

**Results of Archaeological Works  
(Building Recording) at**

**Mining Arch within Dyffryn Nantlle Landscape of  
Outstanding Historic Interest**



NGR SH 53163 53317

**Report Number CR111-2015**



**C.R Archaeology**

Compiled by Catherine Rees & Matthew Jones  
on Behalf of Gwynedd County Council

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**Client:** Gwynedd County Council

**Report Author:** Catherine Rees & Matthew Jones  
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## 1.0 Introduction

C.R Archaeology were instructed by Gwynedd County Council to conduct archaeological works at a mining arch near Nantlle, within Dyffryn Nantlle Landscape of Outstanding Historic Interest .

The site is a low slate arched bridge running beneath the B4418 between Nantlle and Rhyd-Ddu (Figure 1). It forms an element within the mining remains of the Post Medieval landscape. It is associated with the copper extraction industry in the area and was utilised to transport material along an inclined plane, beneath the road to a crusher.

Due to the small scale of the proposed works a specification for works was not produced but the scope of the project was agreed with Development Control Archaeologist Jenny Emmett of GAPS prior to the commencement of works.

A level 1 – 2 building record of the bridge structure was made. Emphasis was placed on creating an photographic archive of the site prior to structural works being undertaken.

## 2.0 Project Aims & Objectives

The aim of this phase of the programme of works was to create a Level 1/2 Building Record of the slate bridge beneath the B4418 associated copper mining in the Drws y Coed area.

It aimed to fulfil the mitigation criteria for undertaking an Archaeological Building Recording as specified in the ClfA Standard and Guidance documents (1996 Revised 2014).

The objective of this phase of archaeological works was to provide an archive record of the building structure prior to structural works being undertaken.

## 3.0 Scheme of Works - Methodology

### 3.1 Scheme of Works – Methodology for Building Recording

The methodology employed conformed to the requirements of a Level 1/2 Building Record as specified in *Understanding Historic Buildings: A Guide to Good Recording Practice* (English Heritage 2006) and The Chartered Institute for Archaeologists: *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures* (Revised 2014).

The following points are detailed in *Understanding Historic Buildings: A Guide to Good Recording Practice* (English Heritage 2006).

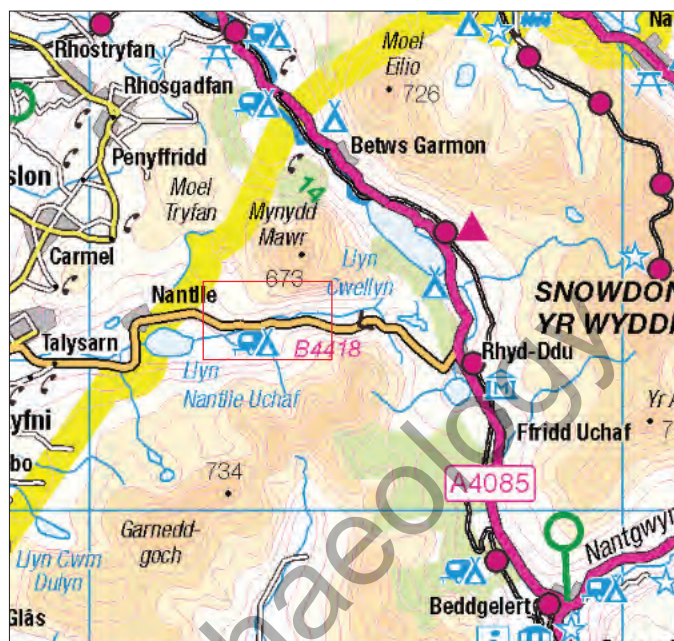
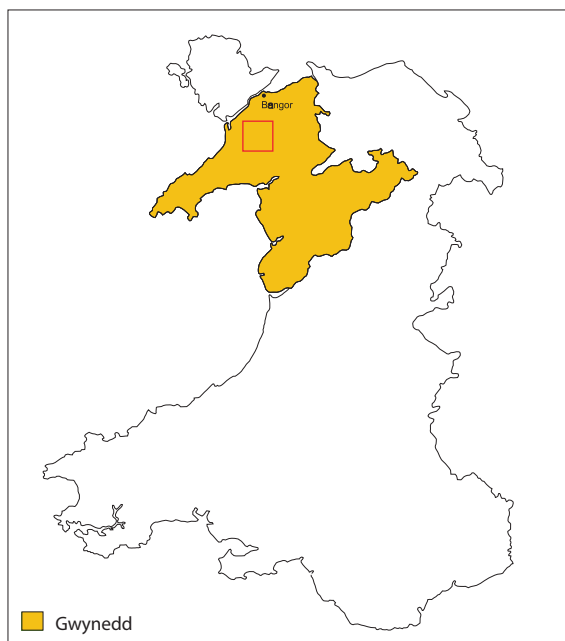
The record created for the bridge consists of:

<b>Written Account</b>	Points 1-5, 7-9 & 22
<b>Drawings</b>	No drawings were produced
<b>Photography</b>	Points 1-5.

