**Chemical:** High sodicity from 56 cm and high pH from 95 cm inhibit root growth.

**Waterholding capacity:** Approximately 150 mm in the rootzone.

**Seedling emergence:** Fair to poor due to the hard coarsely structured surface.

**Workability:** Poor - little effective working time between hard (dry), and sticky and boggy (wet).

### Erosion Potential:

**Water:** Low.

**Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	7.7	6.5	<0.1	0.19	0.76	1.0	17	555	8	6.8	1.18	71	10.3	0.41	45.0	11.78	18.07	5.99	2.15	13.3
0-16	8.2	6.9	0.1	0.17	0.42	0.6	6	575	7	7.4	-	-	-	-	49.3	13.80	19.73	7.99	2.26	16.2
16-56	8.5	7.5	0.1	0.42	1.32	0.6	<4	512	14	10.2	-	-	-	-	52.0	14.09	20.24	12.60	2.27	24.2
56-65	8.7	7.9	0.3	0.75	1.87	0.5	<4	530	33	11.8	-	-	-	-	55.4	13.63	21.46	16.64	2.33	30.0
65-95	8.9	8.2	1.0	1.15	2.81	0.4	<4	483	69	10.3	-	-	-	-	54.1	12.69	21.15	17.95	2.17	33.2
95-105	9.5	8.5	0.4	0.45	2.87	0.1	<4	153	22	5.5	-	-	-	-	9.4	2.57	3.88	3.34	0.35	35.7
105-115	8.9	8.1	0.4	0.88	2.73	0.2	<4	295	63	12.4	-	-	-	-	29.3	6.22	11.50	11.30	0.97	38.6
115-140	8.8	8.0	0.1	0.83	2.45	0.2	<4	274	55	11.8	-	-	-	-	26.8	5.43	10.61	10.51	0.86	39.2
140-160	9.1	8.0	<0.1	0.52	2.69	<0.1	<4	171	38	6.7	-	-	-	-	12.1	2.61	4.97	4.93	0.43	40.9
160-170	9.2	8.3	3.6	0.98	3.81	0.1	<4	204	75	10.6	-	-	-	-	17.3	4.83	6.76	7.69	0.61	44.4

**Note:** Paddock sample bulked from 20 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](#)

