

## SAND OVER POORLY STRUCTURED BROWN CLAY

**General Description:** *Bleached sand over a coarsely structured dispersive brown clay, calcareous with depth*

**Landform:** Gently undulating plains.

**Substrate:** Pleistocene age Blanchetown Clay equivalent, thin over ironstone gravelly sandy clay.

**Vegetation:** Mallee

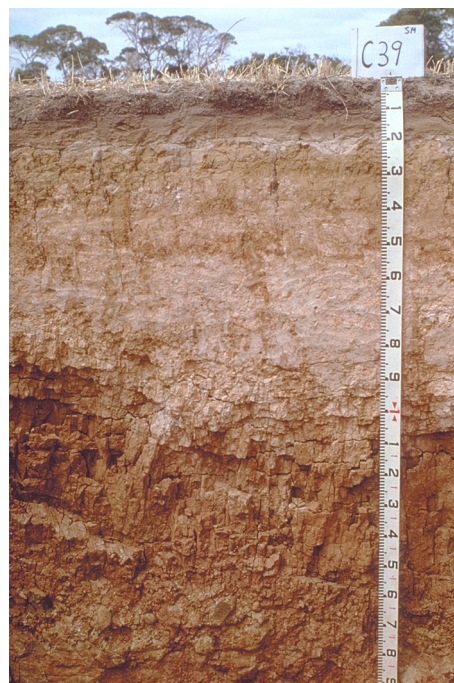


|                   |                |            |                    |                   |
|-------------------|----------------|------------|--------------------|-------------------|
| <b>Type Site:</b> | Site No.:      | MM039      | 1:50,000 mapsheet: | 6927-2 (Parrakie) |
|                   | Hundred:       | Cotton     | Easting:           | 447750            |
|                   | Section:       | 32         | Northing:          | 6085150           |
|                   | Sampling date: | 29/11/1991 | Annual rainfall:   | 370 mm average    |

Flat on gently undulating plain. Soft surface, no stones.

### Soil Description:

| Depth (cm) | Description   |
|------------|---|
| 0-9        | Very dark greyish brown soft single grain loamy sand. Abrupt to:                                    |
| 9-13       | Dark greyish brown soft loamy sand. Abrupt to:  |
| 13-18      | Brown massive clayey sand. Abrupt to:   |
| 18-21      | Bleached soft loamy sand. Sharp to:   |
| 21-35      | Orange and yellowish brown hard sandy light clay with coarse columnar structure. Diffuse to:        |
| 35-53      | Orange and pale brown hard highly calcareous light clay with coarse columnar structure. Diffuse to: |
| 53-100     | Reddish yellow highly calcareous sandy clay loam with 20-50% carbonate nodules. Diffuse to:         |
| 100-160    | Red and pale brown hard medium clay with coarse angular blocky structure. Diffuse to:               |
| 160-190    | Red and yellow massive sandy clay with more than 50% ironstone nodules. Diffuse to:                 |
| 190-200    | Red and yellow massive sandy clay loam.   |



**Classification:** Supracalcic, Mottled-Subnatric, Brown Sodosol; medium, non-gravelly, sandy / clayey, deep



## Summary of Properties

- Drainage:** Moderately well drained. Water perches on the clayey subsoil for a week or so following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low as indicated by the exchangeable cation data. Although the subsoil has high nutrient retention capacity, the low clay and low organic matter surface soil does not. Although levels are satisfactory at the sampling site, there is potential for phosphorus, nitrogen, zinc, copper and manganese deficiencies.
- pH:** Slightly acidic at the surface, strongly alkaline at depth.
- Rooting depth:** 53 cm in pit.
- Barriers to root growth:**
- Physical:** Dense dispersive clayey subsoil restricts optimal root distribution.
  - Chemical:** High pH, boron and sodicity from 53 cm inhibit further root growth.
- Waterholding capacity:** 70 mm in rootzone.
- Seedling emergence:** Satisfactory but can be affected by water repellence in dry seasons.
- Workability:** Loose to soft surface is easily worked.
- Erosion Potential:**
- Water:** Low.
  - Wind:** Moderate.

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | Boron<br>mg/kg | Trace Elements mg/kg<br>(DTPA) |     |      |      | CEC<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |       |       |      | ESP  |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|----------------|--------------------------------|-----|------|------|-----------------------|------------------------------------|-------|-------|------|------|
|             |                        |                         |                      |               |             |            |                      |                      |                | Cu                             | Fe  | Mn   | Zn   |                       | Ca                                 | Mg    | Na    | K    |      |
| Paddock     | 6.2                    | 5.8                     | <0.1                 | 0.11          | 0.85        | 0.81       | 29                   | 190                  | 1.4            | 0.30                           | 20  | 4.4  | 0.55 | 5.3                   | 3.97                               | 1.38  | 0.12  | 0.48 | 2.3  |
| 0-9         | 6.0                    | 6.0                     | 0.5                  | 0.08          | 0.50        | 1.0        | 31                   | 200                  | 1.6            | 0.27                           | 36  | 5.1  | 1.3  | 5.0                   | 3.37                               | 1.11  | 0.08  | 0.48 | 1.6  |
| 9-13        | -                      | -                       | -                    | -             | -           | -          | -                    | -                    | -              | -                              | -   | -    | -    | -                     | -                                  | -     | -     | -    | -    |
| 13-18       | 6.3                    | 5.6                     | <0.1                 | 0.08          | 0.43        | 0.49       | 24                   | 170                  | 1.3            | 0.25                           | 12  | 4.5  | 0.15 | 4.7                   | 3.92                               | 1.22  | 0.07  | 0.46 | 1.5  |
| 18-21       | 6.5                    | 6.2                     | <0.1                 | 0.05          | 0.26        | 0.09       | 7.0                  | 31                   | 0.88           | 0.08                           | 2.7 | 0.45 | 0.09 | 2.6                   | 1.06                               | 0.3   | 0.06  | 0.11 | na   |
| 21-35       | 8.8                    | 7.0                     | 1.6                  | 0.21          | 0.55        | 0.23       | 6.4                  | 230                  | 6.4            | 0.22                           | 21  | 0.38 | 0.10 | 18.1                  | 9.56                               | 6.43  | 0.88  | 0.86 | 4.9  |
| 35-53       | 9.2                    | 7.3                     | 14                   | 0.32          | 0.78        | 0.28       | 5.7                  | 380                  | 12             | 0.53                           | 15  | 1.1  | 0.05 | 21.0                  | 9.64                               | 8.54  | 3.27  | 1.20 | 15.6 |
| 53-100      | 9.7                    | 7.6                     | 37                   | 0.75          | 3.98        | 0.21       | 5.7                  | 550                  | 27             | 1.1                            | 13  | 0.65 | 0.06 | 17.5                  | 2.36                               | 6.86  | 9.53  | 1.44 | 54.5 |
| 100-160     | 9.1                    | 8.3                     | 1.6                  | 1.51          | 5.26        | 0.12       | 1.8                  | 790                  | 44             | 1.1                            | 12  | 0.68 | 0.04 | 31.2                  | 1.34                               | 13.38 | 15.83 | 2.14 | 50.7 |

- 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.

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

