



South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Builth Road A470 Cutting	File Number: Site_RAW_JRD_14
RIGS Number: 707	Surveyed by: RA Waters & JR Davies
Grid Reference: SO 0282 5364 to 0297 5382	Date of Visit: January 2011
RIGS Category: Scientific	Date Registered:
Earth Science Category: Stratigraphic, Palaeonological	
Site Nature: Road cutting on A470 trunk road	Owner: ?Highways Agency Planning Authority: Powys County Council
Unitary Authority: Powys County Council	Documentation prepared by: Jerry Davies
OS 1:50,000 Sheet: 147	Documentation last revised: 7 th March 2012
OS 1:25,000 Explorer Sheet: 200	Photographic Record: Attached
BGS 1:50,000 Sheet: E196	
<p>RIGS Statement of Interest: This is one of series of key sites (RIGS & GCR) in the Wenlock and Ludlow succession of mid Wales which collectively allow the main geological divisions of these periods to be examined and the principal geological events reported for this interval to be investigated.</p> <p>Jones (1947) as part of his work in the Builth Wells region recognised several slump units with in the local Wenlock succession. However, detailed work by BGS demonstrated that many of these units were of the same age (Zalasiewicz & Williams, 1998; Schofield et al., 2004) showing that these slumped and disturbed units represented separate fault repeated outcrops of a single widespread deposit. The local Wenlock succession comprises the graptolitic Builth Mudstones Formation. The slumped horizon occupies the uppermost part of this division and is now recognised as Caer-beris Member. The type locality for this unit in the River Irfon at Caer-bris is a GCR site, but the Builth Road A470 cutting provides an alternative accessible section in the Builth Mudstones Formation that also exposes the basal contact with Caer-beris Member slump.</p> <p>The member was the product of widespread slope failure along the eastern margin of the Lower Palaeozoic Welsh Basin during late Wenlock times, and testifies to the onset of a period of tectonic instability and re-newed movement on basin-bounding faults. In addition to its basal contact and internal sedimentary features, the Builth Road cutting provides an easily accessible section that allows the impact and timing of this event to be examined.</p>	

Geological setting/context:

The Wenlock succession of the Builth Wells area drapes the eastern margin of the Lower Palaeozoic Welsh Basin. The local, finely laminated, richly graptolitic Wenlock rocks comprise the Builth Mudstones Formation (Davies et al., 1997; Schofield et al., 2004) and records deposition from suspension in a distal shelf or ramp setting. Following his work on these rocks, Jones (1947) reported the presence of a series of slump sheets separated by intervals of undisturbed strata. However, following detailed work on the graptolite biostratigraphy (Williams & Zalasiewicz, 1997; Zalasiewicz & Williams, 1999), BGS concluded that many of Jones' slump unit were of the same age and that he had failed to recognise that major faults traversing the area were repeating the outcrop of a single, but widespread slumped horizon (Schofield et al., 2004). Now named the Caer-beris Member, the type section for this unit is the River Irfon near Caer-beris, on the outskirts of the Builth Wells, where it overlies undisturbed graptolitic Builth Mudstones of the uppermost Wenlock *nassa-ludensis* Biozone age. Elsewhere, where the Caer-beris Member is much thicker, it typically rests on mudstones which yield *lundgreni* Biozone graptolites (Schofield et al., 2004). This is taken as evidence either that slumping was ongoing from this period throughout the late Wenlock, and/or that the base of the Caer-beris Member slump is downcutting. Rocks of Ludlow age abruptly succeed the Caer-beris member throughout the Builth area.

The Builth Road cutting on the east side of the A470 trunk road, to the north east of Builth Road railway station, provides an easily accessible section in the local flat lying, Builth Mudstones Formation that exposes the down-cutting base of the Caer-beris Member and the overlying slumped and disturbed strata (Figures 1 & 2). At the southern end of the cutting, the typically laminated and flaggy calcareous undisturbed mudstones of the parent formation are well seen weathering to fissile 'paper shales'. These strata contain a shelly fauna of small, thin-shelled epibenthic brachiopods and bivalves and larger crushed specimens of planktonic orthocones. The cross-cutting base of the Caer-beris Member enters the upper part of the cutting close to its southern end, descends from south to north until it reaches road level at the northern end of the site (Figure 1). The section allows down cutting in excess of 8 m to be demonstrated. Bedding in the mudstones immediately below the slump unit display evidence of disturbance and disruption. Randomly orientated elliptical calcareous nodules set in a structureless mudstone matrix are common immediately above the base of the Caer-beris Member (Figure 3); and some nodules appear to be lining its basal surface. Above this level are both bedded and unbedded mudstone units, the former displaying evidence of disruption and reorientation suggesting that they represent transported rafts of bedded material (Figure 2). Though loosely termed a slump, it is clear that the Caer-beris Member, both here and at many other localities, includes material that has been entrained within associated debris flows and it is possible that much of the unit was deposited in this way.

