

# SHO Short Land System

<b>Area:</b>	139 km <sup>2</sup>
<b>Landscape:</b>	Plains south west of Penola and a corridor plain east of Lucindale, with mainly sand over clay soils with some parallel dunes, calcarenite rises and swamps.
<b>Annual rainfall:</b>	600 - 800 mm average
<b>Geology:</b>	Mostly Pleistocene Padthaway Formation calcareous lacustrine clays, with occasional Pleistocene Bridgewater Formation calcreted calcarenite stranded beach ridge deposits.
<b>Main soils:</b>	<b>G3</b> (47%) Thick sand over clay (sandy Brown-Red Chromosol-Sodosol) <b>G4</b> (11%) Sand over poorly structured clay (sandy Brown-Red Sodosol-Chromosol)
<b>Minor soils:</b>	<b>F2</b> (7%) Loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol) <b>I2</b> (6%) Wet highly leached sand (Aquic or Semi-Aquic Podosol) <b>N3</b> (6%) Wet soil (non to moderately saline) (Sodosolic-Calcarosolic-Dermosolic Hydrosol) <b>G2</b> (6%) Bleached sand over sandy clay (sandy Brown-Red Chromosol-Sodosol) <b>B7</b> (5%) Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol)
<b>Summary:</b>	The sand-over-clay soils which predominate in this land system typically have impeded drainage and infertile surface soils. These problems are compounded further by water repellence and soil acidity. They are susceptible to seasonal waterlogging, but tend to dry out quickly. Consequently, productivity is difficult to maintain unless ameliorative measures are taken.

## Soil Landscape Unit summary: Short Land System (SHO)

SLU	% of area	Component	Main soils	Prop#	Notes
NDO	16.1	Plain	G3B7	V	Plains with sand or sandy loam over poorly structured brown clay, often on calcrete. 20-30% sandy rises with deep bleached sands, with impeded drainage over coffee rock or brown clay. 10-20% stony rises with loam, mostly over red clay, on calcrete; but often thin loam on calcrete; 10-30% bare calcrete.  Main soils: <b>Plains:</b> <u>Thick sand over clay - G3</u> , <u>Sand over friable brown clay on calcrete - B7</u> and <u>Shallow dark clay loam on limestone - B5</u> . <b>Sandy rises:</b> <u>Wet highly leached sand - I2</u> and <u>Thick sand over clay - G3</u> . <b>Stony rises:</b> <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> and <u>Shallow sandy loam on calcrete - B3</u>
		Sandy rise	I2G3	C	
		Stony rise	B6B3	L	
NMI	5.1	Plain	F2G3	V	NMI Plains with mostly thin sandy loam on poorly structured brown clay, but often thick sand over brown clay. 20-30% swampy plains with mostly wet, deep dark clay loam over dark clay soils.
		Swampy plain	N3M2	C	
NMm	2.1	Plain	G3	V	NMm Plains with thick loamy sand over brown clay; 10-30% shallow sandy loam to clay loam, over poorly structured brown or yellow-grey clay on calcrete. 10-20% stony rises with shallow loamy sand
		Stony rise	B5B6	L	
		Swamp	N3M2	M	



