

WAV Water View Land System

Elevated plains, plateau surfaces, drainage depressions, slopes, rises, and dunefields

Area: 54.7 km²

Landscape: Elevated plains, plateau surfaces, drainage depressions, slopes, rises, and dunefields. This system is generally higher elevation than the land to the west, however, there is higher land to the northeast (the Kulpara plateau), while most of the eastern margin of this system lies above escarpment slopes and gullies separating the Gulf Plains from the 'Peninsula plateau'. Drainage is toward the west and northwest and the lower lying areas of the Melton Basin.

The land system is underlain by red clayey sediments (Hindmarsh Clay) which are derived from the underlying bedrock. Evidence of bedrock occurs in places: as minor consolidated rock fragments on the surface, and a few soils on the eastern margins of the system with silty textures (especially subsoils with silty clay loam to silty light clay textures) grading into saprolite. Many soils are formed in the Hindmarsh Clay which has been affected by accessions of fine carbonate dust, and can contain hard carbonate fragments. Younger wind-deposited sediments overlie this clay in many areas. Calcareous loess (Woorinen Formation) is distributed over much of the land system, usually as a relatively thin covering (less than one metre). These sediments often contain hard carbonate rubble.

Soils formed in calcareous loess are typically situated on slight highs in gently undulating country, while those formed in Hindmarsh Clay tend to occupy slight lows and drainage areas in the landscape. Older calcareous sediments have become calcreted in places (Bakara Calcrete), mostly in the south of the system. On some eastern margins of the system calcrete overlies weathered rock. Some mallee sand (Molineaux Sand) forms longitudinal dunes, low dunes, and sandy rises in the north of the land system. These have the characteristic northwest-southeast orientation of inland sand dunes on Yorke Peninsula.

Annual rainfall: 345 - 410 mm average

Main soils:

A6	<i>gradational calcareous clay loam</i>
A5-A4	<i>calcareous loam</i>
D3-C4	<i>loam to clay loam over red clay</i>

Minor soils:

H2	<i>calcareous siliceous sand</i>
B2	<i>shallow calcareous loam on calcrete</i>

Main features: The land system is predominantly arable. The most common soils are: clay loamy to loamy topsoils overlying reddish clayey subsoils formed in Hindmarsh Clay and weathered rock, and moderate depth to deep calcareous loams and clay loams formed in calcareous loess. The land is used for rotational cropping and some grazing. The main limitations include boron and sodium accumulations in clayey subsoils; restricted internal drainage where clayey subsoils occur; fine carbonate and alkaline soil conditions limiting the availability of certain nutrients, especially in those soils which have the highest surface soil fine carbonate contents. Careful management is needed to maintain good surface condition on the numerous soils with clay loamy surfaces.

The sandy soils on dunes need careful management due to their low fertility and potential for wind erosion. Where shallow soils and/or hard carbonate fragments occur: these limit moisture holding capacity and hence production potential.



Soil Landscape Unit summary: Water View Land System (WAV)