The A470 Builth Road cutting provides an alternative, accessible section through the base of the Caer-beris Member that compliments its GCR designated type section. It permits examination and collection of the underlying, fossiliferous undisturbed Builth Mudstones Formation as well as offering clear evidence for down cutting at the base of the Caer-beris Member and revealing its internal composition and the providing

evidence of debris flow transport mechanisms. The recognition that large scale slumping in the Builth Wells area was restricted to the late Wenlock suggests that, following a period of tectonic quiescence, this marked a period of renewed movement on the basin-bounding faults that traverse the region (Schofield et al. 2004). Sections which expose the base of the Caer-beris Member and allow the onset of widespread slope failure to be precisely dated may also shed light on the origins of its tectonic episode and the Builth Road site is additionally important in this context.

References:

DAVIES J R, FLETCHER C J N, WATERS R A, WILSON D, WOODHALL D G and ZALASIEWICZ J A. 1997. Geology of the country around Llanilar and Rhayader. *Memoir of the British Geological Survey*, Sheets 178 and 179 (England and Wales).

JONES, O T. 1947. The geology of the Silurian rocks west and south of the Carneddau range, Radnorshire. *Quarterly Journal of the Geological Society of London*, 103, 1-36

SCHOFIELD, D I, DAVIES, J R, WATERS, R A, WILBY, P R, WILLIAMS, M and WILSON, D. 2004. Geology of the Builth Wells District – a brief explanation of the geological map. *Sheet Explanation of the British Geological Survey*. 1:50 000 Sheet 196 Builth Wells (England and Wales).

WILLIAMS, M AND ZALASIEWICZ, J A. 1997. Graptolite biostratigraphy of the Wenlock of the Builth Wells district. A re-evaluation of reports written 1993-1996. *British Geological Survey Technical Report (Stratigraphy Series)*, WH/97/120R.

ZALASIEWICZ, J A AND WILLIAMS, M. 1999. Graptolite biostratigraphy of the Wenlock Series of the Builth Wells district, central Wales. *Geological Magazine*, 136, 263-283.

SECTION B

PRACTICAL CONSIDERATIONS: Please score Accessibility and Safety Red Amber or Green			
Accessibility:			X
Comment: The cutting is adjacent to a layby and can be safely accessed and studied			
Safety:		X	
Comment: Care should be taken when traversing the cutting face, though not particularly steep the friable nature of the rock surface can lead to instability and slippage			
Conservation status: There are no known conservation designations of this RIGS			

OWNERSHIP/PLANNING CONTROL: Owner/tenant: ? Highways Agency Planning Authority: Powys County Council Planning status/constraints/opportunities: There are no known planning constraints or opportunities
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CONDITION, USE & MANAGEMENT: Present use: Trunk road cutting Site condition: Becoming weathered and overgrown Potential threats: Ongoing degradation due to weathering and vegetation growth. This section of the A470 is about to be by-passed by the new Built to Newbridge road and this may mean that any clearance work currently undertaken by the Highways Agency at the site will be stopped. Site Management: Periodic clearing of vegetation and regarding of the cutting surface to expose the critical contacts and rock units.
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SITE DEVELOPMENT: Potential use (general): Potential use (educational):
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Other comments:

Photographic Record



Figure 1. General view of the Builth Road A470 road cutting in the Builth Mudstones Formation, showing the down-cutting base (dashed line) of the Caer-beris Member



Figure 2. Base of the Caer-beris Member (white line) in the Builth Road Cutting, note disturbed bedding above and immediately below the contact



Figure 3. Close-up of randomly orientated calcareous nodules set in a structureless mudstone matrix within the Caer-beris Member, Builth Road cutting