

THICK SAND OVER SANDY CLAY

General Description: *Thick bleached sand over a massive to weakly structured sandy clay, calcareous with depth*

Landform: Very gently undulating plain.

Substrate: Coarsely structured
Pleistocene age heavy clay
(Blanchetown Clay
equivalent)

Vegetation: Mallee - heath



Type Site: Site No.: MM057

1:50,000 sheet: 7026-2 (Shaugh)

Hundred: Fisk

Annual rainfall: 425 mm

Sampling date: 25/08/92

Landform: Flat

Surface: Loose with no stones

Soil Description:

| Depth (cm) | Description |
|------------|--|
| 0-12 | Dark greyish brown loose sand. Abrupt to: |
| 12-30 | Very pale brown (bleached) loose sand. Diffuse to: |
| 30-40 | Very pale brown (bleached) loose sand. Sharp to: |
| 40-55 | Yellowish brown hard light sandy clay with weak coarse columnar structure. Clear to: |
| 55-75 | Brown and pale olive light sandy clay with weak coarse prismatic structure. Diffuse to: |
| 75-155 | Light olive brown and light olive grey mottled medium heavy clay with strong coarse prismatic / lenticular structure and minor fine calcareous segregations. Diffuse to: |
| 155-195 | Yellowish red and light olive grey mottled heavy clay with strong coarse prismatic / lenticular structure. |



Classification: Bleached-Sodic, Hypocalcic, Brown Chromosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

- Drainage** Well drained. Soil rarely remains wet for more than a day or so following heavy or prolonged rainfall.
- Fertility** Inherent fertility of surface soil is low, as indicated by the exchangeable cation data, and the low clay and organic carbon contents. Although there is subsoil retention capacity, the surface soil is prone to deficiencies of phosphorus, nitrogen, copper and zinc. Manganese is required for lupins.
- pH** Neutral at the surface, strongly alkaline with depth.
- Rooting depth** Roots to 75 cm in pit, but few below 55 cm.
- Barriers to root growth**
- Physical:** The subsoil clay impedes root development to some extent.
 - Chemical:** High pH from 55 cm, and low fertility status restrict root growth.
- Water holding capacity** 45 mm in root zone.
- Seedling emergence:** Reduced by water repellence.
- Workability:** Soft / loose surface is easily worked.
- Erosion Potential**
- Water:** Low.
 - Wind:** Moderate.

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CO ₃ % | EC1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K mg/kg | Boron mg/kg | Trace Elements mg/kg (DTPA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|----------------|--------------------------------|-----|-------|-------|-----------------------|------------------------------------|-------|------|------|------|
| | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | |
| Paddock | 6.6 | 6.2 | <1 | 0.03 | 0.27 | 0.4 | 8 | <40 | <0.40 | 0.13 | 6.8 | 2.5 | 0.47 | 2.3 | 1.84 | 0.32 | 0.04 | 0.07 | na |
| 0-12 | 6.8 | 6.5 | <1 | 0.02 | 0.32 | 0.3 | 6 | <40 | 0.89 | 0.09 | 5.9 | 1.8 | 0.29 | 1.8 | 1.72 | 0.30 | 0.05 | 0.05 | na |
| 12-30 | 6.9 | 6.9 | <1 | 0.02 | 0.18 | 0.1 | 3 | <40 | 0.65 | 0.08 | 4.4 | 0.08 | <0.06 | 0.8 | 0.59 | 0.15 | 0.05 | 0.03 | na |
| 30-40 | 7.4 | 7.2 | <1 | 0.02 | 0.22 | <0.1 | <2 | <40 | <0.40 | <0.05 | 4.3 | <0.06 | <0.06 | 0.9 | 0.56 | 0.22 | 0.07 | 0.09 | na |
| 40-55 | 8.4 | 7.4 | <1 | 0.06 | 0.53 | 0.1 | <2 | 180 | 2.2 | 0.14 | 5.9 | <0.06 | <0.06 | 10.9 | 4.08 | 4.63 | 0.49 | 0.53 | 4.5 |
| 55-75 | 9.3 | 8.0 | <1 | 0.13 | 0.54 | <0.1 | <2 | 240 | 3.2 | 0.13 | 4.7 | 0.2 | <0.06 | 12.0 | 3.85 | 5.97 | 0.96 | 0.69 | 8.0 |
| 75-155 | 9.6 | 8.0 | 2 | 0.27 | 0.67 | <0.1 | <2 | 390 | 4.1 | 0.43 | 5.9 | 0.44 | <0.06 | 21.2 | 3.40 | 11.75 | 4.24 | 1.06 | 20.0 |
| 155-195 | 6.8 | 5.9 | <1 | 0.21 | 0.87 | <0.1 | <2 | 400 | 2.8 | 0.8 | 15 | 0.12 | <0.06 | 25.1 | 1.97 | 11.61 | 6.14 | 1.05 | 24.4 |

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

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.