

LUC Lucindale Land System

Area:	88.5 km ²
Landscape:	Undulating plains, near Lucindale, with low narrow, north-south oriented, remnant calcarenite ridges.
Annual rainfall:	585 – 665 mm average
Geology:	Pleistocene Padthaway Formation calcareous lacustrine clays underlie the plains, with Pleistocene Bridgewater Formation calcreted calcarenite stranded beach ridge deposits on ranges.
Main soils:	<p>B6 (30%) Shallow loam over red-brown clay on calcrete (Petrocalcic Red Chromosol-Kandosol)</p> <p>B3 (28%) Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)</p> <p>B4 (15%) Shallow red loam on limestone (Petrocalcic Red-Brown Dermosol)</p>
Minor soils:	<p>B7 (7%) Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol)</p> <p>H3 (6%) Bleached siliceous sand (sandy Bleached Tenosol)</p> <p>I1 (4%) Highly leached sand (Aeric Podosol)</p>
Summary:	The soils are mostly shallow over calcrete and so have, at least partly, restricted potential root depth and low to moderate water holding capacity. The calcrete layers are generally able to be ripped to improve rooting depth. B6 and B4 soils are well drained and, where deep enough, are sought after for viticultural and horticultural uses.

Soil Landscape Unit summary: Lucindale Land System (LUC)

SLU	% of area	Component	Main soils	Prop#	Notes
M-C	1.1	Rise	RRB3	D	Undulating rises, with shallow sandy loam, mostly over poorly structured brown, or red clay on calcrete. <50% bare calcrete. Main soils: <u>Rock or exposed calcrete – RR</u> and <u>Shallow sandy loam on calcrete – B3</u> .
MCA	0.9	Plain	B6B3B8	D	<p>MCA Plains with shallow sand, often bleached, or over red clay, on calcrete; 10-30% shallow dark clay loam over dark clay on calcrete in low, wetter parts.</p> <p>MCB Gently undulating former beach ridge “range” with shallow sand, mostly over red clay, on calcrete; or deep bleached siliceous sand; 10-30% shallow sandy loam over poorly structured brown clay on calcrete in lower parts.</p> <p>Main soils: Plains: <u>Shallow sandy loam over red-brown clay on calcrete – B6</u>, <u>Shallow sandy loam on calcrete – B3</u> and <u>Shallow sand on calcrete – B8</u>. Dune ranges: <u>Shallow sandy loam over red-brown clay on calcrete – B6</u>, <u>Shallow sandy loam on calcrete – B3</u> and <u>Bleached siliceous sand – H3</u>.</p>
MCB	4.8	Dune range	B6B3H3	D	



MDB	0.3	Rise	B4B6	D	MDB Gently sloping rises with gradational and texture contrast red loam over well-structured red clay, on calcreted calcarenite.
MDT	5.4	Plain	B4B7	V	MDT Plains with gradational shallow red sandy loam over well-structured red clay, or texture contrast, shallow sandy loam over poorly structured brown clay, on calcreted calcarenite. 10-20% swampy swales with mostly wet, sandy loam over brown clay. <10% stony rises with texture contrast shallow sandy loam over red clay on calcrete, or bare calcrete; 10-30% shallow, often bleached, loamy sand on calcrete. Main soils: Rises: <u>Shallow red loam on limestone</u> - B4 , <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6 and <u>Rock or exposed calcrete</u> - RR . Plains: <u>Shallow red loam on limestone</u> - B4 and <u>Sand over friable brown clay on calcrete</u> - B7 . Swampy swales: <u>Wet clay loam</u> - N3 & <u>Sand over acidic clay</u> - G5 .
		Swampy swale	N3G5	L	
		Stony rise	B6RR	M	
MEA A	4.0	Plain	B3	V	MEA Plains with low calcreted dune core topography, with shallow sandy loam, occasionally on red clay, on calcreted calcarenite. 10-20% sandy rises with water repellent, mostly bleached, acid, siliceous sand.
		Sandy rise	H3I1	L	
MEC	7.2	Stony rise	B3	D	MEC Undulating stony rises with shallow sandy loam, occasionally on red clay, on calcreted calcarenite; 10-30% either deeper with deeper red clay or shallower bleached sand on calcreted calcarenite. Main soils: Plains and stony rises: <u>Shallow sandy loam on calcrete</u> - B3 . Sandy rises: <u>Bleached siliceous sand</u> - H3 and <u>Highly leached sand</u> - I1 .
MHB	1.7	Dune	H3	E	MHB Gently sloping calcarenite ridges with deep bleached siliceous sands on dunes, often over brown sandy clay. Co-dominant are shallow stony rises with shallow siliceous sand on calcrete or bare rock, occasionally sandy loam on red clay on calcrete.
		Stony range	B3RR	E	
MHC	6.9	Dune range	H3I1B7	D	MHC Undulating slopes on calcarenite range as for MHB but with 10-30% of rise areas have rock outcrop or shallow sand on calcrete or deep siliceous sand. Main soils: Dunes: <u>Bleached siliceous sand</u> - H3 . Dune ranges: <u>Bleached siliceous sand</u> - H3 , <u>Highly leached sand</u> - I1 and <u>Sand over friable brown clay on calcrete</u> - B7 . Stony ranges: <u>Shallow sandy loam on calcrete</u> - B3 and <u>Rock or exposed calcrete</u> - RR .
MtB	1.5	Rise	B3B6	D	Gently sloping rises with shallow sandy loam, often over red clay, on calcrete; 10-30% bare calcrete. Main soils: <u>Shallow sandy loam on calcrete</u> - B3 and <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6 .
MwB	0.3	Undulating plain	B6B4	D	MwB Undulating plain with texture contrast or, gradational shallow red sandy loam over well structured red clay on calcrete; 10-30%