#### 3.1.1 Desk Based Research

Minimal desk based research was conducted for this project as an in depth history was not required. The First Edition Ordnance Survey Map of the site was consulted together with the Register of Landscapes of Historic Interest in Wales, the Gwynedd HER entry for the site and “*Gwynedd: Inheriting a Revolution*” (Gwyn 2006).





**Figure 1. Site Location Map**  
 (Source: OS Open Data Mapping Contains Ordnance Survey data  
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The works were conducted in accordance with the CIfA Standards and Guidance for Historic Environment Desk-based Assessment (CIfA 2014) and include the information required to fulfil points 1-5, 7-9 & 22 as specified in *Understanding Historic Buildings: A Guide to Good Recording Practice* (English Heritage 2006).

This material forms a short historical background for the archaeological report. The report also includes the results of the photographic survey and an additional compact disc containing all site images in Tiff format.

### **3.1.2 Drawn Survey**

It was not deemed necessary to produce a drawn record of the site given the level of recording required.

### **3.1.3 Photographic Survey**

A photographic survey was undertaken. This included:

- 1) A photographic survey of the exterior
- 2) A photographic survey of the interior

The methodology employed conformed to the requirements of photographic recording to the equivalent of a Level 1/2 Survey, as specified in *Understanding Historic Buildings: A Guide to Good Recording Practice* (English Heritage 2006) and includes works specified in points 1-5.

#### **3.1.3.1 Equipment**

A photographic survey was undertaken using a 14.2 mega-pixel Sony Alpha-350 digital camera with a variety of standard and other lenses using a tripod where necessary. Images were captured in RAW format for later processing into high resolution JPG and TIFF files.

Where possible all exterior and interior elevations of the building were photographed with scales from ground level. Additional photographs were taken detailing important landscape features.

### **3.2.0 Timetable for Proposed Works**

Works at the site were undertaken on 17<sup>th</sup> October. Site work took one day.

#### **3.2.1 Staffing**

The project was managed by Catherine Rees (MCIfA, BA, MA, Pg Dip Historic Environment Conservation). The fieldwork was conducted by Matthew Jones (BA, MA). All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

#### **3.2.2 Monitoring**

The project was subject to monitoring by Gwynedd Archaeological Planning Services. The monitor was given prior notice of the commencement of the fieldwork.

#### **3.2.3 Health and Safety**

A risk assessment was conducted prior to the commencement of works and site staff were familiarised with its contents. A first aid kit was located in the site vehicle.

All staff were issued with appropriate Personal Protective Equipment (PPE) for the site work. This consisted of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)
- Mobile Phone (Due to Lone Working)

All staff have passed at least a CITB health and safety test and carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363).

### **3.2.4 The Report**

This report clearly and accurately incorporates information gained from the programme of archaeological works. It presents the documentary evidence gathered in such a way as to create a clear and coherent record. The report contains a site plan showing the locations of photographs taken.

The report includes:

- A location plan
- A plan illustrating the location and direction of photographs
- A full bibliography of sources consulted
- An archive compact disc

The report details the results of the Level 1/2 Building Recording.

Copies of the report in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A bound paper copy and PDF digital copy of the report will be submitted as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of fieldwork.

#### **3.2.4.1 Copyright**

C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

## **4.0 Geographical and Geological Context**

### **4.1 Topography**

The site forms part of the B4418 road running along the northern edge of the Nantlle valley between Nantlle and Rhyd-Ddu. It forms an element within the mining remains of the Post Medieval landscape.

### **4.2 Geology**

The bedrock geology at the site is described as “*Nant Ffrancon Subgroup - Siltstone. Sedimentary Bedrock formed approximately 451 to 479 million years ago in the Ordovician Period. Local environment previously dominated by shallow seas. These rocks were formed in shallow seas with mainly siliciclastic sediments (comprising of fragments or clasts of silicate minerals) deposited as mud, silt, sand and gravel*” (www.bgs.ac.uk).

The superficial geology strata is described as “*Head - Clay, Silt, Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by subaerial slopes. These rocks were formed from the material accumulated by down slope movements including landslide, debris flow, solifluction, soil creep and hill wash*” (www.bgs.ac.uk).

