

Archaeology Chapter for Environmental Statement for Penrhyn Quarry, Bethesda



Archaeology Chapter for Environmental Statement for Penrhyn Quarry, Bethesda

Project No. G2098

Report No. 1397

Prepared for: SLR Consulting and Welsh Slate

November 2015 (released July 2017)

Written by: Jane Kenney and Chris Lowden

Illustration by: Jane Kenney

Cyhoeddwyd gan Ymddiriedolaeth Archaeolegol Gwynedd
Ymddiriedolaeth Archaeolegol Gwynedd
Craig Beuno, Ffordd y Garth,
Bangor, Gwynedd, LL57 2RT

Published by Gwynedd Archaeological Trust
Gwynedd Archaeological Trust
Craig Beuno, Garth Road,
Bangor, Gwynedd, LL57 2RT

Cadeiryddes/Chair - Yr Athro/Professor Nancy Edwards, B.A., PhD, F.S.A.
Prif Archaeolegydd/Chief Archaeologist - Andrew Davidson, B.A., M.I.F.A.

Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)
Gwynedd Archaeological Trust is both a Limited Company (Reg No. 1180515) and a Charity (reg No. 508849)

CONTENTS

Introduction	2
Assessment Methodology	2
Introduction	2
Desk-based Assessment	3
Field Survey	4
Report and Archiving	4
Baseline Conditions	5
Landscape	5
History	5
Statutory and non-statutory designations	11
Surviving Archaeological Features	11
Assessment of Effects	14
Mitigation	15
Proposed Conditions	16
Residual Impacts and Effects	16
Summary of Effects	16
Conclusions	25
Sources Consulted	27
Glossary	30
APPENDICES	31
Appendix I: Definition of categories of importance	31
Appendix II: Definition of levels of recording	31
Appendix III: Site Gazetteer	37
FIGURES AND PLATES	106

INTRODUCTION

- 12.1 This report constitutes a chapter of an Environmental Statement for Penrhyn Quarry, Bethesda. This chapter of the ES considers the potential impact of the continued operation of Penrhyn Quarry within the confines of the extant planning permissions on the historical and archaeological sites within and around the quarry. The chapter, which has been written by the Gwynedd Archaeological Trust (GAT), describes the scope, assessment methodology and the baseline conditions currently existing at the quarry and its surroundings. It then considers any potential significant effects the quarry might have on this baseline data and the mitigation measures required to prevent, reduce or offset any significant adverse effects. In particular, consideration is given to the planning conditions that should be imposed on the operation of the quarry.
- 12.2 The archaeological assessment encompasses the area covered by planning permissions C96A/0020/16/MW, CO8A/0039/16/MW and C12/0874/16/MW (approximate centre NGR SH62106501), which form the Mining Site under the Environment Act 1995. This includes the working quarry, the old quarry, now flooded and reused for recreational purposes (a 'zip' wire), slate waste tips and open heathland (figure 1.2, **Appendix 12/4**).
- 12.3 The assessment brings together information from other assessments and archaeological work carried out within the quarry area. Sites on the uplands at the edge of the quarry were recorded in 1989 as part of an upland survey (Boyle 1993) and sites within the quarry were recorded for an assessment in 1995 (Gwyn and Davidson 1995). Other assessment reports have been based on this initial work (Flook and Dutton 1993, Hopewell 2009, and Cooke and Davidson 2010). The realignment of the south-western corner of the quarry led to evaluation and mitigation strategies in this small area. This resulted in a detailed record of sites that were at risk and a better understanding of the more significant sites that were to be preserved (Hopewell 2009, Davidson 2010, McNicol 2013a and b, McNicol 2015, Owen forthcoming). The sites in the quarry have not been assessed or inspected since 1995, and considerable changes have since taken place. Recommendations for further work were made in Gwyn and Davidson 1995 (report 176) but these were not carried out. Many of the sites recommended for recording, including some recommended for detailed recording, have since been destroyed through consented operations. This report up-dates those recommendations and adds ones for sites not included in that report. Recommendations for any further archaeological evaluation and mitigation stages, to help inform future decision making, design solutions and potential are recommended based on the results of the assessment.

