# DEEP BLEACHED SAND

***General Description:*** *Loose grey sand with a strongly bleached subsurface layer, becoming yellow with depth, over Tertiary sediments or a buried sand over clay profile*

**Landform:** Undulating rises.

**Substrate:** Clayey sand to sandy clay sediments of Tertiary age, or buried soil profiles formed on them.

**Vegetation:**

**Type Site:**

| | | | |
|---|---|---|---|
| Site No.: | CH146 | 1:50,000 mapsheet: | 6627-4 (Noarlunga) |
| Hundred: | Kuitpo | Easting: | 283410 |
| Section: | 868 | Northing: | 6106750 |
| Sampling date: | 17/01/05 | Annual rainfall: | 710 mm average |

Upper slope of an undulating rise, 5% slope. Loose surface with no stones.

**Soil Description:**

| *Depth (cm)* | *Description* |
|---|---|
| 0-20 | Very dark grey loose single grain light loamy sand. Clear to: |
| 20-45 | Pinkish white with grey inclusions, loose single grain sand. Diffuse to: |
| 45-75 | Brownish yellow loose single grain sand. Diffuse to: |
| Buried soil | |
| 75-105 | Reddish yellow soft single grain sand with 20-50% ironstone gravel (to 20 mm). Abrupt to: |
| 105-145 | Strong brown, red and light yellowish brown mottled firm medium clay with strong medium polyhedral structure. |

**Classification:** Basic, Arenic, Bleached-Orthic Tenosol; medium, non-gravelly, sandy/sandy, moderate overlying:
Ferric, Eutrophic, Brown Chromosol; thick, moderately gravelly, sandy/clayey, deep?

## *Summary of Properties*

**Drainage:** Rapidly drained. The soil rarely remains wet for more than a few hours at a time.

**Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. Most nutrient retention capacity is attributable to the organic matter fraction of the surface soil. Test results indicate low potassium, manganese and sulphur concentrations. Regular frequent monitoring and fertilizer applications are needed on these soils.

**pH:** Neutral to the surface, slightly acidic with depth. Slightly elevated surface pH probably caused by past lime applications.

**Rooting depth:** Roots continuing below 145 cm in the sampling pit.

**Barriers to root growth:**

**Physical:** There are no apparent physical barriers in the upper 145 cm.

**Chemical:** The only chemical barrier is low nutrient status and retention capacity.

**Waterholding capacity:** (Estimates for potential rootzone of grape vines - 145 cm at this site)
Total available: 125 mm
Readily available: 65 mm

**Seedling emergence:** Satisfactory, except where water repellent.

**Workability:** Loose sandy surface is easily worked, but inadvisable due to erosion risk.

**Erosion Potential:**

**Water:** Moderately low.

**Wind:** Moderate due to low fertility, loose sandy surface.

## *Laboratory Data*

| Depth cm | pH $H_2O$ | 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 | $SO_4$-S 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 | |
| 0-20 | 7.5 | 6.6 | 0 | 0.051 | 0.32 | 1.05 | 23 | 33 | 4 | 4.6 | 0.4 | 5.73 | 55 | 12.4 | 5.4 | 4.6 | 3.89 | 0.6 | 0.03 | 0.06 | 0.7 |
| 20-45 | 6.5 | 5.6 | 0 | 0.015 | 0.12 | 0.19 | 20 | 21 | 1 | 1.4 | 0.2 | 0.79 | 51 | 0.92 | 0.47 | 1.0 | 0.80 | 0.15 | 0.01 | 0.04 | na |
| 45-75 | 6.1 | 4.9 | 0 | 0.012 | 0.11 | 0.14 | 20 | 27 | 2 | 1.3 | 0.3 | 0.44 | 133 | 0.59 | 0.24 | 0.9 | 0.54 | 0.17 | 0.13 | 0.07 | na |
| 75-105 | 6.4 | 5.5 | 0 | 0.018 | 0.12 | 0.11 | 27 | 32 | 2 | 1.7 | 0.2 | 0.32 | 80 | 0.38 | 0.26 | 0.9 | 0.56 | 0.2 | 0.03 | 0.08 | na |
| 105-145 | 5.8 | 4.8 | 0 | 0.033 | 0.13 | 0.31 | 2 | 109 | 9 | 21.1 | 0.6 | 0.38 | 22 | 0.26 | 0.25 | 10.8 | 3.85 | 6.46 | 0.19 | 0.28 | 1.8 |

**Note**: 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