# SHK Shamrock Land System

Area: 86 km<sup>2</sup>

Landscape: Undulating to gently undulating rises and low hills with shallow soils on hard rock. Soils are

thin calcareous loams on slopes with deeper soils on lower slopes and occasional

pediments and fan deposits.

Annual rainfall: 225 - 350 mm average range, but over 96% receives 250 - 325 mm

**Geology:** Proterozoic sedimentary rocks of the Adelaide Geosyncline including Appila Tillite, Tapley

Hill Formation siltstones and Ketchowla Siltstone. Soft sediments occur on Holocene alluvium/colluvium associated with outwash from the hills. Some calcreted calcareous Pleistocene deposits also occur, especially in the southern part of the land system.

Main soils: A2 (34%) Calcareous loam on rock (Paralithic Calcarosol)

**L1** (27%) Shallow soil on rock (Rocky Rudosol-Tenosol)

**A3** (16%) Deep moderately calcareous loam (Calcic Calcarosol)

Minor soils: A4 (9%) Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)

B2 (4%) Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)
 M3 (3%) Deep gravelly soil (Gravelly Kandosol-Tenosol)
 D4 (3%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)

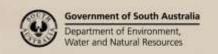
**Summary:** The Shamrock Land System consists of low hills and rises formed on fine-grained

Proterozoic Adelaide Geosyncline rocks with shallow soils. Deep calcareous gradational soils

occur on pediments and alluvium.

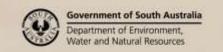
Soil Landscape Unit summary: Shamrock Land System (SHK)

SLU	% of area	Component	Main soils	Prop#	Notes
AAA	2.5	Rises	L1A2	D	Undulating rises on limestone and calc-siltstone with very shallow loamy soils. Relief is less than 30m, slopes are 3-10%. Main soils: Shallow stony soils on rock - L1 and Calcareous loam on rock - A2.
ADB	2.3	Rolling rises	A2L1	D	Non-arable rocky rises and hills formed on limestones
ADD	4.9	Steep low hills	A2L1	D	and calc-siltstones such as Wonoka Formation rocks
ADi	3.2	Rolling low hills	A2L1	D	with very shallow loamy soils.  ADB Rolling rises. Relief is 9-30m, slopes are 10-30%.  ADD Steep low hills, usually very shallow. Relief is 30-90m, slopes are 30-50%.  ADi Rolling low hills with eroded watercourses and scalding. Relief is 30-90m, slopes are 3-10%.  Main soils: Calcareous loam on rock – A2 and Shallow stony soils on rock - L1.



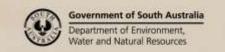


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AYA	18.4	Undulating rises	A2L1	D	Hills and rises on fine-grained rocks, especially siltstones
AYH	8.6	Rolling rises	A2L1	D	of the Tapley Hill Formation.
					<b>AYA</b> Undulating rises with shallow calcareous loam on calcareous siltstone or other fine grained rocks, or bare
					rock. Relief is less than 30m, slopes are 3-10%.
					<b>AYH</b> Rolling rises with eroded watercourses, with 10-
					20% gullied and around 5% scalded.
					Relief is 30-90m, slopes are 10-30%.
					Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow</u>
					stony soils on rock - L1.
EFB	5.7	Gently undulating	A2L1	D	Rises on calc-siltstones, typically of the Tapley Hill
EEC	6.2	rises	A2L1	D	Formation.
EFG	6.3	Gently undulating rises	AZLI		<b>EFB</b> Gently undulating rises.
		11303			Relief is 9-30m, slopes are 1-3%.  Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow</u>
					stony soils on rock - L1.
					High carbonate content will cause nutrient imbalances
					in some crops. Low moisture retention is a constraint to
					plant growth in most seasons.
					EFG Gently undulating rises with up to 20% gully
					erosion. Relief is 9-30m, slopes are 1-3%.
					Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow</u>
EHm	2.7	Undulating low rises	A2L1	D	stony soils on rock - <b>L1</b> .  Undulating low rises and pediments on calcareous
Limi	2.7	Oriddiating low rises	AZLI		siltstones and limestones such as those of the Tapley
					Hill Formation.
					Relief is less than 30m, slopes are 3-10%. Severely
					scalded (40-50% of land affected) and gullied (20% of
					land affected).
					Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow</u>
ELB	0.8	Gently undulating	A2L1	D	stony soils on rock - L1.  Rises-pediment complexes with shallow soils formed on
LLD	0.0	rises	AZLI		Grampus Quartzite or Ketchowla Siltstone Formations
ELD	0.6	Rolling rises	A2L1	D	and alluvium.
					<b>ELB</b> Gently undulating rises. Slopes 1-3%, relief 9-30m.
					ELD Rolling rises.
					Slopes are 10-30%, relief is less than 30m.
					Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> and <u>Shallow</u>
				1	stony soils on rock - L1.
EVC	3.3	Slope	A2	V	Undulating slopes and ridges with rock outcrops and
		Ridge	L1	С	shallow calcareous soils formed on fine-grained calcareous rocks.
					Slopes are 3-10%, relief is less than 9-30m.
					2.55 2.60 2.60, 1.61.61 15 1655 11411 5 56111
					Main soils: Calcareous loam on rock – A2 and Shallow
				1	stony soils on rock - L1.
EZB	1.8	Gently undulating	A2L1B2	D	Rises with mostly shallow calcareous soils on weathered
EZD	0.4	rises	A 21 1 D 2	<u> </u>	siltstones of the Tapley Hill Formation and the Tarcowie
EZD	0.4	Rolling rises	A2L1B2	D	Siltstone. Fans are associated landforms.





