



South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Gold Cliff	File Number: Site_ts_2
RIGS Number: 660	Surveyed by: Tom Sharpe and Janet Hiscott
Grid Reference: ST 3715 8190	Date of Visit: 4 th September 2009
RIGS Category: Scientific, educational	Date Registered:
Earth Science Category: Stratigraphic	
Site Nature: Beach section and small cliff.	Owner: Unknown Planning Authority: Newport City Council
Unitary Authority: Newport City Council	Documentation prepared by: Tom Sharpe and Rhian Kendall
OS 1:50,000 Sheet: 171	Documentation last revised: 24 th February 2012
OS 1:25,000 Explorer Sheet: 152	Photographic Record: Attached
BGS 1:50,000 Sheet: 250 and 264	
<p>RIGS Statement of Interest:</p> <p>There are a number of features of interest at this site. The first is the Lias exposure near the lighthouse, the second is the rock platform foreshore where rock of the Mercia Mudstone Group is exposed. Lastly, to the west of the area are extensive Holocene peat deposits which are approximately 8000 years old Mesolithic. These deposits are discussed in a separate RIGS.</p> <p>The two small exposures of Lower Lias are of alternating grey finely laminated mudstones and buff limestones. On the foreshore, large rock platform has developed along several bedding planes within the topmost Mercia Mudstone Group and the lowermost units of the Blue Anchor Formation. This one of the most extensive exposures of the Mercia Mudstone Group in the area and shows many of the features typical of the group, including the distinctive deep red colour with green reduction staining and its blocky fracture. It also, unusually for this area, includes large concretionary development.</p> <p>The grey green mudstones of the Blue Anchor Formation are exposed only close to the base of the seawall and beneath large boulders at the base of the wall. Now unfortunately concealed by boulders, the Blue Anchor Formation here was recorded as including, a bone bed which was thought to be exceptional at the time.</p>	

Geological setting/context:

Prior to the construction of the sea wall, a succession between the Mercia Mudstone Group, up through the Rhaetic and into the Lower Lias could be distinguished at this site. Now, the foreshore exposes the Red Marls of the Mercia Mudstone Group and the lowermost beds of the Blue Anchor Formation. On the headland, above the sea wall, the Lower Lias is exposed.

The two small exposures of Lower Lias Limestones and mudstones, can be found by between Hill Farm and the old Navigation Light on the seawards side of the large anchor on the western slope. Here, there is about 3m of alternating grey finely laminated mudstones and buff limestones of the Lias Group are exposed here. The limestones contain bivalves. The Chepstow Memoir records the presence of *Caloceras sp* and *Psiloceras* in these beds. These are the only exposures of Lias rocks in the Newport District.

To the South of Hill Farm, on the foreshore, and between the high water mark and the mean low water mark, a rock platform 600m wide has developed along several bedding planes within the topmost Mercia Mudstone Group and the lowermost units of the Blue Anchor Formation. This rock platform extends westwards from the point for about 900 m. This one of the most extensive exposures of the Mercia Mudstone Group in the area.

The grey green mudstones of the Blue Anchor Formation are exposed only close to the base of the seawall and beneath large boulders at the base of the wall. Concealed by boulders and recorded in the 1899 by Strahan is the presence of a bone bed within the Blue Anchor Formation. The bone bed is thought to be due to infilling of cracks in the marls with quartz and fish remains. Among the vertebrates identified were *Gyrolepis alberti* Ag, *Hybodus minor* and *Saurichthys*.

The red mudstones of the Mercia Mudstone Group are exposed over most of the foreshore and exhibit reduction spots and streaks especially in the uppermost beds. A notable feature is the occurrence of circular or oval structures, 20 – 40 cms across, on the bedding planes. These contain concentrically laminated mudstones in which the laminations dip inwards. Although mostly of red mudstone, in places this 'infill' is of grey green mudstones. The blocky fracture of the beds outside of these structures is not apparent within them. The structures are widespread across the bedding planes on the foreshore and mostly show no differential relief, although in some places the infill does stand proud of the surrounding sediment. The origin of these structures is uncertain but seem likely to be some form concretion.