MwC	3.4	Dune range	B6B8B3	D	<p>very shallow with thin sandy loam on calcrete, or bare calcrete. MwC Undulating rises and low hills with shallow sandy loam, often bleached, or over red clay, on calcrete; 10-30% deep bleached siliceous sand or bare rock.</p> <p>Main soils: Plains: <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6 and <u>Shallow red loam on limestone</u> - B4. Dune ranges: <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6, <u>Shallow sand on calcrete</u> - B8 and <u>Shallow sandy loam on calcrete</u> - B3.</p>
MYA	0.2	Plain	B7B8B3	D	<p>MYA Plains with sand, often bleached, or over poorly structured brown clay, on calcrete.</p> <p>MYAA Plains with low dune core topography with shallow, texture contrast, sandy loam over red clay on calcareous calcarenite; 10-30% gradational red clay loam over red clay, deep or shallow over calcrete, or deep sand over brown clay. <10% rises with bare calcrete outcrop or very shallow calcareous clay loam over calcrete; 10-30% with shallow loam over red clay on calcrete.</p> <p>MYK Very gently undulating plains with gradational shallow loam over red clay on calcareous calcarenite, or shallow loam on calcrete. 10-20% swales with shallow loam over poorly structured brown clay, on calcrete; often wet.</p> <p>Main soils: Plains: <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6, <u>Shallow red loam on limestone</u> - B4, <u>Sand over friable brown clay on calcrete</u> - B7, <u>Shallow sand on calcrete</u> - B8 and <u>Shallow sandy loam on calcrete</u> - B3. Swales: <u>Sand over friable brown clay on calcrete</u> - B7 and <u>Wet clay loam</u> - N3.</p>
MYAA	30.6	Plain	B6	D	
MYK	27.1	Plain	B4B3	V	
		Swale	B7N3	L	
NBB	0.8	Stony plain	B5B2	D	<p>Stony plains with shallow, often calcareous, dark cracking clay on calcrete; 10-30% red clay loam grading to red clay on calcrete, on low rises.</p> <p>Main soils: <u>Shallow dark clay loam on limestone</u> - B5 and <u>Shallow calcareous loam on calcrete</u> - B2.</p>
NMF	0.6	Plain	F2G3	V	<p>Plains with deep sandy loam over dark poorly structured clay and deep sand over brown clay. 20-30% swamps with mostly wet, deep, clay loam over dark brown or grey clay.</p> <p>Main soils: Plains: <u>Sandy loam over poorly structured brown or dark clay</u> - F2 and <u>Thick sand over clay</u> - G3. Swamps: <u>Wet clay loam</u> - N3 and <u>Deep friable gradational clay loam</u> - M2.</p>
		Swamp	N3M2	C	
NUP	0.3	Plain	G3B7	V	<p>Plains with deep usually acid, sand over brown clay, often poorly structured and shallow on calcrete. 10-20% sandy rises with deep water repellent bleached siliceous sand.</p> <p>Main soils: Plains: <u>Thick sand over clay</u> - G3 and <u>Sand over friable brown clay on calcrete</u> - B7. Sandy rises: <u>Bleached siliceous sand</u> - H3 and <u>Highly leached sand</u> - I1. Swamps: <u>Wet clay loam</u> - N3 and <u>Deep hard gradational sandy loam</u> - M4.</p>
		Sandy rise	H3I1	L	
		Swamp	N3M4	M	



