

SHALLOW IRONSTONE GRAVELLY BLEACHED SAND OVER FERRICRETE

General Description: *Bleached shallow sand with ironstone gravel over ferricrete (cemented ironstone gravel)*

Subgroup soil: J3.

Landform: Upper slope.

Substrate: Below ferricrete:
mottled clay (deeply weathered material).

Vegetation: Banksias and Eucalypts (including stringybark)

Type Site:	Site No.:	CK022	1:50,000 mapsheet:	6326-3 (Vivonne)
	Hundred:	Newland	Easting:	685210
	Section:	31	Northing:	6021820
	Sampling date:	16/12/04	Annual rainfall:	700 mm average

Gently undulating rises adjacent to Mt Taylor Conservation Park; loose sandy surface with slight amounts of ferricrete fragments (6-60 cm) brought to surface by ripping when establishing bluegum plantation (extremely poor establishment of trees in this area).

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark brown strongly water repellent loose loamy sand. Gradual to:
15-35	Bleached grey brown water repellent loamy sand sand with 2% ironstone gravel (2-6 mm). Abrupt to:
35-40	Grey brown loamy sand with 90% ironstone gravel (6-20 mm). Abrupt to:
40+	Ferricrete sheet – consisting of cemented ironstone gravel:

Classification: Acidic, Ferric-Petroferric, Bleached-Leptic Tenosol; medium, non-gravelly, sandy/-, shallow.



Summary of Properties

- Drainage:** Moderately well drained. Water would 'perch' on ferricrete layer, however, lateral movement through the sandy soil over the ferricrete layer would be considerable.
- Fertility:** Inherent fertility is very low. The 'paddock' sample is from established pasture land (now with bluegum forestry, although establishment has not occurred in this area), while the pit site was on adjacent unfertilised off-paddock land bounding native scrub – this, and the fact the paddock sample is taken to a shallower depth, account for differences in nutrient analyses. The sum of cations data indicate the very low nutrient retention capacity of this bleached sandy and acidic soil. K and the trace element B have low levels. Organic matter levels in surface soil are good, however, this is an indication of low microbial activity.
- pH:** The sandy soil above the ferricrete is strongly acidic to acidic.
- Rooting depth:** 40 cm in pit.
- Barriers to root growth:**
- Physical:** Ferricrete at 40 cm restricts root growth.
 - Chemical:** General low fertility.
- Waterholding capacity:** Low.
Total available: approx 34 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.

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	SO ₄ mg/kg	Boron mg/kg	React. Iron mg/kg	Al CaCl ₂ 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	
Paddock	5.7	4.8	0	0.053	0.35	1.9	28	66	4.4	0.3	297	1.5	0.80	74.3	3.17	2.30	5.25	4.17	0.81	0.12	0.12	0.03	na
0-15	5.5	4.4	0	0.038	0.33	2.06	3	47	3.7	0.3	191	1.4	0.34	63.0	2.86	0.53	3.53	2.54	0.73	0.10	0.12	0.04	na
15-35	5.6	4.4	0	0.012	5.08	0.47	1	28	1.3	0.2	157	1.1	0.23	30.4	1.54	0.08	0.59	0.30	0.14	0.03	0.08	0.04	na
35-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
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](#)

