

South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Cil-maen-llwyd Quarry, also known as Long Quarry	File Number: Site_RAW_JRD_24
RIGS Number: 716	Surveyed by: R A Waters and J R Davies
Grid Reference: SN 6650 2070	Date of Visit: 21 st October 2010
RIGS Category: Scientific, educational	Date Registered: Owner: Hafod Farm Planning Authority: Carmarthenshire County Council
Earth Science Category: Stratigraphical, palaeontological, sedimentological, industrial	
Site Nature: Disused Tilestone crop working/quarry	Documentation prepared by: R A Waters
Unitary Authority: Carmarthenshire County Council	Documentation last revised: 31 st January 2011
OS 1:50,000 Sheet: 159	Photographic Record: Attached
OS 1:25,000 Explorer Sheet: 186	
BGS 1:50,000 Sheet: 230	

RIGS Statement of Interest:

Cil-maen-llwyd Quarry is part of a network of sites demonstrating the evolution of the south-east margin of the Lower Palaeozoic Welsh Basin during the mid to late Silurian. It has been proposed as a RIGS as it provides a very accessible, partial section through the Tilestones Formation, the basal unit of the latest Silurian, Old Red Sandstone.

The quarry also provides the best example of 'tilestone' working in the 'Myddfai Steep Belt' that runs from Builth Wells to SW of Llandeilo. The geology of the sandstones can be shown to have controlled the way the 'tilestones' were worked. As a result, the quarry makes an excellent locality for demonstrating the Tilestones Formation as a building stone.

The sandstones and conglomerates of the Tilestones Formation exhibit a wide range of sedimentary structures and fossils that enable it to be demonstrated that they were deposited in a marine deltaic environment.

The quarry provides an excellent section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the late Silurian. It also provides a good section for students to study deltaic sandstones and building stones.

Geological setting/context:

Cil-maen-llwyd Quarry is a semi-continuous section through the sandstones of the Tilestones Formation that forms the basal part of the Old Red Sandstone of Pridoli age. The Tilestones Formation comprises the upper part of the late Ludlow progradation along the Myddfai Steep Belt (Schofield et al. 2009).

In the quarry, bedding is vertical and youngs south-east. The formation forms a NE/SW orientated ridge separating two softer formations; to the NW lies the interbedded sandstones and mudstones of the late Ludlow Caer'mynach Formation and to the SE the red mudstones of the Pridoli Raglan Mudstone Formation. The quarry is a 750 m-long, abandoned shallow crop working from which 'tilestones' were extracted for roofing tiles in the early nineteenth century.

The quarry was first described in detail by Strahan et al. (1907) who recorded the Tilestones as being c. 46 m. thick in the area. Two levels were worked for tiles as crop workings and the remainder was left as three unworked ridges. The waste was used to partly backfill the two slots left by the crop workings. The quarry today therefore comprises two slots separated by three ridges. The only outcrop is along the ridges. Strahan et al (1907) recorded the following section when the level of exposure was much better:

Green pebbly micaceous flags (left as southern ridge)	3.66 m +
Highly micaceous green sandstone (quarried as tilestone)	3.05 m
Greenish yellow pebbly sandstone (left as middle ridge)	12.19 m
Highly micaceous green sandstone (quarried as tilestone)	9.75 m
Greenish yellow pebbly sandstone (left as northern ridge)	9.14 m +

The tilestones facies comprises flaggy buff weathering, green grey, fine- to medium-grained very micaceous, slightly calcareous sandstone that is bedded on a cm scale. Parallel lamination is the main structure but HCS is locally present. Fossils, including brachiopods, bivalves and crinoid debris, are locally abundant. The unworked facies comprises medium to coarse-grained sandstones with beds of well sorted and rounded granule grade conglomerate, locally weathered to brown rottenstone. Low angle cross-bedding, HCS and mega- wave ripples, locally in granule grade material, are common. The two facies form two coarsening-upwards sequences that are locally capped by pebbly, granule-grade conglomerate. The tilestone facies occupies the quarried slots and the coarser facies the remaining ridges. Today, the best exposure is in the south wall of the northern crop working and in the southern wall of the southern crop working.

The fine-grained, parallel laminated sandstones of the tilestone facies split along the micaceous laminae into flags 1-2 cm thick. Such thin flags were used as roofing tiles. The workings were probably only 3-4 m deep as they stopped once they had reached the base of the weathered zone. Within this zone the sandstones became decalcified along laminae and therefore split easily. The Tilestones Formation gradationally overlies the late Ludlow Caer'mynach Formation which is an offshore, storm-influenced, shallow marine facies. The sandstones of the formation probably reflect deltaic input but the presence of HCS and wave ripples point to wave reworking, probably in a mouth bar environment. Three progrades are recognised in the quarry, each capped by the coarser facies. Together they comprise the upper part of the late Ludlow progradation that culminated in the continental, coastal plain deposits of the Raglan Mudstone Formation.

References:

SCHOFIELD D I, DAVIES J R, JONES N S, LESLIE A B, WATERS R A, WILLIAMS M, WILSON D, VENUS J and HILLIER R D. 2009. Geology of the Llandovery district – a brief explanation of the geological map. *Sheet explanation of the British Geological Survey*. 1:50 000 Sheet 212 Llandovery (England and Wales).

STRAHAN, A, CANTRILL, T C, DIXON, E E L, and Thomas, H H. 1907. Geology of the South Wales Coalfield, Part VII, the country around Ammanford. *Memoir of the Geological Survey of England and Wales*, Sheet 230 (England and Wales). (London: HMSO).

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:



Comment: Access to quarry via public footpath, but quarry is on private land

Safety:



Comment: Quarry floor is irregular piles of spoil that should be traversed with care, but faces are generally less than 3 m high.

Conservation status:

There are no known conservation designations of this RIGS

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Occupier of Hafod Farm [SN 6650 2120], near Trapp, Carmr

Planning Authority: Carmarthenshire/ Brecon Beacons National Park

Planning status/constraints/opportunities:

Unknown

CONDITION, USE & MANAGEMENT:

Present use: part of fields used for sheep grazing

Site condition: Gorse bushes and small trees locally growing on quarry floor and unworked ridges.

Potential threats: Vegetation could get worse and obscure faces. Tipping or complete backfill could become a problem.

Site Management: Suggest selected parts of the site are cleared of vegetation periodically.

SITE DEVELOPMENT:

Potential use (general):

Potential use (educational): It provides an excellent section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the late Silurian Tilstones Formation. It also provides one of the best localities to demonstrate 'tilestone workings' and is therefore of interest to those researching building stones. It also provides a good section for students to study marine deltaic sandstones and building stones.

Other comments:

Photographic Record



Tilestone crop working to left with unquarried ridge of coarse sandstone and conglomerate facies to right



Granule conglomerate and coarse sandstone.