ASSESSMENT METHODOLOGY

Introduction

- 12.4 The assessment addresses the following:
- The history of the site;
 - Compilation and incorporation of relevant information from earlier GAT reports;
 - The current condition of archaeological sites identified in GAT Report No. 176 and other reports that covered parts of the study area;

- The location, extent and preservation of pre-1914 slate tips and quarry works;
- The potential impact of future development of Penrhyn Quarry on archaeological remains;
- The requirements for further assessment in the form of recording and/or intrusive field evaluation.

12.5 The assessment was undertaken in four stages:

- Desk-based assessment
- Field visit
- Report compilation
- Project archive

12.6 The archaeological assessment was undertaken by Gwynedd Archaeological Trust in accordance with guidelines set out in *Planning Policy Wales 2014* and *Welsh Office Circular 60/96 (Planning and the Historic Environment: Archaeology)*, and conforms to the guidelines specified in *Standard and Guidance for Historic Environment desk-based assessment* (Chartered Institute for Archaeologists, 2014). The work is monitored by the Gwynedd Archaeological Planning Service (GAPS).

Desk-based Assessment

12.7 The desk-based assessment involved creating an Access database of archaeological and historical sites within the Review Site obtained from the regional Historic Environment Register (HER) and the National Monument Record (NMR). These were also used to provide a wider background to the study area. Cadw information on Listed Buildings and Scheduled Ancient Monuments was also obtained from the regional HER and added to the database. The Register of Outstanding and Special Historic Landscapes and the Register of Parks and Gardens were checked for relevant landscape areas. The 25 inch County Series Ordnance Survey maps were used to identify surviving physical remains and to track the changes of the quarry over the late 19th and early 20th centuries. Information from existing GAT reports on the area of the quarry was also incorporated into the database, where they had not already been included in the HER. Where necessary grid references for the sites in the database were improved by reference to the early maps, modern mapping and a detailed survey provided by Welsh Slate.

12.8 Secondary sources were examined as appropriate, including works describing the history of the quarry and background information on the slate industry. The recent publication of a comprehensive work on the Welsh slate industry (Gwyn 2015) proved particularly useful.

12.9 Aerial photographs were obtained from the Welsh Government's Aerial Photographic Unit and more recent images from Google Earth were also used.

12.10 Penrhyn estate maps from the Bangor University Archives were consulted, as well as photographs and antiquarian prints of the quarry from Gwynedd Archives, Caernarfon Record Office.

Field Survey

- 12.11 A walkover of the study area was carried out between 27th and 31st July 2015. This assessed the survival and condition of the sites identified during the desk-based study. Any additional sites noted during the field survey were also recorded and assessed.
- 12.12 The aims of this stage of the work are to: verify the results of the desk based assessment; assess the impact upon the historic landscape; photograph and record the present condition of all sites noted.
- 12.13 For each site notes were made of its form and condition and photographs were taken. The location of the site was checked so that grid references could be improved where necessary. Where new sites were identified while inspecting known sites these were also recorded and located. No systematic search was made for new sites but where quarry staff informed the archaeologists of sites not previously recorded these were also inspected.
- 12.14 Sites were located using hand-held Global Positioning System (GPS) devices and the grid references obtained improved if necessary by reference to existing mapping data, especially where tree cover gave poor GPS readings.
- 12.15 Photographs were taken with digital cameras set to the highest resolution. Images were taken in RAW format to be converted to TIFF format for archiving.

Report and Archiving

- 12.16 The significance of the sites inspected was assessed using the categories in **Appendix 12/1**. The condition and threats to each site were added to the database using fields and terminology agreed with the Gwynedd HER. Specific mitigatory measures were also recorded for each site in the database. Information from this database was used to create the full gazetteer of sites presented in **Appendix 12/3**.
- 12.17 MapInfo tables have been created to accompany the database to identify the limits of linear or extensive sites. The database and tables have been used to produce the plans accompanying this chapter.
- 12.18 This chapter discusses the nature of the sites identified, the potential threats and recommendations to mitigate the threats.
- 12.19 A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. The paper record for the work will be held by Gwynedd Archaeological Trust. The digital archive, including the report and photographs, will be submitted to Royal Commission on Ancient and Historic Monuments Wales for long-term curation.
- 12.20 Paper and digital copies of this chapter will be submitted to GAPS and the HER. The full database and relevant MapInfo tables will be supplied to the HER to aid input of the data to the HER. The database and tables will also be supplied to Welsh Slate.

