

LOAM OVER FRIABLE RED CLAY ON ROCK

General Description: *Medium thickness red brown loam over a well structured red clay grading to weathering fine grained basement rock within 100 cm*

Landform: Undulating to rolling low hills and hills.

Substrate: Fine grained basement rock including siltstone, slate and phyllite.

Vegetation:



Type Site: Site No.: CH165

1:50,000 sheet: 6628-2 (Onkaparinga) Hundred: Onkaparinga

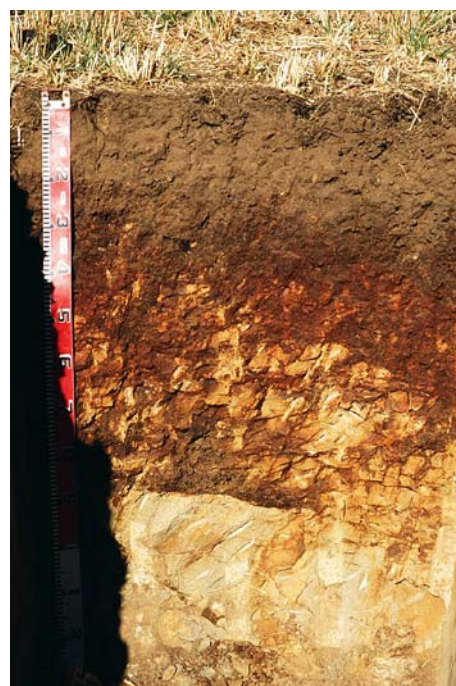
Annual rainfall: 800 mm Sampling date: 03/01/07

Landform: Upper slope of undulating low hills, 6% slope.

Surface: Hard setting surface with minor phyllite stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown firm loam with weak granular structure. Clear to:
10-20	Dark reddish brown firm massive loam. Abrupt to:
20-40	Dark reddish brown firm medium clay with strong fine polyhedral structure and 2-10% phyllite fragments to 200 mm. Gradual to:
40-85	Dark reddish brown and yellowish red hard medium clay with strong fine polyhedral structure and more than 50% phyllite fragments. Gradual to:
85-130	Weathering phyllite.



Classification: Sodic, Eutrophic, Red Chromosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well to well drained. The subsoil clay may perch water for a few days at a time following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. At the sampling site, levels of all tested nutrients are adequate. The most notable feature is the very high level of reactive iron, indicating that the soil has a high phosphate fixation potential.

pH: Acidic at the surface, to near neutral in the deep subsoil.

Rooting depth: 85 cm in sampling pit, with occasional roots penetrating the weathering rock.

Barriers to root growth:

Physical: Depth to weathering rock is the main physical determinant of root zone depth.

Chemical: There are no apparent chemical barriers to root growth, apart from low trace element levels (particularly zinc) in the subsoil.

Water holding capacity: Approximately 85 mm in the potential root zone.

Seedling emergence: Satisfactory.

Workability: The surface sets hard and can have a limited moisture range for effective working unless a good till is maintained.

Erosion Potential

Water: Moderate.

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	React Fe 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	
0-10	6.1	5.2	0	0.14	0.84	5.44	63	346	43	18.5	1.0	2420	3.14	405	117	7.63	15.3	11.2	3.08	0.31	0.78	2.0
10-20	5.9	4.7	0	0.06	0.31	2.44	13	172	8	7.8	0.6	2133	2.38	297	96.5	2.09	9.4	6.49	2.18	0.43	0.31	4.6
20-40	6.1	5.3	0	0.07	0.36	1.41	8	162	13	25.3	1.2	1656	3.01	115	52.9	0.47	18.8	11.9	5.63	0.9	0.41	4.8
40-85	6.5	5.2	0	0.06	0.43	0.53	11	98	38	24.5	0.6	1338	0.99	60	3.26	0.06	19.7	11.7	6.00	1.72	0.27	8.8
85-130	6.9	5.6	0	0.02	0.17	0.25	5	139	9	6.3	0.2	477	0.32	34	6.94	0.29	8.6	5.55	2.30	0.63	0.14	7.3

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.