

<b>Site code<sup>1</sup></b>	<b>MM111</b>
<b>Location</b>	<b>Birregurra (Conns Lane), Colac district, south-west Victoria</b>
<b>Landform</b>	Alluvial plain
<b>Geology</b>	Quaternary fluvial alluvium: <i>gravel, sand, silt</i>
<b>Element</b>	Flat

### Profile morphology

Horizon	Depth (cm)	Description
A1	0–15	Black (10YR2/1); medium clay; strong coarse blocky structure; strong consistence (dry); gradual boundary to:
B21	15–30	Very dark grey (10YR3/1) with brown (2.5Y5/4) mottles; medium heavy clay; strong coarse blocky structure; strong consistence (dry); boundary to:
B22	30+	Very dark gray (10YR3/1) with brown (2.5Y5/4) mottles; medium heavy clay; strong coarse blocky structure; strong consistence (dry).

**ASC:** Eutrophic, Mottled-Subnatric, Black Sodosol

### Analytical data<sup>2</sup>

Site MM111	Sample depth	pH		EC	NaCl	Ex Ca	Ex Mg	Ex K	Ex Na	Ex Al	Ex acidity
Horizon	cm	H <sub>2</sub> O	CaCl <sub>2</sub>	dS/m	%	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	cmol <sub>c</sub> /kg	mg/kg	cmol <sub>c</sub> /kg
A1	0–15	5.7	N/R	0.08	N/R	5	5	0.3	0.6	N/R	21.2
B21	15–30	7.1	N/R	0.23	0.02	7.5	7.5	0.2	1.8	N/R	6.3
B22	30+	7.6	N/R	0.34	0.08	7.7	7.7	0.2	3.7	N/R	4.6

Site MM111	Sample depth	FC	PWP	KS	FS	Z	C	Org C	Bulk density
Horizon	cm	(-10kPa) %	(-1500kPa) %	%	%	%	%	%	t m <sup>-3</sup>
A1	0–15	35.5	22.8	1	36	23	33	4.5	1.31
B21	15–30	18.4	17.1	1	35	20	42	N/R	1.28
B22	30+	N/R	0	1	32	17	49	N/R	N/R

### Management considerations

These soils are hardsetting surface and subsurface soils (A1 and A2) with medium to heavy textures. They are associated with sodic subsoils having poor structure. The poor structure results in dispersion and subsequent clogging of pores restricting water and gas movement through the subsoil. Mottled subsoils are common and are a further indication of periodic waterlogging and restricted water movement.

The soils are clay cracking soils throughout and vary in their workability depending on their moisture status (highly permeable when dry and impermeable when saturated). These soils are also prone to structure decline particularly when worked wet.

The application of gypsum is used to counter the effect of the sodicity and improve drainage properties. Penetration by deep-rooted crops is also useful as is minimum tillage practices which avoids bring the sodic, dispersive material to the surface.

<sup>1</sup> Source: Maher JM, Martin JJ 1987 Soils and landforms of south-western Victoria. Department of Agriculture and Rural Affairs. Research Report No. 40.

<sup>2</sup> Source: Government of Victoria, State Chemistry Laboratory.