South Wales RIGS Group Site Record
RIGS Description

SECTION A

General	South Wales
Site Name: Coed Pantydarren quarries	**File Number:** RAW_JRD_54
RIGS Number: 627	**Surveyed by:** R A Waters and J R Davies
Grid Reference: SO 2198 1380	**Date of Visit:** 14th October 2010
RIGS Category: Scientific, educational	**Date Registered:**
Earth Science Category: Stratigraphical,sedimentological, structural	**Owner:** Unknown **Planning Authority:** Monmouthshire County Council
Site Nature: Disused roadside quarries	**Documentation prepared by:** R A Waters
Unitary Authority: Monmouthshire County Council	**Documentation last revised:** 1st February 2011
OS 1:50,000 Sheet: 161	**Photographic Record:** Attached
OS 1:25,000 Explorer Sheet: OL13	
BGS 1:50,000 Sheet: E232	

RIGS Statement of Interest: The Coed Pantydarren quarries form part of a network of sites that demonstrate the stratigraphy and geological history of the Carboniferous Limestone on the north crop of the South Wales Coalfield. They have been proposed as a RIGS as they provide an excellent, very accessible, continuous section through most of the Clydach Valley Subgroup that forms the lower part of the Carboniferous Limestone succession on the eastern part of the north crop.

The unfenced roadside quarries exhibit a succession comprising three oolitic limestone units separated by two dolomite units. The quarries are the type locality for the lower of the dolomite units, known as the Pantydarren Formation. The sedimentoogy of the dolomite units are poorly understood, but key to the understanding of the geological history of the Carboniferous Limestone. The quarries therefore provide an excellent section for further research. Also of interest are a series of tectonic fold structures, known as drag folds, generated by one set of beds moving over another set during the generation of the South Wales Coalfield Syncline (basin).

Not only do the quarries provide a good section for scientific research on the dolomite units, they also are an excellent section for students to study limestones, dolomites and tectonic structures.

Geological setting/context:

The Coed Pantydarren quarries provide a complete and accessible section through the lower part of the Carboniferous Limestone succession in the eastern part of the north crop of the South Wales Coalfield. Two adjoining roadside quarries expose most of the Courceyan, Clydach Valley Subgroup, the following formations being seen:

Gilwern Oolite c. 7 m seen

Coed Ffyddlwn Formation c. 9 m

Blaen Onnen Oolite c.7 m

Pantydarren Formation c. 4 m

Pwll-y-Cwm Oolite c. 6 m seen

The Pwll-y-Cwm Oolite, Pantydarren Formation and Blaen Onnen Oolite are seen in the northern quarry. The two oolite formations comprise pale grey ooid grainstone with scattered bioclasts. The intervening Pantydarren Formation comprises a thickening upwards sequence from thin bedded dolomite mudstones with shaly partings to medium bedded fine-grained dolomites. The quarry is the type locality for the formation (Barclay, 1989).

The southern quarry exposes the Blaen Onnen Oolite, Coed Ffyddlwn Formation and Gilwern Oolite. The oolites are pale grey ooid grainstones, while the Coed Ffyddlwn Formation comprises thin to medium bedded fine-grained dolomites with a thin unit of calcite mudstones near the top. Much of the Coed Ffyddlwn Formation is inaccessible. Decollement appears to have taken place within and near the base of the Coed Ffyddlwn Formation. This is manifested by a series of interstratal drag folds comprising open anticlines and tight synclines that trend 033 degrees. They were probably generated by flexural slip during the Hercynian orogeny.

Each oolitic unit of the Clydach Valley Subgroup represents a barrier shoal deposit behind which a back barrier dolomite unit accumulated. Thus each dolomite/oolite couplet represents a transgressive - progradational (regressive) cycle. Each transgression began with peritidal/lagoonal deposits as represented by the dolomites, followed by deposition of ooid grainstones in a barrier setting. At the high point of the transgression, the barrier began to prograde back south, leaving an emergent land surface behind it. The sedimentology of the dolomite formations is poorly understood. Although, some are peritidal, others were probably deposited in a deeper shelf lagoon.

References:

BARCLAY, W J. 1989. *Geology of the South Wales Coalfield, Part II, the country around Abergavenny* (Third edition). Memoir of the British Geological Survey, Sheet 232 (England and Wales). (London: HMSO.).

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:			Good
Comment: quarries adjacent to Council road and unfenced.			
Safety:			Good
Comment: Quarry faces need examining for stability.			

Conservation status:

Unknown

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Monmouthshire County Council

Planning status/constraints/opportunities:

Unknown. Quarry very unlikely to restart as by roadside.

