

GREY BROWN CRACKING CLAY

General Description: *Hard setting, seasonally cracking grey brown clay, becoming more clayey and more coarsely structured with depth*

Landform: Depressions with weak gilgai microrelief.

Substrate: Coarsely structured medium to heavy clay.

Vegetation:

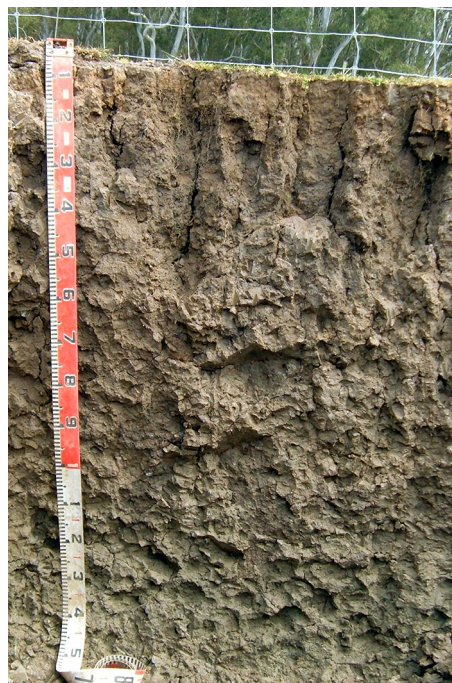


Type Site:	Site No.:	SE109	1:50,000 mapsheet:	7023-1 (Struan)
	Hundred:	Joanna	Easting:	492480
	Section:	418	Northing:	5888050
	Sampling date:	16/10/2006	Annual rainfall:	620 mm average

Level surface depression within a gently undulating plain, 0% slope. Hard setting, seasonally cracking surface with no stones.

Soil Description:

Depth (cm)	Description
0-5	Very dark grey and dark yellowish brown mottled very hard light clay with moderate angular blocky structure. Sharp to:
5-25	Dark yellowish brown and yellowish red very hard medium heavy clay with strong very coarse prismatic, breaking to coarse subangular blocky, structure. Clear to:
25-65	Dark greyish brown, olive brown, dark yellowish brown and yellowish red mottled very hard coarsely structured heavy clay. Diffuse to:
65-110	Light olive brown and dark yellowish brown mottled very hard coarsely structured heavy clay. Diffuse to:
110-150	Olive grey, light yellowish brown and dark yellowish brown mottled hard coarsely structured medium clay.



Classification: Endohypersodic, Epipedal, Brown Vertosol; non-gravelly, fine / very fine, moderate



Summary of Properties

- Drainage:** Poorly drained. Parts of the profile may remain wet for several months following heavy or prolonged rainfall, due to thick, heavy, slowly permeable clay.
- Fertility:** Inherent fertility is high, as indicated by the exchangeable cation data. However, calcium saturation declines rapidly with depth, creating unfavourable macro-nutrient ratios. In the sampling pit, concentrations of P are low with high P fixation potential, and trace element levels are all marginal.
- pH:** Acidic at the surface, neutral with depth.
- Rooting depth:** 65 cm in sampling pit, but few roots below 25 cm.
- Barriers to root growth:**
- Physical:** The high strength of the clay reduces root density and their capacity to efficiently extract moisture.
 - Chemical:** There are no apparent chemical constraints
- Waterholding capacity:** Approximately 50 mm in the potential rootzone.
- Seedling emergence:** Fair due to poor surface friability and tendency to crack, damaging young roots.
- Workability:** Fair to poor. Soil is too hard when dry, and becomes sticky and intractable when wet.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	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	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
															Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-5	5.6	4.8	0	0.12	0.42	61	4.29	11	14	470	6.7	1890	0	1.7	1.69	544	16.7	2.25	13.0	7.44	3.73	0.67	1.18	5.1
5-25	6.5	5.1	0	0.07	0.71	58	0.63	4	2	684	3.7	3287	0	3.0	1.82	259	11.0	0.34	23.0	11.2	8.59	1.52	1.74	6.6
25-65	6.5	5.6	0	0.14	0.64	95	0.44	6	2	748	10	2793	0	6.1	1.54	197	5.49	0.47	26.7	12.5	9.84	2.31	2.01	8.7
65-110	6.2	5.5	0	0.28	1.09	226	0.28	7	2	745	35	2550	0	8.0	1.67	270	3.85	0.49	26.0	11.8	8.65	3.59	1.93	13.8
110-150	7.0	6.3	0	0.45	1.91	441	0.21	5	4	1033	54	1217	0	8.3	1.98	132	137	0.70	31.9	12.9	11.4	5.18	2.42	16.2

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 estimated by dividing the exchangeable sodium value by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