					<p>over dark clay loam, or over red clay, on calcrete; 10-30% shallow calcareous sandy loam on calcrete. &lt;10% swamps with mostly wet, organic loamy sand over dark clay, or deep dark clay loam over poorly structured dark clay.</p> <p>Main soils:  <b>Plains:</b> <u>Sandy loam over poorly structured brown or dark clay - F2</u> and <u>Thick sand over clay - G3</u>.  <b>Swamps and swampy plains:</b> <u>Wet clay loam - N3</u>, <u>Deep friable gradational clay loam - M2</u>.  <b>Stony rises:</b> <u>Shallow dark clay loam on limestone - B5</u> and <u>Shallow sandy loam over red-brown clay on calcrete - B6</u>.</p>
NOB	2.3	Stony plain	B5	D	<p>Stony plains with shallow dark cracking clay over calcareous dark clay, on calcrete.</p> <p>Main soils: <u>Shallow dark clay loam on limestone - B5</u>.</p>
NSF	5.2	Plain	G3	V	<p><b>NSF</b> Plains with deep acid sand over, often strongly acid brown clay soils; 10-30% deep clay loam to dark grey-brown clay soils. 10-20% swamps with often wet, non-peaty clay loams; 10-30% deep, black cracking clay or clay loam over dark brown poorly structured clay.</p> <p><b>NSI</b> Drainage depressions and swamps with soils as above.</p> <p>Main soils:  <b>Plains:</b> <u>Thick sand over clay - G3</u>.  <b>Swamps:</b> <u>Wet clay loam - N3</u>.</p>
		Swamp	N3	L	
NSI	1.5	Drainage depression	G3	V	
		Swamp	N3	L	
NTF	0.5	Plain	G3	V	<p><b>NTF</b> Plains with sand over brown clay. 20-30% swamps with often wet, clay loam over dark brown clay soils.</p>
		Swamp	F2N3	C	
NTP	30.4	Plain	G3G4	V	<p><b>NTP</b> Plains as above soils, often with poorly structured clay subsoils; 20-30% sandy rises with deep sands, mostly over brown clay, but also coffee rock. &lt;10% swamps with often wet, sand over poorly structured clay and cracking clay soils.</p>
		Rise	G3I2	C	
		Swamp	G4N3 E3	M	
NTS	0.8	Plain	G3	E	<p><b>NTS</b> Plains as for <b>NTF</b>; 30-60% sandy rises with deep, bleached, strongly water repellent, acid sand; 10-30% with impeded drainage over coffee rock or clay. 20-30% swamps with wet organic loam over dark clay.</p> <p>Main soils:  <b>Plains:</b> <u>Thick sand over clay - G3</u> and <u>Sand over yellow and brown clay - G4</u>.  <b>Swamps:</b> <u>Wet clay loam - N3</u>, <u>Sand over yellow and brown clay - G4</u>, <u>Brown or grey cracking clay - E3</u> and <u>Sandy loam over poorly structured brown or dark clay - F2</u>.  <b>Sandy rises:</b> <u>Thick sand over clay - G3</u>, <u>Bleached siliceous sand - H3</u> and <u>Wet highly leached sand - I2</u>.</p>
		Sandy rise	I1H3	E	
		Swamp	N3	C	
NUP	10.1	Plain	G3	V	<p><b>NUP</b> Plains with deep, usually acid, sand over brown clay. 20-30% sandy rises with deep water repellent bleached siliceous sand. &lt;10% swamps with mostly wet, deep dark non-cracking clay soils, often with poorly structured subsoils.</p>
		Sandy rise	I1H3	C	
		Swamp	N3	M	
NUS	12.0	Plain	G2G3	V	<p><b>NUS</b> Plains as above; 10-20% swamps as above; &lt;10% sandy rises as above, but also with sand over brown clay.</p>
		Swamp	N3	L	
		Sandy rise	I1H3 G3	M	
NUs	0.4	Plain	G3	V	<p><b>NUs</b> Plains, swamps and sandy rises as for NUS, but swamps are marginally saline with 2-10% highly saline.</p> <p>Main soils:  <b>Plains:</b> <u>Thick sand over clay - G3</u> and <u>Bleached sand over sandy clay loam - G2</u>.  <b>Sandy rises:</b> <u>Thick sand over clay - G3</u>, <u>Bleached siliceous sand - H3</u>, <u>Highly leached sand - I1</u> and <u>Bleached sand over sandy clay loam - G2</u>.  <b>Swamps:</b> <u>Wet clay loam - N3</u>.</p>
		Swamp	N3	L	
		Sandy rise	I1H3 G2	M	



