

## VERY THICK IRONSTONE GRAVELLY SAND OVER CLAY

**General Description:** *Very thick bleached sand with ironstone gravel over tightly packed brown clay*

**Subgroup soil:** J2 – J3.

**Landform:** Edge of plateau surface.

**Substrate:** Mottled clay (deeply weathered material).

**Vegetation:** Stringybark and banksia

<b>Type Site:</b>	Site No.:	CK021	1:50,000 mapsheet:	6326-3 (Vivonne)
	Hundred:	Seddon	Easting:	701 380
	Section:	70	Northing:	6026 710
	Sampling date:	26/11/04	Annual rainfall:	630 mm average

Gently undulating rises at southern edge of plateau overlooking Vivonne Bay; loose sandy surface with minor ferricrete fragments (6-40 cm).

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Dark brown strongly water repellent loose loamy sand with <2% ironstone gravel (2-20 mm). Clear to:
13-15	Dark grey brown water repellent clayey sand with <2% ironstone gravel (2-20 mm). Clear to:
15-42	Brown clayey water repellent sand with 20-50% ironstone gravel (2-20 mm). Clear to:
42-75	Very pale brown bleached loamy sand with 90% ironstone gravel and ferricrete fragments (2-200 mm). Abrupt to:
75-90	Yellowish brown light clay with yellowish red mottles and weak subangular blocky (20-50 mm) breaking to moderate lenticular (<2-5 mm) structure.

**Classification:** Bleached-Ferric, Mesotrophic, Brown Chromosol; very thick, non-gravelly, sandy/clayey, moderate.



## Summary of Properties

**Drainage:** Imperfectly drained. Water may perch on top of the clay for significant periods, however, lateral movement of water downslope through soil over clayey subsoil would be considerable, as would corresponding lateral water movement from higher ground. Deep drainage is moderate due to presence of impeding clay at 75 cm.

**Fertility:** Inherent fertility is very low to low. In addition, this is an unfertilised off-paddock site. All fertility indicators are poor. Subsoil is a deeply weathered clay with low nutrient retention capacity. Organic matter levels in surface soil are good, however, this is an indication of low microbial activity.

**pH:** Upper topsoil is acidic, and lower topsoil and upper subsoil are neutral.

**Rooting depth:** 75 cm in pit.

### Barriers to root growth:

**Physical:** Thick ironstone gravel from 42-75 cm would restrict some root growth. More importantly the tightly packed subsoil clay would impede many roots (especially those of annual plants).

**Chemical:** General low fertility. P is very low throughout. Reactive iron levels indicate P fixation, especially in the 15-42 cm layer. Leaching of P with lateral water movement across clay surface is also possible. K levels are low in the topsoil. B levels are low throughout. Zn levels are also low throughout. Nutrient retention capacity of soil is very low to low.

**Waterholding capacity:** Low.

Total available: approximately 37 mm

**Seedling emergence:** Good. Although water repellence would result in uneven wetting and possibly patchy germination and seedling emergence.

**Workability:** Good.

### Erosion Potential:

**Water:** Low.

**Wind:** Moderate to moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> mg/kg	Boron mg/kg	React. Iron mg/kg	Al CaCl <sub>2</sub> 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	Al	
0-13	6.6	4.5	0	0.031	0.24	1.73	3	54	6.3	0.3	578	2.2	0.68	76.9	6.24	0.33	1.74	1.12	0.39	0.09	0.10	0.04	na
13-15	6.2	4.8	0	0.028	0.20	1.03	1	41	3.4	0.2	838	1.8	0.65	93.8	6.83	0.26	1.56	0.79	0.42	0.20	0.08	0.07	na
15-42	6.5	5.2	0	0.023	0.14	0.78	<1	31	2.7	0.3	1316	0.4	0.75	43.7	6.27	0.37	0.98	0.46	0.29	0.15	0.06	0.02	na
42-75	6.8	6.1	0	0.016	0.12	0.19	<1	40	2.1	0.2	462	0.0	0.12	14.7	2.21	0.13	0.68	0.28	0.27	0.04	0.09	0.0	na
75-90	6.9	5.6	0	0.044	0.15	0.41	<1	270	25.9	0.9	906	0.0	0.23	14.8	2.64	0.22	6.05	1.64	3.42	0.30	0.69	0.0	4.96

**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.

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

