



Gordon Land System

Area: 90.5 km²

Landscape: Broad flood-out areas and alluvial plains of the Willochra and Kanyaka Creeks which converge in this general locality. Low, calcareous rises or dissected pediment remnants also occur on the northern Willochra plain, west of Gordon township locality. Associated drainage lines are mostly gullied and scalped.

Geology: Quaternary calcareous slope/pediment deposits (Telford gravel) and calcareous and non-calcareous clayey alluvium on adjacent plains

Annual rainfall: 245 – 270 mm average

Elevation: Elevation ranges between 185 and 245 m asl

Relief: Relief is less than 10 m

Typical soils: Loamy calcareous soils on rises, often with rubble in subsoils and occasionally with hard calcrete horizons.
Red clay soils occur on plains, they are calcareous at depth and may contain gypsum.
Clay loamy grey and red calcareous soils also occur on the plains.

Main soils: **A5** (38%) Rubbly calcareous loam on clay (Supracalcic-Lithocalcic Calcarosol on clay)
D4 (31%) Loam over pederic red clay (Pedicric Red Sodosol-Dermosol)

Minor soils: **D2** (6%) Loam over red clay (Calcic-Hypercalcic Red Chromosol-Sodosol)
C3 (5%) Friable gradational clay loam (Calcic-Hypercalcic Red Dermosol-Calcarosol)
M3 (4%) Deep gravelly soil (Gravelly Kandosol-Tenosol)
M1 (4%) Deep sandy loam (Brown-Grey-Red Kandosol-Tenosol)
A2 (3%) Calcareous loam on rock (Paralithic Calcarosol)

Summary: Broad flood-out areas, alluvial plains and slopes deposits at the northern end of the Willochra Plain. Red clay soils and deep loamy calcareous soils occur on the extensive plains, whereas rubbly calcareous soils occur on slopes.

Soil Landscape Unit summary: Gordon Land System (GOR)

SLU	% of area	Component	Main soils	Prop #	Notes
JEA	1.5	Plain	D4	D	Level alluvial plain with red texture contrast soils with clay loam surface textures. Main soils: <u>Loam over pederic red clay - D4</u> . Significant minor soils include <u>Red cracking clay - E2</u> and <u>Friable gradational clay loam - C3</u> .
JNB	0.9	Gently sloping pediments	D4D2A5	D	Pediments with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly. JNB Gently sloping pediments.
JNk	13.5	Plain	D4D2A5	D	Slopes are 1-3%, relief is less than 9m.
JNo	0.8	Creek flat	D4D2A5	D	



JNU	2.6	Plain	D4D2A5	D	JNk Plain; 10-20% affected by gullyling and 40-50% scalded. JNV Gently sloping pediments Scalding may be more than 50% locally. JNo Creek flat 10-20% affected by gullyling and 40-50% scalded. Scalding may be more than 50% locally. JNU Level plain; 5-10% scalded. JNV Gently sloping pediments. Scalding affects 10-50% of land. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over red clay - D2</u> , <u>Loam over pederic red clay - D4</u> and <u>Rubbylcalcareous loam on clay - A5</u> . Red clay soils occur in minor association.
KGA	2.2	Plains	C3C1	D	Plains with sandy surface-textured red gradational texture-profile soils, mostly non-calcareous surfaces, but often calcareous throughout. Main soils: <u>Friable gradational sandy clay loam - C3</u> and <u>Gradational sandy loam - C1</u> .
KLB	10.1	Pediment	A5	D	Pediments with clay loamy calcareous soils.
KLH	1.4	Undulating pediment	A5	D	KLH Gently undulating pediment Slopes are 1-3%, relief is less than 9m. KLH Undulating pediment; gullyling affects 5-10% of land, around 5% is scalded. Main soils: <u>Rubbylcalcareous clay loam on clay - A5</u> . Minor soils include: <u>Calcareous clay loam on rock - A2</u> , <u>Gradational red-brown clay loam over rock-C2</u> and <u>Shallow calcareous loam on calcrete - B2</u> .
KMB	12.1	Gently sloping pediments	A5D4	D	Pediments on which gradational calcareous soils are dominant, and in combination with red texture contrast soils occupy over 90% of the land.
KMo	0.3	Creek flat	A5D4	D	KMB Gently sloping pediments. Slopes are 1-3%, relief is less than 9m.
KMV	25.7	Gently undulating rises	A5D4	D	KMo Creek flat; with 50% scalded and more than 20% of creek banks with unstable gullies. KMV Gently undulating rises; up to 5% gullied, 5-10% scalded. Slopes are 1-3%, relief is 9-30m. Main soils: <u>Rubbylcalcareous clay loam on clay - A5</u> and <u>Loam over pederic red clay - D4</u> .
KNA	1.5	Plains	A5D4	D	Plains and pediments with more than 50% loamy surface-textured, rubbylcalcareous gradational soils and more than 20% texture contrast soils with reddish subsoils.
KNB	1.0	Gently undulating pediments	A5D4	D	KNA Plains KNB Gently undulating pediments. Slopes are 13%, relief is less than 9m.
KNU	9.7	Plains	A5D4	D	KNU Plains with 5-10% scalded. Main soils: <u>Rubbylcalcareous clay loam on clay - A5</u> and <u>Loam over pederic red clay - D4</u> .
KRA	2.6	Plains	M2A6D4	D	Alluvial plains with mostly red clay soils and more than 20% calcareous soils. Main soils: <u>Deep friable gradational clay loam - M2</u> , <u>Gradational calcareous clay - A6</u> and <u>Loam over pederic red clay - D4</u> . <u>Red cracking clay - E2</u> and <u>Loam over red clay - D2</u> are minor components.



