

## SAND OVER DISPERSIVE CLAY

**General Description:** *Medium to thick sand over a coarsely columnar dispersive brown clay, calcareous with depth*

**Landform:** Level plains and gentle slopes.

**Substrate:** Tertiary sandy clay to clay.

**Vegetation:**

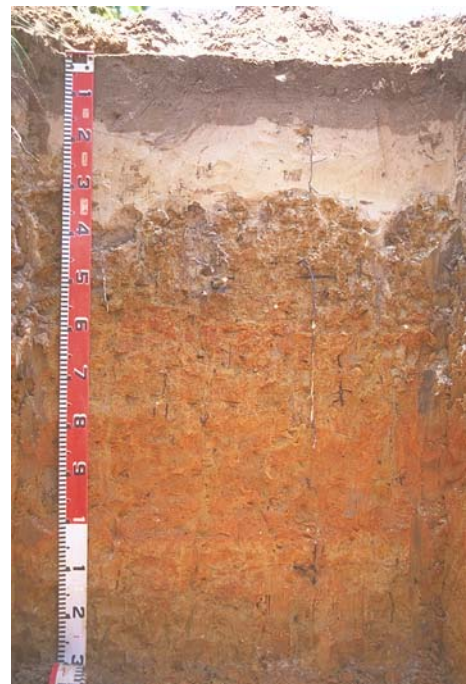


**Type Site:** Site No.: CL025

1:50,000 sheet:	6729-3 (Truro)	Hundred:	Belvidere
Annual rainfall:	500 mm	Sampling date:	01/11/95
Landform:	Flat plain, 0.5% slope		
Surface:	Loose, but with up to 8 cm surface spread calcareous clay to control water repellence and wind erosion		

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Brown loose sand. Sharp to:
15-27	Very pale brown (bleached) with brown mottles loose sand. Sharp to:
27-50	Dark yellowish brown and grey mottled hard sandy heavy clay with strong coarse columnar structure. Gradual to:
50-75	Dark yellowish brown, light brown and red mottled hard sandy medium clay with weak coarse prismatic structure. Gradual to:
75-110	Brownish yellow, olive brown and red mottled firm sandy clay loam with weak coarse blocky structure. Gradual to:
110-135	Light brown, yellowish brown and orange hard sandy medium clay with moderate coarse blocky structure and minor fine carbonate segregations.



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

## Summary of Properties

**Drainage:** Imperfectly drained. Water will perch on the dispersive clay subsoil for up to several weeks at a time, waterlogging the bleached sand layer. This is a potential problem under irrigation.

**Fertility:** Natural fertility is low due to the sandy surface (low nutrient retention capacity). Concentrations of measured nutrients at this site are generally marginal.

**pH:** Alkaline at the surface (due to top-dressing with alkaline clay), neutral in the subsoil, and strongly alkaline in the deep subsoil.

**Rooting depth:** 110 cm in pit, but few roots below 50 cm.

### Barriers to root growth:

**Physical:** The coarsely structured and dispersive clay subsoil restricts full exploitation by confining roots to the spaces between the large aggregates.

**Chemical:** High sodicity below 50 cm is the main chemical limitation to deeper root growth.

**Water holding capacity:** Approximately 40 mm in the root zone, of which about 25 mm in readily available.

**Seedling emergence:** Good - surface clay dressing overcomes water repellence.

**Workability:** Good, although cultivation leads to risk of wind erosion.

### Erosion Potential

**Water:** Low due to very gentle slope.

**Wind:** Moderate, due to sandy surface.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S 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	
Row	8.5	7.8	0	0.04	0.27	0.3	32	116	6	0.2	1.0	16	0.57	0.61	2.1	1.48	0.51	0.06	0.12	na
0-15	8.1	7.3	0	0.04	0.39	0.2	28	101	7	0.2	-	-	-	-	2.0	1.15	0.41	0.05	0.11	na
15-27	7.9	7.1	0	0.03	0.49	<0.1	29	88	7	<0.1	-	-	-	-	0.8	0.35	0.17	0.08	0.06	na
27-50	7.0	5.9	0	0.16	0.37	0.3	<4	214	23	1.9	-	-	-	-	17.9	5.87	7.55	3.03	0.56	16.9
50-75	6.7	5.6	0	0.23	0.89	0.2	<4	202	38	2.7	-	-	-	-	14.4	3.40	6.65	3.85	0.29	26.7
75-110	7.0	5.9	0	0.29	3.00	0.1	<4	138	53	2.1	-	-	-	-	8.2	1.84	3.77	2.59	0.20	31.6
110-135	9.0	8.2	0.6	0.74	3.53	0.1	<4	213	106	4.9	-	-	-	-	15.8	4.34	6.42	5.94	0.39	37.6

**Note:** Row sample bulked from cores (0-15 cm) taken along rows near 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.