At the western end of the rock platform the Triassic bedrock is overlain by about a metre of stiff grey clay containing wood below a thin bed of peat in which tree stumps and logs are preserved. This peat extends westwards for about 30 m beyond which it is covered with estuarine mud. The same clay with wood and peat with tree stumps and logs is also exposed to the east of Goldcliff on a bench below the sea wall 1.9 km east of Goldcliff and extending eastwards for about 1.8 km on Portland grounds.

Please see Holocene RIGS for Goldcliff for a fuller description of these deposits.

References:

RICHARDSON, L. 1905. The Rhætic Rocks of Monmouthshire. Quarterly Journal of the Geological Society 1905; v. 61; p374-384

STRAHAN, A. 1899. The Geology of the South Wales Coal-field Part 1. The Country around Newport, Monmouthshire. British Geological Survey, Sheet 249

WELCH, F B A and TROTTER, F M, 1961. Geology of the country around Monmouth and Chepstow. Explanation of one-inch geological sheets 233 and 250. Memoir of the Geological Survey of Great Britain.

WOODWARD, HB. 1888. Notes on the Rhætic Beds and Lias of Glamorganshire. Proceedings of the Geologists Association. Vol 10, Issue 9 pp 529-538

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:



Comment: Foreshore is inaccessible at high tide.

Safety:



Comment: Foreshore is inaccessible at high tide and very slippery.

Conservation status:

There are no known conservation designations of this RIGS

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Newport City Council

Planning status/constraints/opportunities:

There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT:

Present use: None

Site condition: Good

Potential threats: The development of a barrage across the Severn Estuary would potentially destroy or damage this site.

Site Management: None. If works ever happen to change the sea wall defences at this location it might be useful to consider exposing the Bone bed that occurs here.

Please also see the RIGS report for the Holocene sediments here.

SITE DEVELOPMENT:

Potential use (general):

Potential use (educational): This site is generally useful as an educational resource. There is also research potential in the analysis of the concretions and the bone beds.

Other comments:

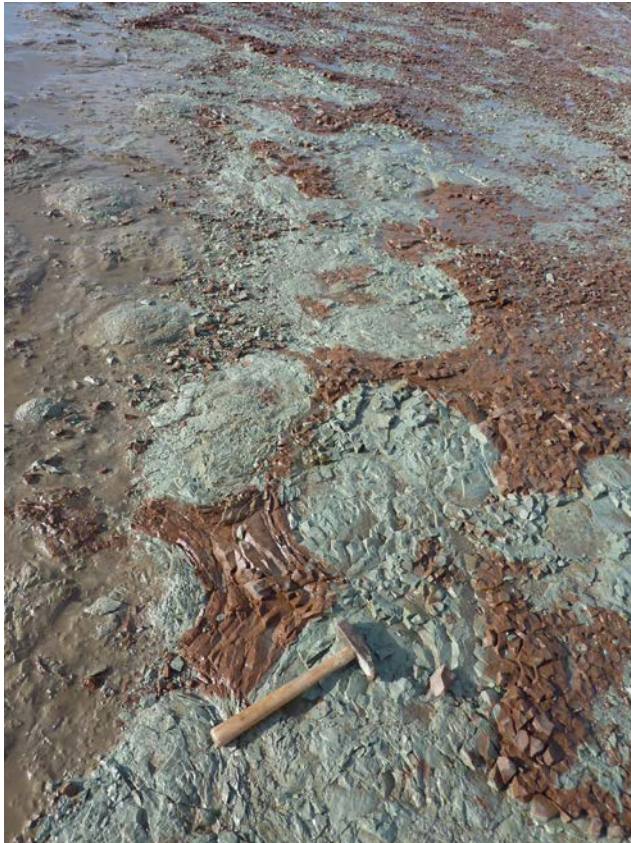
Photographic Record



Mercia Mudstone Formation, concretions. Photo by T Sharpe



Mercia Mudstone Formation, concretions. Photo by T Sharpe



Reduction spots and streaks in Mercia Mudstone Group



Area of reduction associated with concretion in Mercia Mudstone Group



Concretion differentially eroded in foreshore in Mercia Mudstone Group



Lias on cliff top T Sharpe



Lias on cliff-top T Sharpe



Holocene clays overlying Mercia Mudstone Group and Blue Anchor Formation