CONDITION, USE & MANAGEMENT:

Present use: Disused quarry

Site condition: Quarry faces mainly free of vegetation, although saplings and bushes growing out of face locally.

Potential threats: increasing vegetation growing out of faces may ultimately obscure critical faces. Fly tipping as Quarry adjacent to council road and unfenced.

Site Management: Suggest vegetation is cleared from faces periodically.

SITE DEVELOPMENT:

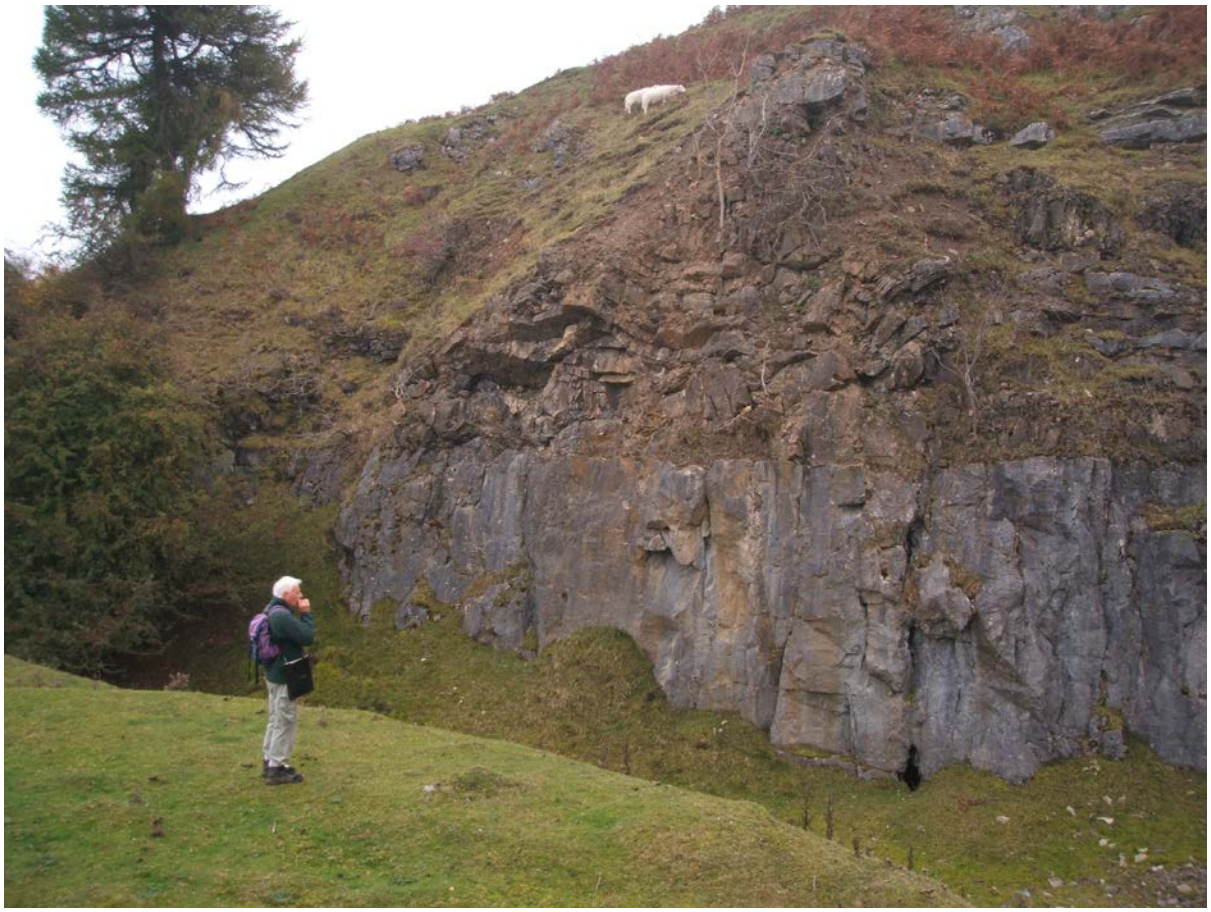
Potential use (general):

Potential use (educational): Good site for scientific research on the back barrier dolomites of the Clydach Valley Subgroup. Also an excellent site for students to study limestones , dolomites and tectonic structures.

Good parking and access.

Other comments:

Photographic Record



Southern quarry: Well bedded Coed Ffyddlwn Formation dolomites overlying massive Blaen Onnen Oolite. Drag folds associated with a decollement are present in the dolomites

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Northern quarry: thick bedded Pwll-y-Cwm Oolite overlain by Pantydarren Formation dolomites, which are in turn overlain by the thick bedded Blaen Onnen Oolite.