BASELINE CONDITIONS

Landscape

- 12.21 The Ogwen Valley or Nant Ffrancon runs south-east to north-west through the mountains of Snowdonia, and with Nant y Benglog, forms a major pass through the mountains. It is a classic glaciated valley with a flat floor and steep sides, within which are hanging valleys formed by smaller valley glaciers. At the north-western end the valley opens out onto the coastal plain bordering the Menai Strait. Afon Ogwen, the river that runs in the valley, flows into the Menai Strait at Aberogwen (figure 1.1).
- 12.22 Penrhyn Quarry lies at the north-western end of the mountains that form the south-western side of Nant Ffrancon. The area covered by the quarry extends from the valley floor at about 160m AOD to the moorland and bog of Gwaen Gynfi at up to 460m AOD. From here the land rises steeply to the summit of Carnedd y Filiast at 721m AOD.
- 12.23 The southern end of the quarry has extended into a fairly level upland plateau called Gwaen Gynfi, much of which is covered by deep peat and bogs. The south-eastern margins of the bogs on the lower slopes of Carnedd y Filiast are characterised by periglacial boulder fields and natural well-drained terraces (Hopewell 2009, 2).
- 12.24 The geology of the area consists of Cambrian slate. Slate is common in Snowdonia but much is too distorted or friable to be worked efficiently. The Cambrian slate of Penrhyn, which tends to be purple or green, has a clean, straight cleavage and can be worked easily (Lewis 1976). The quarry targets the best quality of the Cambrian slates. These are rocks of the Llanberis Slates Formation, originally formed in deep seas. However other rocks are present within the quarry, including a deposit of silica-rich magma, the Padarn Tuff Formation, and small dykes and sills of Ordovician igneous intrusions. A Cambrian sandstone, the Bronllwyd Grit Formation, is present in the eastern part of the quarry and there are also siltstones of the Fachwen Formation (Geology of Britain Viewer, British Geological Survey) (figure 1.2).

History

Prehistory and Roman Archaeology

- 12.25 See figure 1.3 for location of sites mentioned.
- 12.26 The hills surrounding Nant Ffrancon were extensively used throughout the prehistoric period and into the Roman period by the local inhabitants. This included funerary use as a Bronze Age cairnfield (PRN¹ 5671), consisting of 44 grassed over cairns, lying just beyond the western limits of the study area (Boyle, 1993). Some of these cairns may be the result of field clearance but two or three were opened in 1856 by local historian H.D. Hughes, revealing stone cists. This demonstrates that some at least were burial cairns (Hughes 1866, 34 (trans Caffell 1988)).
- 12.27 There are also the remains of two prehistoric settlements, probably originating in the Iron Age, but possibly extending into the Roman period. One site (PRN 5670)

¹ Primary Record Number. This number identifies the site within the Gwynedd Historic Environment Record.

lies just beyond the western edge of the study area and is composed of a hut circle surrounded by clearance cairns and traces of enclosures. There is another, possibly related single hut circle nearby (PRN 12195), and another (PRN 12638) a little further north, just outside the study area. The other site (PRN 5380) is better preserved and includes several irregular enclosures with small round huts and less well-defined outlying paddocks and some other possible round huts (figure 1.4). This lies within an area where the quarry permissions have been realigned. The area has been surveyed in detail and submitted to some small evaluation trenching (Hopewell 2009; Davidson 2010). Under the current planning permission these features would not be disturbed.

