FIS Fisk Land System

(Based on the description by A. K. McCord in "A Description of Land in the Southern Mallee of South Australia")

Sandplains in the southern part of Hundred of Fisk, and northern parts of Hundreds of Makin and McCallum.

179.1 km² Area:

Annual rainfall: 380 – 440 mm average

Geology: The land system is underlain by massive sandy to sandy clay Tertiary sediments (Parilla

> Sand), partially covered by a veneer of heavier clay (Blanchetown Clay equivalent). Windblown calcareous materials have leached into the upper layers of these materials resulting in subsoil accumulations of soft carbonates. Aeolian Molineaux Sands blanket most of the landscape, and there has been reworking of the sand into

low sand dunes.

Topography: The Fisk Land System is a flat to gently undulating plain characterized by extensive

low to moderate jumbled to parabolic sand ridges. The flats between the sand ridges

are generally sandy, but some heavier flats occur where Blanchetown Clay

equivalent is near the surface.

Elevation: 110 - 130 m

Relief: Up to 10 m

Soils: Sandy soils, with or without clayey subsoils are typical. Loamy texture contrast soils are

distinctive on flats.

Main soils

G3 Thick sand over brown clay. Extensive on flats

H3 Deep siliceous sand. Extensive on sand ridges

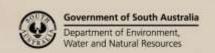
Minor soils

Sandy loam over sodic red clay. Minor on flats

Main features: The Fisk Land System consists of predominantly sand over clay or deep sand soils. Low

fertility, wind erosion potential and water repellence are the main limitations to agriculture, and most of the land is uncleared. The isolated heavier flats however have few limitations for cropping. Most of the land (except for loamy flats with heavy clay close to the surface, and the highest sand dunes), have good potential for

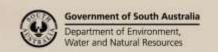
irrigated horticulture.





Soil Landscape Unit summary: 10 Soil Landscape Units (SLUs) mapped in the Fisk Land System:

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SLU	area	Main features #
GkA	3.9	Depressions and flats formed on Tertiary sands and clays with less than 10% low sandy ridges. Main soils: thick.sand.over.brown.clay - G3 (V) and





		Duta a part
		Drainage: Rapid.
		Fertility: Very low. Physical condition: No limitations.
		AWHC: Moderately low.
		Salinity: Low.
		Erosion potential: Water: Nil. Wind: Moderately high to high.
		Water repellence: Strongly repellent.
		Rockiness: Nil.
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		Summary: The ridges are generally too infertile and fragile for sustainable
		agricultural uses. They are highly susceptible to wind erosion if exposed and
		surface soils are usually strongly water repellent.
OAE	11.0	Dunefields with sand ridges formed on Molineaux Sand overlying Tertiary
OAF	20.4	sediments.
OAG	44.9	OAE 60-90% large sand ridges.
OAJ	2.4	OAF 60-90% moderate sand ridges.
OAt	2.4	OAG 60-90% low sand ridges.
		OAJ 30-60% low sand ridges.
		OAt 30-60% low sand ridges with up to 10% of flats prone to seepage.
		Main soils: <u>deep siliceous sand</u> - H3 (V) on ridges, and <u>thick sand over brown clay</u> -
		G3 (C) with sandy loam over sodic red clay - D3 (M) on flats.
		Key properties:
		Drainage: Rapidly drained (sand rises), well drained (sandy flats) and
		moderately well drained (loamy flats). Drainage is imperfect
		to poor in minor flats prone to seepage.
		Fertility: Very low on sand rises. Low to moderate on flats.
		Physical condition: No limitations on sandy rises. On flats, surface soils generally
		not limiting but subsoil clays can restrict root growth.
		AWHC: Moderately low to moderate.
		Salinity: Low, but often moderate at depth in loamy soils on flats.
		Some salt accumulation also likely on wet flats.
		Erosion potential: Water: Low.
		Wind: Moderately high (sand rises), moderate (sands), low
		(loams).
		Water repellence: Strong to moderate (sands), to nil (loams).
		Rockiness: Nil.
		Summary: The sandy ridges are too infertile and susceptible to wind erosion and
		water repellence for sustainable cropping, but the flats have some potential,
		particularly where surfaces are loamier. However, potential productivity on the
		predominant sand over clay soils is limited by low fertility, water repellence and
		wind erosion potential.
OCI	2.0	Very gently undulating flats formed on Tertiary clays overlain by 30-60% moderate
		jumbled sand ridges.
		Main soils: sandy loam over sodic red clay - D3 (E) with thick sand over brown clay
		- G3 (C) on flats and deep siliceous sand - H3 (E) on sandy rises.
		Key properties:
		Drainage: Rapid to well drained.
		Fertility: Very low to moderately low.
		Physical condition: Good.
		AWHC: Low to moderately low.
		Salinity: Low.
		Erosion potential: Water: Low. Wind: Moderate to high.
		Water repellence: High.
		Rockiness: Up to 2% ironstone gravel.
		Summary The begins flate are well willed to expense a level to a second a level to
		Summary: The heavier flats are well suited to cropping, but the sandier flats have
		lower fertility and are susceptible to water repellence and wind erosion.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

(D) Dominant in extent (>90% of SLU)

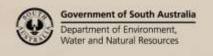
(C) Common in extent (20–30% of SLU)

(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:

- Sandy loam over sodic red clay (Eutrophic, Mesonatric, Red Sodosol)

 Medium thickness light sandy loam to light sandy clay loam abruptly overlying a red coarsely columnar structured sandy clay to clay, with little if any soft carbonate at depth, grading to Blanchetown Clay equivalent at between 50 and 100 cm.
- Thick sand over brown clay (Hypocalcic, Brown Chromosol)
 Thick sand with a bleached A2 layer abruptly overlying a moderately to well structured brown sandy clay to clay with minor soft carbonate from about 75 cm, grading to clayey sand or sandy clay (Parilla Sand) or heavy clay (Blanchetown Clay equivalent) within 100 cm. Very extensive (on flats).
- H3 Deep siliceous sand (Basic, Arenic, Bleached-Orthic / Yellow-Orthic Tenosol)
 Thick to very thick loose sand, usually with a bleached or paler coloured A2 layer, grading to a yellow sand with no carbonate continuing below 200 cm. Extensive (on sand ridges).

Further information: <u>DEWNR Soil and Land Program</u>

