

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.

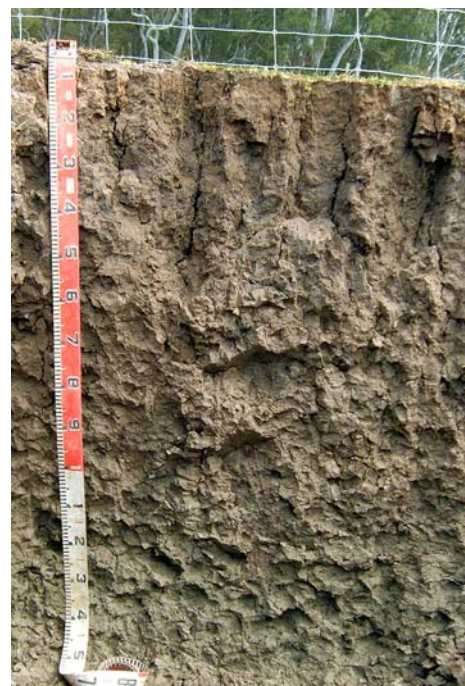
Vegetation:



Type Site: Site No.: SE109
 1:50,000 sheet: 7023-1 (Struan) Hundred: Joanna
 Annual rainfall: 600 mm Sampling date: 16/10/06
 Landform: Level surface depression within a gently undulating plain, 0% slope.
 Surface: Hard setting and seasonally cracking with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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

Water holding capacity: Approximately 50 mm in the potential root zone.

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.