- 12.28 Two other areas of wandering denuded walls, typical of early agriculture and miscellaneous structures (PRNs 12430 and 12500) to the south-west of the study area may also indicate less well-preserved prehistoric settlements and cultivation in the area.
- 12.29 It has been proposed (Waddelove 1999, 77-101) that a Roman road (PRN 17819) ran from the Roman camp at Caer Llugwy to a hypothetical camp at Penrhyn, Bangor. The line of this may have been partially followed by a road created by Lord Penrhyn by 1791 (PRN 60706), now buried under slate waste under the north-eastern part of the quarry. Hopewell (2005, 19) concludes that more field investigation would be needed to support the existence of a Roman road but does point out that a slate used in the roofing the Roman legionary barracks in Chester come from close to Bethesda, suggesting possible Roman use of the slates (Hopewell 2005, 19). The Roman pottery assemblage found during excavations of a native settlement at Llandygai suggested contacts with a Roman military site (Evans 2008, 44) as did the find of a Roman seal-box at the same site (Kenney 2008, 83), perhaps supporting the presence of a Roman site somewhere near Penrhyn Castle. This is far from being proved, but a Roman road is possible down the valley and if it did exist it is likely that it would have crossed the area later used by the quarry.

Medieval and post-medieval agricultural use

- 12.30 In the medieval period cattle were the main livestock kept on the mountains. Within the area of the prehistoric settlement and fields (PRN 5380) there are the remains of a small rectangular structure (PRN 12327), possibly a long hut. These are generally assumed to be of medieval date and in this location would have been likely to be a hafoty, a summer dwelling occupied while tending to and milking the cattle kept on the summer pasture (the hafod). A trackway (PRN 12328) runs past this structure and may be contemporary with it, allowing access to the hafod. A small sheepfold (PRN 12384) to the west of the south-west corner of the study area is built over an earlier structure that may be medieval in date.
- 12.31 By the late 18th century sheep had become much more dominant as mountain livestock and their management is certainly reflected in the area by several sheepfolds. The sheepfold (PRN 12384) next to the Afon Marchlyn Mawr, is shown on the 1889 map as having a sheep wash in the river for washing the sheep before shearing. A large post-medieval multicellular sheepfold (PRN 29989) stands in the centre of the prehistoric settlement (PRN 5380) and has been preserved with it.
- 12.32 It is important to recognise that the quarry was not divorced from its landscape and did not merely replace the sheep farming economy of the area. Quarry men could

also run sheep on the mountain and maintain a small holding and quarrymen lived in cottages on farms in Nant Ffrancon (Hubback 1987, 84, 91).

- 12.33 A fine estate map dating to 1768 shows the area of the quarry with small fields on its northern side (figure 1.5). Many of these are tiny and are presumably *tyddynod*, small holdings, belonging to quarrymen. By the time of the tithe map in 1848 (figure 1.6) the whole area had been rationalised and formalised. Some of the dwellings remained in roughly the same locations, presumably occupied by the descendants of the same quarrymen, but the fields were larger and were cut through by regular roads. There was a church, the first St Anne's built in 1813 (Gwyn and Davidson 1995, 4). The tramway to Port Penrhyn is shown snaking into the quarry. A small pond, named as Llyn Meyrick on the 1768 map still survived. All these sites are now buried under slate heaps.