OHC	1.3	Dune	I1H3	D	Dunes with deep, water repellent acid, bleached siliceous sand. <10% stony rises with shallow sandy loam, occasionally over red clay, on calcreted calcarenite, which outcrops occasionally also. Main soils: Dunes: <u>Highly leached sand - I1</u> and <u>Bleached siliceous sand - H3</u> . Stony rises: <u>Shallow sandy loam on calcrete - B3</u> .
		Stony rise	B3	M	
OQD	0.2	Low dune	H3I1	D	OQD Low dunes with deep, bleached, acidic, water repellent sand; 10-30% deep sand over brown clay especially on lower slopes. OQG Low dunes and rises with soils as for OQF. 20-30% flats with deep sand over brown clay. Main soils: Low dunes: <u>Bleached siliceous sand - H3</u> and <u>Highly leached sand - I1</u> . Flats: <u>Bleached sand over sandy clay loam - G2</u> and <u>Thick sand over clay - G3</u> .
OQG	0.9	Low dune	H3I1	V	
		Flat	G2G3	C	
XuC	0.1	Swamp	N3	D	XuC Swamps with mostly non-peaty wet soils, but peats occur in up to 30% of areas. Xuf Swamps as for XuC above, occasionally water filled, with stony rises and/or very shallow over calcrete. Main soils: Swamps: <u>Wet clay loam - N3</u> . Stony rises: <u>Shallow calcareous loam on calcrete - B2</u> , <u>Shallow sandy loam on calcrete - B3</u> and <u>Shallow dark clay loam on limestone - B5</u> .
Xuf	0.6	Swamp	N3	V	
		Stony rise	B2B3B5	C	

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

D	Dominant in extent (>90% of SLU)	C	Common in extent (20–30% of SLU)
V	Very extensive in extent (60–90% of SLU)	L	Limited in extent (10–20% of SLU)
E	Extensive in extent (30–60% of SLU)	M	Minor in extent (<10% of SLU)

Detailed soil profile descriptions:

- B2** Shallow calcareous sandy loam on calcrete (Petrocalcic Calcarosol)
Up to 40 cm calcareous loamy sand to sandy loam with variable calcrete rubble overlying calcreted calcarenite - rises.
- B3** Shallow sandy loam on calcrete (Petrocalcic Rudosol)
Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.
- B4** Red sandy loam over calcrete (Petrocalcic, Red Dermosol)
Medium thickness red sandy loam grading to friable red clay loam over calcreted calcarenite within 50 cm - rises.
- B5** Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)
Black clay loam to light clay over calcreted limestone at shallow depth, grading to highly calcareous clay - flats.
- B6** Shallow sandy loam over red-brown clay on calcrete (Petrocalcic, Red Kandosol)
Medium thickness sandy loam with slight ironstone gravel overlying a weakly structured reddish brown sandy clay on calcarenite within 50 cm - rises.
- B7** Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol)
Medium thickness sand overlying brown friable sandy clay to clay on limestone or calcreted sandy clay within 50 cm - flats.



- B8** Shallow sand on calcrete (Petrocalcic, Bleached-Leptic Tenosol)
Thick bleached sand over calcreted calcarenite within 50 cm - rises.
- F2** Sandy loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol)
Topsoil <30 cm over a poorly structured subsoil. Loamy, often sandy loam, to clay loamy texture contrast soil with a sodic/dispersive/poorly structured brown clayey subsoil. Often sandy loam, usually with a bleached horizon, and thin topsoil over a poorly structured B.
- G2** Bleached sand over sandy clay loam (sandy Brown-Red Chromosol)
Sandy texture contrast soil with a bleached A2 and a friable brown-red sandy clay loam to sandy loam subsoil.
- G3** Thick sand over clay (Hypercalcic, Brown Sodosol/ Chromosol)
Thick bleached sand with an organically darkened surface abruptly overlying a massive to coarsely structured brown to reddish yellow sandy clay to clay, calcareous with depth - rises.
- G5** Sand over acidic clay (Sandy Brown Kurosol)
Sandy texture contrast soil with a friable brown strongly acidic clayey to clay loamy subsoil. Very acidic soil; incipient Bh horizons; moderate depth topsoils. Some with ironstone.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)
Grey sand over a very thick bleached sand grading to yellow sand continuing below 100 cm.
- I1** Highly leached sand (Fragic, Pipey, Aeric Podosol)
Grey sand with a very thick bleached A2 layer, over dark brown and yellow massive soft to semi-hard clayey sand (coffee rock), grading to softer yellow and brown sand to sandy clay loam from about 80 cm.
- M2** Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)
Deep well structured red clay loamy soil.
- M4** Deep hard gradational sandy loam (Hard Brown-Dark Kandosol- Dermosol)
Deep dark brown loamy to clay loamy soil grading to clay at depth. Hardsetting surface often with prismatic structures in the subsoil.
- N3** Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:
N3c Wet **G3**
N3d Wet **B5**
N3e Wet **B7**
- RR** Bare rock

Further information: [DEWNR Soil and Land Program](#)

