

## TE3: Basic, Petroferric, Bleached-Orthic Tenosol

### General description of the soil

A coarse sandy soil with a conspicuously bleached A2e horizon abruptly overlying indurated ironstone gravel (petroferric horizon) at variable depths.

<b>Distribution:</b>	Common on the subcoastal sandplains between Perth and Geraldton, Western Australia. Similar soils are known (although less extensively) from the Top End of the Northern Territory.
<b>Typical land use:</b>	Some areas cleared for sparse grazing and restricted cropping.
<b>Common variants:</b>	Depth to the indurated horizon ranges from about 0.6 m to 1.3 m, there is similar variation in A2e thickness.
<b>World Reference Base:</b>	Plinthic Arenosol.
<b>Other names:</b>	Siliceous Sands.

### Environment and location of the example profile

<b>Landform:</b>	Undulating sand plain.
<b>Parent material or substrate:</b>	Undetermined.
<b>Drainage class:</b>	Rapidly drained.
<b>Surface condition:</b>	Loose.
<b>Site disturbance:</b>	Cleared.
<b>Site disturbance:</b>	Low heathland with <i>Xanthorrhoea</i> , <i>Dryandra</i> and <i>Acacia</i> species.

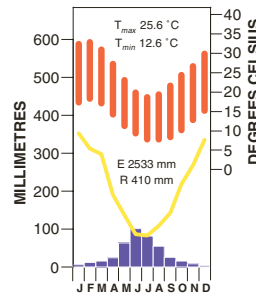


Near Northampton, south-west Western Australia

### Site location



### Site climate



### Soil morphology

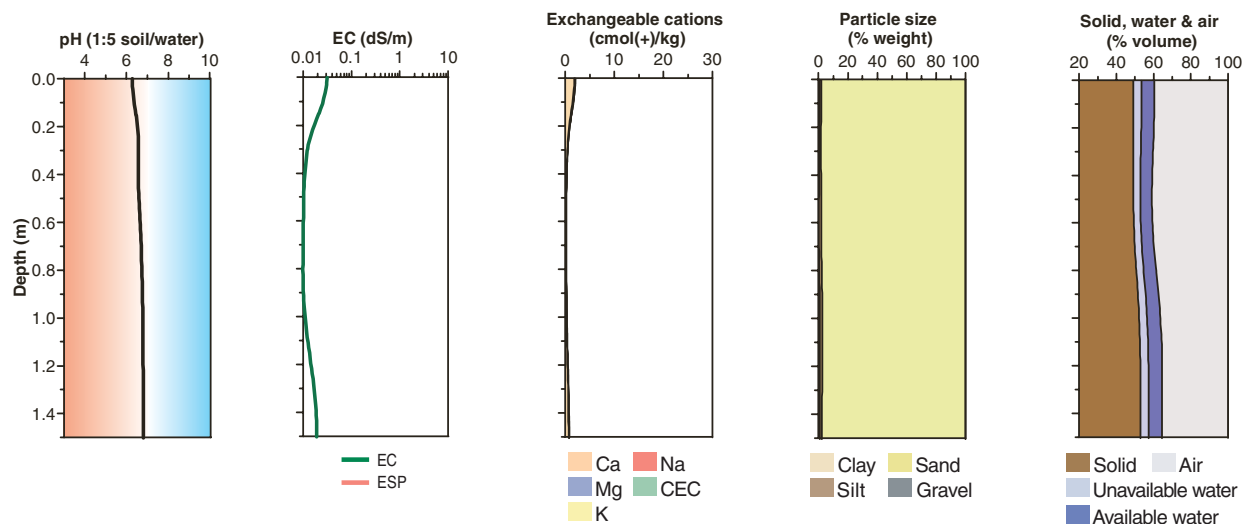
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	dark grey (10YR 4/1)	–	medium to coarse sand to loamy sand	single grain	–	–	loose	–	–	clear
A2e	0.10–1.30	very pale brown (10YR 7/4 d) pale brown (10YR 6/3)	–	medium to coarse sand	single grain	–	–	loose	some irregular ironstone gravel and stones	–	abrupt
Dcm	1.30–1.40+								indurated ironstone gravel		

### Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H <sub>2</sub> O <sup>A</sup>	pH CaCl <sub>2</sub> <sup>B</sup>	Elect. Cond. dS/m <sup>A</sup>	CaCO <sub>3</sub> %	Org. C % <sup>A</sup>	Extr. P mg/kg <sup>A</sup>	Tot. P %	Tot. K %	Cation exchange properties <sup>A</sup> cmol(+)/kg							ESP %	Bulk dens. Mg/m <sup>3</sup>	Particle size % <sup>B</sup>										
																			Ca	Mg	K	Na	H+Al	CEC	ECEC	CS	FS	Silt	Clay
A11	0.00–0.15	6.3	5.6	0.03		0.4	3			1.8	0.2	<0.1	<0.1							94	4	1	1						
A12	0.15–0.30	6.7	6.1	0.01		0.1	3			0.3	<0.1	<0.1	<0.1							96	3	1	1						
A2e	0.30–0.50	6.5	6.0	0.01		<0.1	<2			0.1	<0.1	<0.1	<0.1							91	8	1	1						
A2e	0.50–0.80	6.7	6.1	0.01		<0.1	<2			0.1	<0.1	<0.1	<0.1							89	9	2	<1						
A31	0.80–1.25	6.8	6.0	0.01		<0.1	<2			0.2	<0.1	<0.1	<0.1							84	13	2	1						
A32	1.25–1.50	6.8	6.0	0.02		0.2	<2			0.7	0.1	<0.1	<0.1							89	8	2	1						

Note: Laboratory data are for a similar soil, Ballina Series (Rogers 1996).

Key profile properties



General qualities of the soil

<b>Infiltration:</b>	Rapid unless water-repellent.
<b>Available water store:</b>	Small due to coarse texture, low organic matter and restricted depth.
<b>Permeability:</b>	High to very high.
<b>Physical root limitations:</b>	Rooting may be restricted at depth by the petroferic horizon.
<b>Erosion hazard:</b>	Wind erosion is a problem because of poor crop and pasture growth and the loose nature of the surface sand.
<b>Nutrient availability:</b>	The nutrient status of this soil is very low (especially phosphorus and potassium) due to the low clay content. Applied nutrients leach very quickly.
<b>Toxicities:</b>	None apparent.



Dissected ancient landscapes in the Geraldton district, Western Australia

Acknowledgements: Soil image, soil description and laboratory data: Agriculture Western Australia. Laboratory data are for a similar soil (Balline Series, Rogers (1996)) but without a petroferic horizon. Landscape image: Agriculture Western Australia.