GLN Glengyle Land System

Rises and slopes, with some plains and drainage areas

Area: 15.2 km^2

Landscape: Rises and slopes, with plains and drainage areas. The area is largely underlain by Cambrian age Kulpara Limestone. This is grey coloured ancient rock which has soils forming on it in a few parts of the system. Over most of the system this rock seems to be overlain by red clayey sediments (Hindmarsh Clay equivalent). Soils are formed in this clay in many drainage areas. However, the majority of soils are formed in calcareous loess, much of which has had calcrete layers form within it.

Annual rainfall: 370 – 395 mm average

Main soils:
A4-**A5** *calcareous loam* (around 50% of area)
B2 *shallow calcareous loam on calcrete* (around 29% of area)

Minor soils:
A6 *gradational calcareous clay loam* (around 15% of area)
A2 *calcareous loam on rock* (around 6% of area)

Main features: The system is mostly arable, however, there are numerous areas with very shallow soils on calcrete which are too stony and shallow to be cropped. The most common soils are shallow calcareous loams on calcrete and moderate depth to deep calcareous loams.

Soils which contain hard carbonate rubble and/or calcrete have reduced effective water holding capacities, and hence reduced production potentials. Also, surface rubble can interfere with some farming operations.

Soils on sloping land have potential for water erosion. This is particularly the case along drainage ways where overland water-flow can concentrate. Wind erosion is also a potential problem. Loamy calcareous surfaces can become powdery and loose when over-cultivated or over-stocked.

Calcareous soils restrict the availability of certain nutrients: deficiencies of the major nutrient phosphorus and the trace element zinc are common, while deficiencies of the trace elements manganese and iron are possible. Temporary trace element deficiencies can occur in cold and wet conditions with susceptible crops. This is particularly the case for the calcareous loams.

Toxic accumulations of boron and sodium were not found to be a significant issue. However, subsoils and/or substrates can have raised salinity levels, which in many cases is probably due to an accumulation of cyclic salt in or below the profile.

Soil Landscape Unit summary: Glengyle Land System (GLN)

SLU	% of area	Main features
EPB	6	Land dominated by calcareous soils formed on weathered and hard ancient limestone rock (Kulpara Limestone). Main soils: *calcareous loam on rock* **A2**. **EPB** – slopes and rises (slopes 0.5-2.5%).
IQE	5	Land dominated by calcareous soils formed in clayey sediments. Main soils: *gradational calcareous clay loam* **A6** probably including areas of *loam to clay loam over red clay* **D3**-**C3**. With limited to common areas of *shallow calcareous loam on calcrete* **B2**, and *calcareous loam* **A4**-**A5**. **IQE** – drainage depression (slopes <1%).
QLA QLAj QLB QLBg QLC	9 5 29 32 5	Land dominated by shallow calcareous soils underlain by calcrete. Main soils: *shallow calcareous loam on calcrete* **B2**. With limited to extensive areas of *calcareous loam* **A4**-**A5**, and limited areas of *gradational calcareous clay loam* **A6** in lows. **QLA** – gently undulating rise surface with drainage lows (slopes 0-1.5%). **QLAj** – gently undulating plains (slopes 0-1.5%). **QLB** – slopes and rises with vague drainage ways (slopes 0.5-2.5%). **QLBg** – slopes and rises with drainage ways (slopes 0.5-3%). **QLC** – slopes and crest area with drainage ways (slopes 1-5%).
SMB	9	Land dominated by soils formed in calcareous loess. Main soils: *calcareous loam* **A4**. **SMB** – slopes (slopes 0.5-3%).

Detailed soil profile descriptions:

Main soils:

A4-**A5** *calcareous loam* [Regolithic Hypercalcic-Lithocalcic Calcarosol]
Grey brown to brown medium thickness calcareous loamy to clay loamy topsoil grading to loamy to clay loamy subsoil with abundant fine carbonate. Lower subsoils have a yellow brown colour. Profiles can contain abundant carbonate rubble. Profiles can be underlain by clayey sediments (soil **A5**).

B2 *shallow calcareous loam on calcrete* [Petrocalcic Calcarosol]
Grey brown to brown calcareous loams or clay loams overlying calcrete at shallow depth. The heaviest textured variants are found in drainage areas and can have light clayey subsoils. Profiles can contain abundant hard carbonate rubble. Many profiles are very shallow and rubbly.

Minor soils:

A6 *gradational calcareous clay loam* [Pedal Hypercalcic Calcarosol]
Medium thickness calcareous grey brown to brown loamy to clay loamy topsoil grading to a brown or reddish clayey subsoil with abundant fine carbonate. Lower subsoils are typically red yellow in colour. Particularly found in drainage areas.

A2 *calcareous loam on rock* [Paralithic-Lithic Calcarosol]
Highly calcareous clay loams formed over hard rock. The rock is grey Kulpara Limestone. All variants have grey highly calcareous smooth clay loamy topsoil. The deepest variant has topsoil grading to yellow brown clay loam subsoil which grades to yellow silty light clay to clay loam, with rock at moderate depth or more. A moderate depth variant has topsoil grading to yellow silty clay loam, with rock at moderate to shallow depth. A shallow variant has topsoil directly overlying rock at very shallow depth. Profiles contain some hard carbonate fragments and marble-like rock fragments.

Further information: DEWNR Soil and Land Program