KTJ	1.6	Creek flat	C3A3A4	D	<p>Creek flat with non-calcareous and calcareous gradational soils. Gullying affects most creek banks which are unstable.</p> <p>Main soils: <u>Friable gradational sandy clay loam - C3</u>, <u>Deep moderately calcareous sandy loam - A3</u> and <u>Deep (rubby) calcareous sandy loam - A4</u>. Soils are generally inherently fertile.</p>
XAS	3.6		M1M3D4	D	<p>Flood plain with a range of alluvial soils.</p> <p>Main soils: <u>Deep gravelly soil - M3</u>, <u>Deep alluvial loam - M1</u> and <u>Loam over pederic red clay - D4</u>.</p>
XGT	0.7	Watercourse	M3M1	D	<p>Watercourse with very gravelly alluvium. Main soils: <u>Deep gravelly soil - M3</u>, <u>Deep alluvial loam - M1</u>.</p>
XGZ	4.8	Watercourse	M3M1	D	<p>Watercourse, scalded and eroded.</p> <p>Main soils: <u>Deep gravelly soil - M3</u>, <u>Deep alluvial loam - M1</u>.</p>
XOC	1.3	Flood plain	M2A6C3	D	<p>Flood plain, swampy and marginally saline, with clayey calcareous soils on alluvium.</p> <p>Main soils: <u>Deep friable gradational clay loam - M2</u>, <u>Gradational calcareous clay - A6</u> and <u>Friable gradational clay loam - C3</u>.</p>
XRA	0.4	Dry lagoon floor	E1E3C5	D	<p>Dry lagoon floor with fine-textured soils on alluvium.</p> <p>Main soils: <u>Black cracking clay - E1</u>, <u>Brown or grey cracking clay - E3</u>, and <u>Gradational dark clay loam - C5</u>.</p>
ZL-	0.2	Lunettes	A8	D	<p>Lunettes around the margins of dry lagoons. The lunettes are low rises with a curved linear shape. They occur here on the southern tip of the land system. Similar occurrences are found in the adjacent Willochra Plain Land System.</p> <p>Main soils: <u>Gypseous calcareous loam - A8</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:

- A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)
Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO₃ buildup in the subsoil (<20% CO₃ in subsoil). Pediment type Calcarosols.
- A4** Deep (rubby) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)
Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO₃ buildup in the subsoil. Often rubby. Soil usually >120 cm in depth
- A5** Rubby calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)
Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubby. Clayey substrate occurs at >60 cm and <120 cm.
- A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)
Calcareous loams to clay loams grading into brown-red clay. Often rubby.
- A8** Gypseous calcareous loam (Gypseous Calcarosol)
Calcareous soil with a Gypsic horizon (>20% visual gypsum in a horizon which is at least 10cm thick). Found on lunettes, flats, etc.



- C1** Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)
Friable sandy to loamy topsoil grading into massive red-brown alkaline loamy to clay loamy subsoil.
- C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.
- C5** Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol)
Dark clay loams over abundant 'soft lime'. >10% carbonate is the cut off between this and M2 soils.
- D2** Hard loam over red clay (Calcic / Hypercalcic, Red Chromosol)
Hard setting sandy loam to clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth.
- D4** 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.
- E1** Black cracking clay (Black Vertosol)
- E3** Brown or grey cracking clay (Brown-Grey Vertosol)
- M1** Alluvial loam (Orthic Tenosol)
Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.
- M2** Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)
Deep well structured red clay loamy soil.
- M3** Deep gravelly soil (Gravelly Kandosol-Tenosol)
Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.

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