## 5.0 Historical Background

The study site is a small, low bridge beneath the B4118 which links the villages of Nantlle and Rhyd-Ddu. The bridge spans an inclined plane which can be traced on the First Edition Ordnance Survey Map (1888) as running from the copper mine of Drws y Coed (figure 2).

The Gwynedd HER (PRN 21529) records the structure as being part of the Benallt Copper Mine and within that entry mentions “*a substantially engineered counterbalance incline built in 1870 ran from a now-demolished drumhouse at SH5359 5350 to the crusher, passing under the Nantlle to Rhyd Ddu road through a flattened-arch bridge. Vestigial remains, in the form of an anchorage and a landing plate, survive outside the No. 4 adit of a primitive aerial rope way from the adit to the Simdde Dylluan crusher*”.

The Register of Landscapes of Historic Interest in Wales records that the Benallt Mine was an “*unusual, possibly fraudulent, undertaking in the mid-to-late 19<sup>th</sup> century*” (Cadw: 140).

## 6.0 Results of Archaeological Works

A photographic survey of the slate bridge near Nantlle was conducted on 17<sup>th</sup> October. The results of this survey are included as plates 1 – 16. The position and direction of the photographs taken are included as Appendix A.

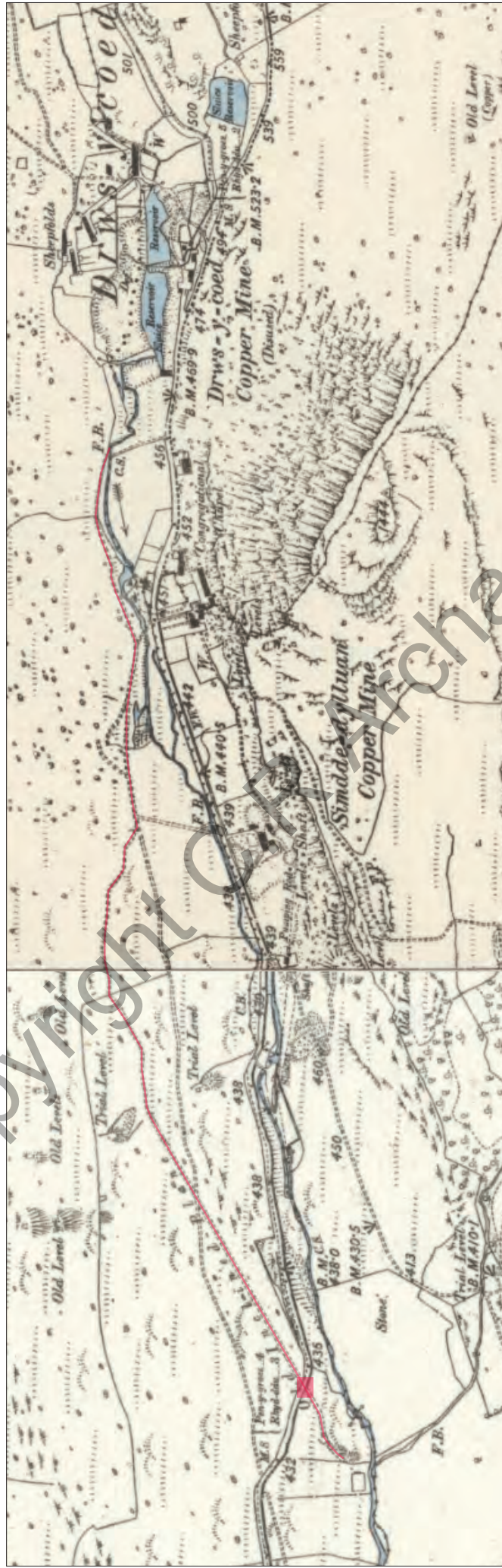
The bridge is a low arch approximately 1m in height and 3m in width. It is constructed of locally sourced slate slabs laid on edge. Lime mortar has been used to bond the structure and although much of it has been lost it does appear that the tunnel formed beneath the bridge was originally lime washed or rendered.

The south western arch has collapsed due to the increased weight of the modern road and traffic.

## 7.0 Conclusion

A photographic record of the slate bridge was made on the 17<sup>th</sup> October 2015. This archive record was created prior to structural works which are scheduled to be undertaken to stabilise the bridge. This will involve the infilling of the area beneath the arch.





