

ARM Armagh Land System

Ridge - valley system on the western side of the Clare Hills

Area: 15.9 km²

Annual rainfall: 570 – 635 mm average

Geology: Phyllites of the Stradbroke Formation, metamorphosed sandstones of the Rhyndie Formation and interbedded quartzites. These rocks are commonly ferruginized and sporadically mantled by soft carbonates. There are some accumulations of lower slope and valley flat outwash sediments, but none are large enough to map separately at this scale.

Topography: The Armagh Land System is a series of north - south trending quartzite ridges, with undulating rises in the intervening valleys. The ridges are up to 70 m high with slopes of 10 - 30%. They are characterized by rocky reefs and extensive surface stone. The undulating rises are up to 30 m high with slopes up to 18%. They are dissected by water courses which generally flow across the strike of the land, cutting through the quartzite ridges. They all flow into the Hutt River system.

Elevation: 490 m on a quartzite ridge in the north-west to 390 m on the eastern side

Relief: Maximum relief is 70 m

Soils: The soils are typically poorly structured sandy loams with dispersive or poorly structured subsoil clays. Most are shallow to moderately deep over weathering basement rock. Deeper texture contrast soils are formed over alluvium or deeply weathered rock.

Main soils

K3 Hard sandy loam over dispersive red clay
K4 Sandy loam over brown sandy clay

Minor soils

D7 Hard sandy loam over dispersive alkaline red clay
F1 Sandy loam over mottled brown clay
F2a Sandy loam over brown clay on deeply weathered rock
F2b Sandy loam over dispersive brown clay over alluvium
K2 Loam to clay loam over red clay
L1/B3 Shallow stony sandy loam to loam

Main features: The Armagh Land System is a relatively degraded landscape characterized by poorly structured, low fertility stony soils. The quartzite ridges are too stony and sometimes too steep for uses other than grazing. On the undulating rises, excessive runoff on steeper slopes, waterlogging on lower slopes with emergence and workability problems are likely. The soils are highly susceptible to erosion. There is sporadic saline seepage on lower slopes and in drainage depressions. Correction of soil acidity and improved fertility together with measures to improve surface soil condition are the main priorities on this land.



Soil Landscape Unit summary: 5 Soil Landscape Units (SLUs) mapped in the Armagh Land System:

SLU	% of area	Main features #
ASB ASC ASI	9.6 11.9 13.5	<p>North - south trending ridges of interbedded quartzites, and metamorphosed sandstones and siltstones. Linear rocky outcrops occupy up to 20% of the land surface, and there is an extensive cover of quartzite stones on the surface.</p> <p>ASB Low ridges up to 20 m high with slopes of 10 - 20%. ASC Moderately steep rocky ridges from 20 to 40 m high with slopes of 10-30%. ASI Moderately steep rocky ridges up to 70 m high with slopes of 15-30% and eroded water courses.</p> <p>Main soils: stony <u>hard sandy loam over dispersive red clay - K3</u> (E), <u>sandy loam over brown sandy clay - K4</u> (E) and <u>shallow stony loamy sand to loam - L1</u> (E). Although most of the soils are moderately deep, they are very stony, often poorly structured and infertile. Moderately steep to steep slopes and extensive surface stone further restrict agricultural use. Most of the ridges are either uncleared, or used for grazing, generally of native pastures.</p>
CiD Cic	15.8 49.2	<p>Undulating to gently rolling rises formed on metasandstones, quartzites, schists and phyllites.</p> <p>CiD Moderate slopes of 10 - 18%. Cic Undulating rises to 30 m high with slopes of 5 - 10%. Watercourses are commonly eroded and there are sporadic saline seepages and waterlogged areas in drainage depressions and on lower slopes.</p> <p>Main soils on slopes: <u>hard sandy loam over dispersive red clay - K3/D7</u> (E) and <u>sandy loam over brown sandy clay - K4</u> (E), with <u>loam to clay loam over red clay - K2</u> (L) on finer grained rocks, and <u>shallow stony loam to sandy loam - L1/B3</u> (L) on non calcareous and calcareous rocks respectively. <u>Sandy loam over brown clay on deeply weathered rock - F2a</u> (M), <u>sandy loam over dispersive brown clay on alluvium - F2b</u> (M) and <u>sandy loam over mottled brown clay on alluvium - F1</u> (M) characterize lower slopes. These soils are generally poorly structured with low inherent fertility. Excessive runoff on steeper slopes, waterlogging on lower slopes with emergence and workability problems are likely. The soils are highly susceptible to erosion. This hazard is exacerbated by the salinity induced weakening of protective surface cover. Correction of soil acidity and improved fertility should help ameliorate the salinity problems.</p>

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

- (D) Dominant in extent (>90% of SLU)
- (V) Very extensive in extent (60–90% of SLU)
- (E) Extensive in extent (30–60% of SLU)
- (C) Common in extent (20–30% of SLU)
- (L) Limited in extent (10–20% of SLU)
- (M) Minor in extent (<10% of SLU)



Detailed soil profile descriptions:

- D7** Sandy clay loam over dispersive alkaline red clay (Hypercalcic, Red Sodosol)
Medium thickness hard sandy loam to clay loam abruptly overlying a firm, poorly structured red clay with soft carbonate between 40 and 80 cm, grading to weathering sandstone or quartzite within 100 cm.
- F1** Sandy loam over mottled brown clay (Bleached-Mottled, Hypocalcic Brown Chromosol)
25 - 50 cm dark sandy loam to sandy clay loam abruptly overlying a coarsely structured brown mottled heavy clay, usually calcareous at depth.
- F2a** Sandy loam over brown clay on deeply weathered rock (Calcic, Brown Sodosol)
Medium to thick hard sandy loam to sandy clay loam with a bleached A2 layer, abruptly overlying a coarsely structured brown and red mottled heavy clay, calcareous with depth, grading to highly weathered basement rock.
- F2b** Sandy loam over dispersive brown clay (Eutrophic, Brown Sodosol)
Thick grey sandy loam with a gravelly bleached A2 layer over a brown or grey mottled heavy clay grading to alluvium or highly weathered quartzitic rock.
- K2** Loam to clay loam over red clay (Eutrophic, Red Chromosol)
Medium to thick hard loam to clay loam abruptly overlying a red or brown well structured clay grading to weathering siltstone within 100 cm.
- K3** Hard sandy loam over dispersive red clay (Eutrophic, Red Sodosol)
20 - 45 cm quartzite gravelly sandy loam to sandy clay loam abruptly overlying a red coarsely structured dispersive clay, grading to weathering quartzitic shale or quartzite at depths between 50 and 150 cm.
- K4** Sandy loam over brown sandy clay (Eutrophic, Brown Chromosol)
20 - 50 cm sandstone gravelly sandy loam abruptly overlying a brown, red and yellow sandy clay to clay grading to sandstone at about 65 cm.
- L1/B3** Shallow stony sandy loam to loam (Lithic / Petrocalcic, Leptic Tenosol / Rudosol)
15 - 50 cm very stony sandy loam or loam directly overlying sandstone, phyllite or limestone.

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