The Quarry

- 12.34 See figure 1.3 for sites outside the quarry.
- 12.35 There was small scale quarrying in the Bangor area in the medieval period, probably as early as the 13th century. A record of 1413 mentions tenants of the Penrhyn Estate working slate on sites that they rented (Boyd 1985, 3; Lindsay 1974, 27). In the late 15th century and again in 1570 requests were made by Welsh bards (Guto'r Glyn and Soin Tudur respectively) of the Deans of Bangor (Dr Richard Kyffin and Rowland Jones respectively) for roofing slates from episcopal lands in the area of the present Penrhyn quarry (Dodd 1968, 35, 246; Anonymous 192-, 5). A token royalty was paid on slates extracted in 1582 from Cae Braich y Cafn, the site of the present quarry (Dodd 1968, 35-36; Anonymous 192-, 5). There are other references to slate quarrying on the Penrhyn estate in the 16th century (Lindsay 1974, 27). By the late 16th century a considerable export trade with Ireland had grown up from this area (Dodd 1968, 35-36). These early workings would have been very simple with slate dug from shallow pits (Boyd 1985, 3).
- 12.36 Slate production from Penrhyn Estate had reached over 2 million slates a year by 1753 (Lindsay 1974, 40), but this was still production on a relatively small scale (Dodd 1968, 203), and the slate was taken from several small quarries. In 1765 Richard Pennant, the son of the wealthy West Indian sugar planter John Pennant, married the heiress of the Warburton half of the Penrhyn estate. John Pennant also started negotiations for the Yonge part of the estate (Dodd 1968, 205), which finally came to fruition in 1785 under Richard, created the first Baron Penrhyn in 1783 (Boyd 1985, 1, 4). In 1768 quarrying rights on Cae Briach y Cafn, the location of the later Penrhyn Quarry, were granted to local men. Fifty five leases were initially issued but up to 3000 leases were eventually granted. Production became more organised but was still low (Dodd 1971, 205; Dodd 1968, 206; Boyd 1985, 4). The area of these quarrying rights is clearly shown on the 1768 estate map (figure 1.5). In 1782, after John Pennant's death, Richard Pennant bought out the leasees, took direct control of the quarry workings and the expansion of the Penrhyn Quarry began (Lindsay 1974, 43). Pennant also leased the adjacent Crown wastes to maintain his monopoly in the area and prevent others from working the slate (Dodd 1971, 205; Dodd 1968, 206, 246). The quay at Abercegin was developed into a port (Port Penrhyn) and cart roads were constructed to aid in the transport of slate to the port (Dodd 1971, 125, 206; Dodd 1968, 246; Boyd 1985, 6). In 1801 a horse-drawn/gravity railway was built linking the quarry with Port Penrhyn, replaced in 1876 by a steam railway (Richards 1991, 17, 18, Lindsay 1974, 49-50).

- 12.37 Lord Penrhyn also built Llandygai, a model village for his workers, with a church, rather than a chapel, and no ale house (Dodd 1968, 252). From the 1790s the Penrhyn Estate built cottages for quarrymen along Lord Penrhyn's road from the port to the quarry (Gwyn 2015, 182). Land on Mynydd Llandygai was used for potato cultivation during the Napoleonic Wars but at the end of the wars the estate used the land to build rows of quarrymen's cottages each with a long narrow plot of land, allowing the quarrymen to have a small holding. The last row of houses was built in 1861-62 (Gwyn 2015, 182). Forty quarrymen's cottages were also built on the west side of the Ogwen, but the site was to be covered by slate tips by 1845 (Hubback 1987, 78).
- 12.38 Once Telford's London to Holyhead road was built through Nant Ffrancon in 1818 land along its route was leased or sold by its various owners, all yeoman farmers, for construction. This led to the development of Bethesda, named after the first chapel to be built there, which was beyond the reach of a landlord and so was not limited in its provision of chapels or ale houses (Dodd 1968, 252, 253).
- 12.39 The expanding number of men working in the quarry required increased organisation and this was achieved by the development of the gallery system. This development is credited to James Greenfield, who became manager or chief overseer of the Penrhyn Quarry in 1799 (Gwyn 2015, 54; Boyd 1985, 21), although he actually improved the existing system. Eventually 21 galleries were developed each with its own rail system (Richards 1991, 23; Dodd 1971, 207; Boyd 1985, 21). The galleries could be up to 20m high and 14m wide and were named after the men who developed them (e.g. William Owen), historical figures (e.g. Agor Boni (Bonaparte's Opening) and pubs (the Red Lion gallery was named after a pub in Bangor (Gwyn 2015, 54-6)².
- 12.40 Lord Penrhyn died in 1808 and the estate was inherited by George Hay Dawkins, who changed his name to Dawkins Pennant and built Penrhyn Castle in 1827 (Lindsay 1974, 53; Dodd 1968, 251; Boyd 1985, 5)). By 1820 Penrhyn Quarry had a labour force of 874 men, and this reached 3000 men by 1863 (Dodd 1971, 214, 219; Hubback 1987, 90). In the 1920s Penryn Quarry was claimed to be the largest open cast quarry in the world and this claim could still be made up to the 1960s (Anonymous 192-, 6; Cadw 1998, 106).
- 12.41 Roofing slates were the main product of the quarry but a wide range of other slate items were also produced. In the early 19th century the demand for writing slates by the new schools was exploited by Penrhyn which acquired a monopoly for their manufacture (Dodd 1968, 250). By the early 19th century Penrhyn Quarry was producing 100,000 writing slate a year, most with a timber frame (Gwyn 2015, 45). Sawn slabs of slate were also used for gravestone, fireplaces, billiard tables, brewers vats, electrical switchgear, bath surrounds, building and other items (Gwyn 2015, 40-44; Anonymous 192-, 18).
- 12.42 The quarrying was undertaken by the rockmen who used natural joints and planes to fracture blocks from the rock face (Anonymous 192-, 8). The work to cut these galleries was very dangerous with the rockman generally suspended from a rope wrapped around his leg (Gwyn 2015, 65). Blasting was also used to remove rock, with repeated percussion of a jumper wielded by hand used to drill the charge