SLU	% of area	Main features
ICe ICO	3.1 1.6	Drainage depressions dominated by calcareous soils formed in clayey sediments. Main soils: <i>gradational calcareous clay loam A6</i> . With limited to common areas of <i>calcareous loam A5</i> . There can be minor areas of <i>loam over red clay D3</i> . ICe – drainage depressions with some drainage lines with some signs of erosion (slopes 0-1%). ICO – drainage depression (slopes 0-1%).
IMZ	6.3	Plains and plateau surfaces dominated by calcareous soils formed in clayey sediments. Main soils: <i>gradational calcareous clay loam A6</i> including <i>loam to clay loam over red clay D3-C4</i> . With limited to common areas of <i>calcareous loam A5-A4</i> . Evidence of underlying bedrock can be seen in minor consolidated rock fragment on the surface. IMZ – elevated plains and plateau surfaces (slopes 0-1%).
IOA IOB IOG IOLg IOZ	6.1 10.0 3.4 3.9 1.8	Plains, slopes and plateau surfaces dominated by calcareous soils formed in clayey sediments. Main soils: <i>gradational calcareous clay loam A6</i> including <i>loam to clay loam over red clay D3-C4</i> . With extensive areas of <i>calcareous loam A5</i> . IOA – gently undulating plains (slopes 0-1.5%). IOB – slopes (0.5-2.5%). IOG – concave drainage areas: slopes with some broad drainage areas with some signs of erosion (slopes 0.5-2.5%). IOLg – concave drainage areas: slopes with some drainage ways/lines with some signs of erosion (slopes 0-2.5%). IOZ – elevated plain (slopes 0-1%).
IPE	2.6	Drainage depressions dominated by calcareous soils formed in clayey sediments. Main soils: <i>gradational calcareous clay loam A6</i> including areas of <i>clay loam over red clay C4</i> or possibly some <i>loam over red clay D3</i> . With limited to common areas of <i>rubbly calcareous loam A5</i> , and <i>shallow calcareous loam on calcrete B2</i> . IPE – drainage depression (slopes <1%).
IQE	0.8	Drainage depressions dominated by soils formed in clayey sediments. Main soils: <i>gradational calcareous clay loam A6</i> including areas of <i>loam to clay loam over red clay D3-C4</i> . With limited to common areas of <i>calcareous loam A5</i> , and <i>shallow calcareous loam on calcrete B2</i> . IQE – sloping drainage depression (slopes 0-1.5%).
QeA QeB	1.0 1.2	Plains and slopes dominated by shallow calcreted soils. Main soils: <i>shallow calcareous loam on calcrete B2</i> , including some <i>shallow sandy loam on calcrete B3</i> . With limited to common areas of <i>gradational calcareous clay loam A6</i> grading toward <i>loam to clay loam over red clay D3-C4</i> , in low lying patches; and <i>calcareous loam A5-A4</i> . QeA – gently undulating plain with some ill-defined drainage lows (slopes 0-1%). QeB – slopes and rises (slopes 0.5-2.5%).
QfBg	1.1	Slopes dominated by shallow calcreted soils. Main soils: <i>shallow calcareous loam on calcrete B2</i> , including some <i>shallow sandy loam on calcrete B3</i> . With limited to common areas of <i>gradational calcareous clay loam A6</i> grading toward <i>loam to clay loam over red clay D3-C4</i> , in low lying patches; and <i>rubbly calcareous loam A5-A4</i> . QfBg – slopes with concave drainage area and drainage line (slopes 0.5-2.5%).
QRB QRBg	1.3 1.0	Slopes dominated by shallow calcreted soils. Main soils: <i>shallow calcareous loam on calcrete B2</i> , including some <i>shallow sandy loam on calcrete B3</i> . QRB – stony slopes (slopes 0.5-3.5%). QRBg – stony slopes with some drainage lines (slopes 0.5-3.5%).
SbB	7.6	Slopes dominated by soils formed in rubbly calcareous loess. Main soils: <i>rubbly calcareous loam A5-A4</i> on low rises. With limited to common areas of <i>gradational calcareous clay loam A6</i> and <i>loam to clay loam over red clay D3-C4</i> in lows. SbB – gently undulating to undulating slopes with ill-defined drainage lows (slopes 0.5-2.5%).



