

THICK SAND OVER COARSELY STRUCTURED CLAY (Karkoo soil)

General Description: *Thick bleached sand abruptly overlying a coarsely structured brown or yellow mottled clayey subsoil, calcareous with depth*

Landform: Very gently undulating plain.

Substrate: Clayey Tertiary sediments.

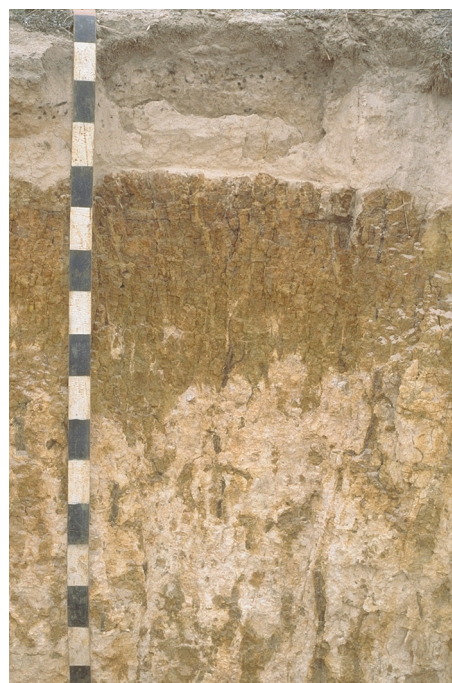
Vegetation:

Type Site:	Site No.:	EL008	1:50,000 mapsheet:	6029-4 (Yeelanna)
	Hundred:	Shannon	Easting:	565900
	Section:	108	Northing:	6227950
	Sampling date:	26/03/1992	Annual rainfall:	415 mm average

Lower slope of gently undulating plain. Soft surface with 10-20% calcrete stone (20-60 mm).

Soil Description:

Depth (cm)	Description
0-15	Greyish brown loose loamy sand. Diffuse to:
15-40	Very pale brown (bleached) loose fine sand. Abrupt to:
40-90	Brownish yellow and red very hard medium clay with strong coarse prismatic breaking to fine angular blocky structure. Sharp to:
90-200	Pale yellow and orange very hard medium clay with moderate fine angular blocky structure and more than 50% fine carbonate segregations.



Classification: Sodic, Hypercalcic, Yellow Chromosol; thick, gravelly, sandy / clayey, very deep



Summary of Properties

- Drainage:** Imperfectly drained. Water perches on the dense clayey subsoil for periods of up to several weeks following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low as indicated by the exchangeable cation data. Although nutrient retention capacity of the clayey subsoil is high, the 40 cm of surface soil above has very low capacity due to low clay and organic matter contents. Phosphorus applications are required regularly, and data suggests there is phosphate leaching.
- pH:** Neutral at the surface, strongly alkaline with depth.
- Rooting depth:** 150 cm in pit, but below 90 cm, roots are confined to clay pockets.
- Barriers to root growth:**
- Physical:** The dense clayey subsoil prevents uniform root distribution, so water use efficiency is lost.
 - Chemical:** High pH from 90 cm inhibits deeper root growth.
- Waterholding capacity:** Approximately 90 mm in rootzone.
- Seedling emergence:** Satisfactory, although water repellence is a problem in dry seasons.
- Workability:** Soft surface is easily worked.
- Erosion Potential:**
- Water:** Moderately low. Slope is gentle, but soil is highly erodible.
 - Wind:** Moderate due to loose sandy low organic matter surface.

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 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	
0-15	7.0	6.5	0	0.20	1.00	0.52	15	-	60	4	0.6	0.41	7.9	1.41	0.94	2.0	3.8	0.5	0.10	0.20	na
15-40	7.4	7.0	1	0.20	0.85	-	22	-	141	2	0.3	0.16	14	1.27	0.35	1.2	0.7	0.1	0.06	0.14	na
40-90	7.9	7.4	8	0.52	2.02	-	-	-	290	8	4.4	0.54	5.1	0.86	0.48	25.1	14.8	7.6	1.26	2.87	5.0
90-200 *	9.4	8.5	3	0.56	1.83	-	-	-	310	15	3.5	0.79	9.9	0.99	0.58	17.4	9.4	5.2	1.37	1.88	7.9
90-200 +	9.6	8.6	50	0.55	1.41	-	-	-	-	-	-	0.79	9.9	1.41	0.94	-	-	-	-	-	-

Note: 90-200 *Clay fraction of layer
90-200 +Carbonate fraction of layer.

CEC (cation exchange capacity) is 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

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