**Figure 2.** First Edition Ordnance Survey Map of Site and Surrounding Area. Inclined Plane from Bridge to Drws-y-Coed Mine is Marked in Red

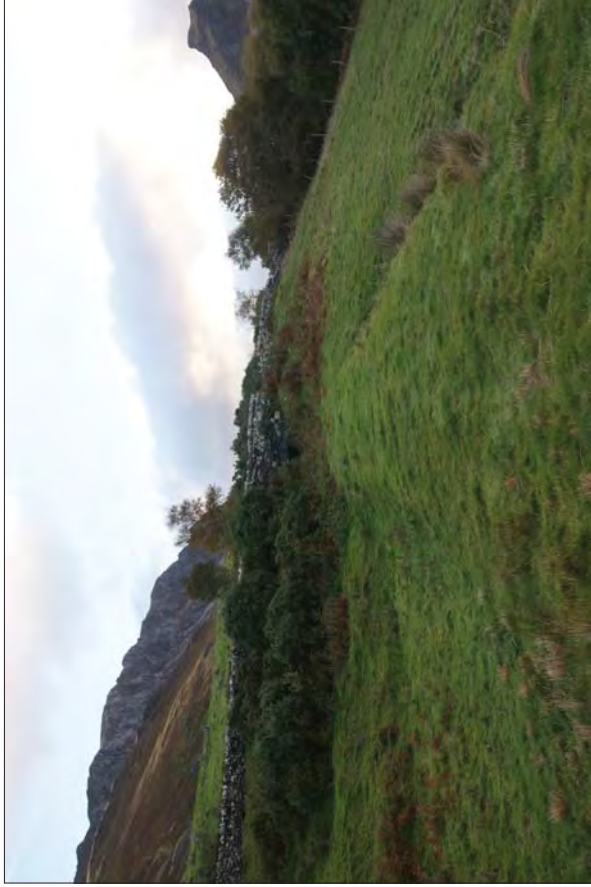




**Plate 1.** Old Incline Plane Visible as Earthwork Leading  
To the Remains of the Crushing House. Taken Facing South West



**Plate 2.** Old Incline Plane Visible as Earthwork  
View Taken Facing South East



**Plate 3.** Old Incline Plane Visible as Earthwork  
View Facing North East



**Plate 4.** Old Incline Plane Visible as Earthwork  
And Slate Bridge. View Facing North East





**Plate 5.** Slate Bridge South West Facing Elevation.  
Taken Facing East



**Plate 6.** Slate Bridge South West Facing Elevation.  
Taken Facing East



**Plate 7.** Slate Bridge South West Facing Elevation.  
Taken Facing East



**Plate 8.** View Facing North East  
Taken from South West





**Plate 9.** Slate Bridge Interior.



**Plate 10.** Slate Bridge Interior.  
Taken Facing South West

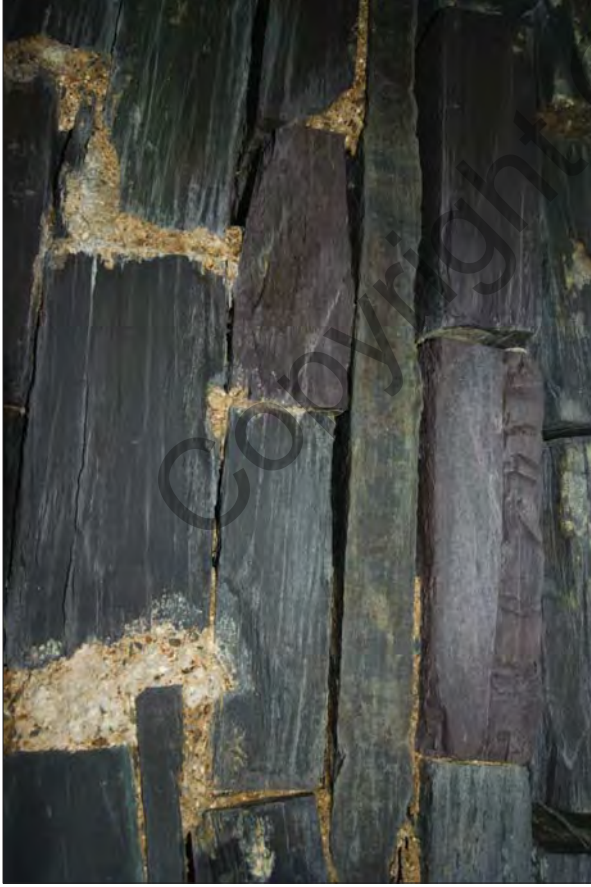


**Plate 11.** Slate Bridge Interior.  
Taken Facing North East



**Plate 12.** Slate Bridge Interior Showing Roof Construction.  
Taken Facing South West





**Plate 13.** Slate Bridge Interior Showing Construction Methods



**Plate 14.** Slate Bridge North East Facing Elevation.  
Taken Facing South West



**Plate 15.** Slate Bridge  
Taken Facing South West



**Plate 16.** View from Slate Bridge  
Up the Inclined Plane

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