SDA SDB SDBg	10.1 1.6 7.2	Plains and slopes dominated by soils formed in calcareous loess. Main soils: <i>calcareous loam</i> A5-A4 . With common to extensive areas of <i>gradational calcareous clay loam</i> A6 , which can include some <i>loam to clay loam over red clay</i> D3-C4 . SDA – gently undulating plains with a few drainage lines in the most northerly unit (slopes 0-1.5%). SDB – slight slopes (slopes 0.5-2%). SDBg – slopes with a drainage line and some eroded sandy rises (slopes 0.5-2.5%).
SdA SdB	2.6 3.7	Plains and slopes dominated by soils formed in rubbly calcareous loess. Main soils: <i>rubbly calcareous loam</i> A5-A4 . With limited to common areas of <i>gradational calcareous clay loam</i> A6 and <i>loam to clay loam over red clay</i> D3-C4 , and <i>shallow calcareous loam on calcrete</i> B2 . SdA – elevated plains and rises (slopes 0-1%). SdB – slopes (0.5-3%).
SiJ	0.6	Drainage depressions dominated by soils formed in rubbly calcareous loess. Main soils: <i>rubbly calcareous loam</i> A5-A4 . With limited to common areas of <i>loam over red clay loam</i> D3-C1 . SiJ – eroded creekline and adjacent banks (slopes 1-15%).
SPB SPZ	5.7 3.6	Plains and slopes dominated by soils formed in calcareous loess. Main soils: <i>calcareous loam</i> A5-A4 . With limited to common areas of <i>gradational calcareous clay loam</i> A6 and <i>loam to clay loam over red clay</i> D3-C4 ; and <i>shallow calcareous loam on calcrete</i> B2 to <i>shallow sandy loam on calcrete</i> B3 . SPB – slopes (0.5-2.5%); possibly with some eroded patches. SPZ – elevated plains/plateau surfaces (slopes 0-1.5%).
U-C U-D	0.9 0.2	Single mallee sand dunes. Dune soils: <i>siliceous sand</i> H2 , with some sandy variants of <i>calcareous loam</i> A4 on lower dune slopes of low dunes. U-C – single sand dune. U-D – single low sand dune.
UEF UEI UEJ	1.9 7.6 1.4	Plains and slopes with >30% mallee sand dunes and sandy rises. Dune soils: <i>siliceous sand</i> H2 , with some sandy variants of <i>calcareous loam</i> A4 on lower dune slopes of low dunes and on some sandy rise areas. Swale soils: <i>calcareous loam</i> A5 , and <i>gradational calcareous clay loam</i> A6 which may include some <i>loam over red clay</i> D3 . UEF – low rise overlain by 60-90% sand dunes and low sand dunes. UEI – gently undulating plains overlain by 30-60% sand dunes. UEJ – gently undulating plains overlain by 30-60% low sand dunes, sand dunes and sandy rises.



Detailed soil profile descriptions:**Main soils:**

- A6** *gradational calcareous clay loam* [Pedal Hypercalcic Calcarosol]
Medium thickness calcareous brown to red brown light clayey to loamy topsoil grading to a reddish clayey subsoil with abundant fine carbonate, which is underlain by blocky heavy red clay (Hindmarsh Clay) or sometimes silty clay loams or silty light clays grading to weathered bedrock. The most common surface texture is clay loam. Typically found in slight lows and drainage depressions. These soils grade to **D3-C4** soils.
- A5-A4** *calcareous loam* [Regolithic Hypercalcic-Lithocalcic Calcarosol]
Grey brown to brown medium thickness calcareous clay loamy, loamy or sandy topsoil grading to light clayey to loamy subsoil with abundant fine carbonate. Profiles range from having minor to abundant carbonate rubble. The majority of these soils are underlain by a clayey substrate within 120 cm of the surface (soil **A5**). Sandy variants with sandy loam subsoils are found on lower dune slopes or on some sandy rise areas. Typically found on slight highs.
- D3-C4** *loam to clay loam over red clay* [Effervescent-Sodic Hypercalcic-Lithocalcic Red Chromosol-Dermosol]
Red brown medium thickness non-calcareous to slightly calcareous clay loamy to loamy topsoil over red clayey subsoil, which grades to a clayey lower subsoil with abundant fine carbonate. This is underlain by blocky heavy red clay (Hindmarsh Clay) or silty clay loams or silty light clays grading to weathered bedrock. Typically found in slight lows and drainage depressions. Closely related to soil **A6**, but either texture contrast or with non calcareous (to slightly calcareous) surfaces. Texture contrast variants can have moderately calcareous surfaces.

Minor soils:

- H2** *calcareous siliceous sand* [Arenic Calcarosol-Tenosol]
Moderate depth to deep brown loamy sands. Soils can be calcareous to non calcareous in the topsoil, but are always contain fine carbonate in the subsoil. An accumulation of fine carbonate occurs generally in the lower subsoil. Found on mallee sand dunes and sandy rises.
- B2** *shallow calcareous loam on calcrete* [Petrocalcic Calcarosol]
Grey brown to red brown calcareous loams, sandy loams, and clay loams overlying calcrete at shallow depth.

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