NvD	0.8	Plain	G4	D	<p><b>NvD</b> Plains with thin sandy loam, over poorly structured brown clay. &lt;10% sandy rises with deep acid bleached sand on acid clay or coffee rock.</p> <p>Main soils:  <b>Plains:</b> <u>Sand over yellow and brown clay - G4.</u>  <b>Sandy rises:</b> <u>Sand over acidic clay - G5</u> and <u>Wet highly leached sand - I2.</u></p>
		Sandy rise	G5I2	M	
NvM	5.5	Plain	F2	V	<p><b>NvM</b> Plains with deep loam over dark poorly structured clay. 10-20% stony rises with shallow loam over red clay on calcrete, or shallow, mostly calcareous loam on calcrete; 10-30% loam over poorly structured brown clay. &lt;10% swamps with often wet, deep, dark clay loam or cracking clay over dark clay.</p> <p>Main soils:  <b>Plains:</b> <u>Sandy loam over poorly structured brown or dark clay - F2.</u>  <b>Stony rises:</b> <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> and <u>Shallow calcareous loam on calcrete - B2.</u>  <b>Swamps:</b> <u>Wet clay loam - N3</u>, <u>Deep hard gradational sandy loam - M4</u> and <u>Brown or grey cracking clay - E3.</u></p>
		Stony rise	B6B2	L	
		Swamp	N3M4 E3	M	
OHG	1.4	Low dune	I1H3	V	<p>Low dunes with deep, strongly water repellent, acid, bleached, siliceous sands; 10-30% shallow sand over red clay on calcrete. 10-20% swales with, occasionally wet, deep sand over brown clay, sometimes on calcrete.</p> <p>Main soils:  <b>Dunes:</b> <u>Highly leached sand - I1</u> and <u>Bleached siliceous sand - H3.</u>  <b>Swales:</b> <u>Thick sand over clay - G3.</u></p>
		Swale	G3	L	
PRb	2.1	Plain	G3I2	V	<p>Sand plains with moderately well drained, deep sand over brown clay or coffee rock. 10-20% low dunes with mostly deep bleached siliceous sand, often over coffee rock, occasionally brown clay.</p> <p>Main soils:  <b>Plains:</b> <u>Thick sand over clay - G3</u> and <u>Wet highly leached sand - I2.</u>  <b>Low dunes:</b> <u>Bleached siliceous sand - H3</u> and <u>Wet highly leached sand - I2.</u></p>
		Low dune	H3I2	L	
XuC	1.2	Swamp	N3	D	<p><b>XuC</b> Swamps with mostly non-peaty wet soils, but peats occur in up to 30% of areas.</p> <p><b>Xud</b> Non-peaty clay loamy swamps with 20-30% sandy rises with deep sand over brown clay soils.</p> <p><b>Xuf</b> Swamps as for <b>XuC</b> above, occasionally water filled, with stony rises and/or very shallow over calcrete.</p> <p>Main soils:  <b>Swamps and drainage depressions:</b> <u>Wet clay loam - N3</u> and <u>Thick sand over clay - G3.</u>  <b>Stony rises:</b> <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>  <b>Sandy rises:</b> <u>Thick sand over clay - G3</u> and <u>Wet highly leached sand - I2.</u></p>
Xud	1.8	Swamp	N3G3	V	
		Sandy rise	G3I2	L	
Xuf	0.7	Swamp	N3	V	
		Stony rise	B2B3 B5	C	
XxC	0.1	Swamp	N1N3 WW	D	<p>Swamps with deep acid peats, wet organic loam over clay, or water filled.</p> <p>Main soils: <u>Wet clay loam - N3</u> and <u>Peaty soil - N1.</u></p>

# 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.
- 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.
- E3** Brown or grey cracking clay (Brown-Grey Vertosol)
- 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.
- G4** Sand over poorly structured clay (Sandy Brown-Red Sodosol-Chromosol)  
Topsoil <30 cm over a poorly structured subsoil. Thin sandy texture contrast soil with a sodic /dispersive /poorly structured brown or red clayey subsoil. Can have some ironstone.
- 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.
- I2** Wet highly leached sand (Fragic, Humic, Aquic Podosol)  
Grey sand with a thick bleached A2 horizon, overlying a thin to thick layer of coffee rock, grading to pale brown sand sharply overlying a grey, brown and yellow mottled sandy clay loam to light clay.
- 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.
- N1** Peat (Organosol)  
Peaty soil
- N3** Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:
- N3c** Wet **G3**
- N3d** Wet **B5**
- N3e** Wet **B7**
- WW** Water

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

