

## SAND OVER POORLY STRUCTURED CLAY

**General Description:** *Medium thickness grey brown sand with a bleached A2 layer over a dense brown columnar structured clay, calcareous with depth*

**Landform:** Undulating rises.

**Substrate:** Tertiary clay to sandy clay (Blanchetown Clay equivalent).

**Vegetation:** Mallee.



**Type Site:** Site No.: MO018

|                  |  |                |          |
|------------------|--|----------------|----------|
| 1:50,000 sheet:  | 6727-4 (Monarto)                         | Hundred:       | Mobilong |
| Annual rainfall: | 350 mm                                   | Sampling date: | 1976     |
| Landform:        | Upper slope of undulating rise, 5% slope |                |          |
| Surface:         | Loose with no stones                     |                |          |

### Soil Description:

| <i>Depth (cm)</i> | <i>Description</i>   |
|-------------------|--|
| 0-8               | Brown loose sand. Clear to:  |
| 8-14              | Very pale brown (bleached) loose sand. Sharp to:   |
| 14-22             | Brown, reddish yellow and light red very hard sandy clay with coarse columnar structure. Clear to:   |
| 22-40             | Brown, red and yellow hard sandy clay with moderate angular blocky structure. Gradual to:  |
| 40-90             | Reddish yellow, reddish brown and yellowish red very hard, very highly calcareous medium clay with platy structure and 20-50% carbonate nodules. Gradual to: |
| 90-120            | Red, reddish brown and yellowish brown hard heavy clay with fine carbonate segregations. Clear to:   |
| 120-230           | Red, light yellowish brown and yellowish red very hard sandy clay with strong coarse prismatic structure.  |



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

## Summary of Properties

**Drainage:** Moderately well to imperfectly drained. Water perches on top of the dispersive clayey subsoil causing saturation for one or more weeks following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. Nutrient retention capacity of the surface soil is poor due to low clay content. As well as nitrogen and phosphorus, copper and zinc deficiencies are likely, and some crops will require manganese additions.

**pH:** Neutral at the surface, strongly alkaline with depth.

**Rooting depth:** Not recorded. Estimate 40 cm in pit.

### Barriers to root growth:

**Physical:** The coarsely structured dense subsoil clay restricts root growth which is confined to ped faces.

**Chemical:** High pH from 40 cm restricts deeper root growth.

**Water holding capacity:** Approximately 35 mm in the root zone.

**Seedling emergence:** Satisfactory except in seasons when water repellence is a problem.

**Workability:** The loose surface is easily worked.

### Erosion Potential

**Water:** Moderately low to moderate.

**Wind:** Moderate.

## Laboratory Data

| Depth<br>cm | Coarse<br>sand<br>% | Fine<br>sand<br>% | Silt<br>% | Clay<br>% | pH<br>H <sub>2</sub> O | CO <sub>3</sub><br>% | EC 1:5<br>dS/m | Cl<br>mg/kg | CEC<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |     |      |      | ESP  |
|-------------|---------------------|-------------------|-----------|-----------|------------------------|----------------------|----------------|-------------|-----------------------|------------------------------------|-----|------|------|------|
|             |                     |                   |           |           |                        |                      |                |             |                       | Ca                                 | Mg  | Na   | K    |      |
| 0-8         | 53                  | 41                | 0         | 4         | 7.5                    | 0                    | 0.06           | <50         | 6                     | 2.8                                | 1.0 | 0.17 | 0.41 | 2.8  |
| 8-22        | -                   | -                 | -         | -         | -                      | -                    | -              | -           | -                     | -                                  | -   | -    | -    | -    |
| 14-22       | 31                  | 33                | 0         | 32        | 8.5                    | 0                    | 0.09           | 54          | 16                    | 5.1                                | 6.9 | 2.1  | 1.2  | 13.8 |
| 22-40       | 27                  | 33                | 1         | 38        | 8.8                    | 0                    | 0.09           | 122         | 24                    | 5.5                                | 8.6 | 2.7  | 1.3  | 14.9 |
| 40-50       | 15                  | 17                | 0         | 36        | 9.5                    | 29                   | 0.36           | 250         | 26                    | 7.6                                | 8.2 | 3.3  | 1.4  | 12.7 |
| 50-90       | 14                  | 14                | 0         | 33        | 9.6                    | 37                   | 0.38           | 220         | 20                    | 7.1                                | 8.1 | 3.6  | 1.4  | 18.0 |
| 90-120      | -                   | -                 | -         | -         | -                      | -                    | -              | -           | -                     | -                                  | -   | -    | -    | -    |
| 120-150     | 29                  | 22                | 0         | 45        | 7.8                    | 0.1                  | 0.55           | 310         | 22                    | 1.6                                | 8.2 | 6.6  | 1.3  | 30.0 |
| 150-230     | -                   | -                 | -         | -         | -                      | -                    | -              | -           | -                     | -                                  | -   | -    | -    | -    |

**Note:** 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.