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EZH	1.4	Undulating rises	A2L1B2	D	EZB Gently undulating rises with rocky outcrops. Up to 5% of land is gullied and/or scalded. Subsoils are moderately saline. Slopes: 1-3%, relief: less than 30m. EZD Rolling rises. Relief is 9-30m, slopes are 10-30%. EZH Undulating rises with rocky outcrops. Gullying affects 10-20% of land, scalding affects around 5%. Slopes are 3-10%, relief is less than 30m.
					Main soils: <u>Calcareous loam on rock</u> – <b>A2</b> , <u>Shallow stony</u> soils on rock - <b>L1</b> and <u>Shallow calcareous loam on calcrete</u> - <b>B2</b> .
JPoo	8.0	Creek flats	D4A3	D	Pediments and plains with texture contrast soils formed
JPY	1.6	Creek flats	D4A3	D	on outwash sediments derived from basement rocks.
JPy	1.1	Creek flats	D4A3	D	Calcareous in some part of the profile. More than 20%
JPyy	1.0	Drainage depression	D4A3	D	of soils are pedaric (fine crumbly structure in subsoils).
					JPoo Creek flats. Severely gullied and mod scalded. JPY Creek flats, 10-50% scalded. JPy Creek flats. Moderately gullied, severely scalded. JPyy Drainage depression. Severely gullied (over 20%) and scalded (over 50%).
					Main soils: <u>Clay loam over pedaric red clay</u> - <b>D4</b> and <u>Deep moderately calcareous loam</u> - <b>A3</b> .
KFb	1.9	Gently sloping fans	A3	D	Fans with calcareous gradational soils and more than
KFY	2.5	Valley floor	A3	D	20% red pedaric texture contrast soils.
					KFb Gently sloping fans. Slopes: 1-3%, relief: <9m. Fans moderately scalded (10-50%) and saline, rises less so. KFY Valley floor with deep moderately calcareous loam or loam over crumbly red clay. Mod. scalded (10-50%). Main soils: Deep moderately calcareous loam - A3.
KgFF	2.3	Eroded flat	A3M3	D	Flats with over 50% gradational calcareous soils of which most have more than 20% gravel or stone (non-pedogenic). Severely gullied.  Main soils: Deep moderately calcareous loam - A3 and
77.01	100	-	4244	,,	Deep gravelly soil -M3.
KQb	10.9	Fan	A3A4	V	Fans and basement-rise complexes with mostly
WOG	2.4	Rise	A2L1	C	calcareous gradational soils.
KQC	2.4	Fan	A3A4	V	<b>KQb</b> Gently undulating fans and rises, moderately
		Rise	A2L1	С	gullied (10-20%) and up to 10% salinity.
KQc	0.9	Fan	A3A4	D	KQC Undulating fans and rises.
KQJ	3.9	Fan	A3A4	E	Slopes are 3-10%, relief is less than 9m. <b>KQc</b> Undulating fans, moderately gullied (10-20%) and up
		Rise	A2L1	E	to 10% salinity. Slopes 3-10%, relief less than 9m.  KQJ Drainage lines with shallow rises on fan and basement-rise complexes. 0-5% of land on pediments is scalded and 10-20% is gullied. The soils have moderately salinity throughout the profiles.  Main soils:  Fans: Deep moderately calcareous loam - A3 and Deep
					(rubbly) calcareous sandy loam -A4.  Rises: Calcareous clay loam on rock – A2 and Shallow stony soils on rock - L1





KVB	3.4	Fan	A3A4	D	Fans and plains formed on calcareous outwash
KVC	0.3	Fan	A3A4	D	sediments derived from basement rock. More than 90%
KVE	0.8	Creek flat	A3A4	D	of soils are calcareous throughout (Calcarosols).
					KVB Gently sloping fans. Slopes: 1-3%, relief: <9m. KVC Undulating fans. Slopes are 3-10%, relief is less than 9m. KVE Creek flat. Main soils: Deep moderately calcareous loam - A3 and
					Deep (rubbly) calcareous sandy loam -A4.
XFT	3.4	Eroded creek	M3M1	D	Eroded creek with gravelly alluvium on hilly land.
					Main soils: <u>Deep gravelly soil</u> - <b>M3</b> and <u>Deep alluvial</u> <u>loam</u> - <b>M1</b> .

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

D Dominant in extent (>90% of SLU)

V Very extensive in extent (60–90% of SLU)

C Common in extent (20–30% 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:**

## A2/L1 Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2)

Gradational calcareous sandy loam over clay loam on weathered rock.

OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)

Shallow calcareous sandy loam on rock.

## A3 Deep moderately calcareous (sandy) loam (Calcic Calcarosol)

Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO<sub>3</sub> buildup in the subsoil (<20% CO<sub>3</sub> in subsoil). Pediment type Calcarosols.

#### A4 Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)

Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO<sub>3</sub> buildup in the subsoil. Often rubbly. Soil usually >120 cm in depth

### **B2** <u>Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)</u>

Shallow, grey to reddish calcareous sandy to clay loamy soil on calcrete. This includes calcareous Petrocalcic Rudosols.

## Loam over red friable clay (Calcic, Pedaric, Red Sodosol)

Thin to medium thickness fine sandy loam to loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.

### L1 Shallow stony loam (Paralithic, Leptic Tenosol)

Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.

### M1 Alluvial loam (Orthic Tenosol)

Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.

# M3 Deep gravelly soil (Gravelly Kandosol-Tenoso)

Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.

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