² Other galleries included Crimea (opened at the time of the Crimean War (1854-56)); Ceiling (once the uppermost gallery); Garret (under the Ceiling); Sebastopol (opened during the campaign of Sebastopol (1854-55)); Princess May (opened 1894 when Princess May (later Queen Mary) visited the quarry with Princess Victoria); Alice (opened about 1894 and named after the Hon. Alice Douglas Pennant), and Edward (named after Edward VII when he visited the quarry in 1864) (Anonymous 192-, 7).

holes; a process that could take a day to drill a single hole (Lewis 1976). Drills powered by water pressure, steam and eventually electricity were also used (Gwyn 2015, 67-69), although Penrhyn Quarry only began using mechanical drills in 1912 (Lewis 1976). Three large air compressors were working in the 1920s to power drills (Anonymous 192-, 7). Gun powder was packed into the charge holes and lit by highly trained men. Blast shelters provided protection for the men, who were warned of blasting by a whistle or bugle (Gwyn 2015, 70-71). Loose slate blocks left after blasting were prised free by the rockmen (Lewis 1976).

- 12.43 Dressing the slates was originally done by hand on the galleries, but by the 1850s it was concentrated in several large mills powered successively by water, steam and electricity (Richards 1991, 23). The raw block from the quarry face was reduced in width by splitting and in length by a hammer blow to a line of weakness or by sawing. The reduced block was then split by hand along the line of cleavage to produce thin slates. Blocks for building or other purposes were sawn to size (Gwyn 2015, 103). The three-sided shelters (gwaliau, literally 'lairs'), used to protect those hand splitting the slates, are commonly found on quarry sites, some singly and some in rows (Gwyn 2015, 103, 104).
- 12.44 Coed y Parc, just beyond the north-western corner of the study area, was the site of the Felin Fawr Slate Works (PRN 21947). The slate mills still survive with a waterwheel house between them, all grade II* listed buildings (listed building references 4153, 4154 and 4155). Other buildings in the area are a repair shop, foundry and another nearby wheel house, all grade II listed buildings (4156, 4157 and 4158). This was also the terminus of the tramway and later railway. This complex began in 1803 (Richards 1991, 24). The mills at Felin Fawr were used for cutting blocks, but with the exception of these Penrhyn Quarry did not employ mechanisation for slate production until the early 20th century when mills were built on the Red Lion and Ffridd levels (Gwyn 2015, 108). The mills on the Red Lion Level had been constructed by 1915 (Lewis 1976). In 1920s the slates were sawn to size and after being split by hand were finished by being cut to exact size and shape by a dressing machine Anonymous 192-, 9).
- 12.45 Efficient rubble removal was critical to the functioning of a quarry, and space for tipping was important. Throughout much of 19th and 20th century railway wagons moved either by hand or by steam locomotive, were used to carry the slate waste and tipped against a stop-block, generally by hand. Steam excavators were used to move waste and steam and petrol locomotives were in use in the 1920s to carry it to the tips (Anonymous 192-, 9). The Ogwen Tile Works at Coed y Parc were built in 1886 to make bricks and tiles from slate dust crushed from waste slate (Gwyn 2015, 123). Slate powder was also produced in the quarry, production starting in 1922. The slate dust was sold as 'Fullersite' to fill bitumen for road surfacing and for other uses, including making grout at a plant in Port Penrhyn (Anonymous 192-, 9, 10; Gwyn 2015, 123).
- 12.46 Material was moved about the quarry by gravity on self-acting inclines for going down and by water balance lifts for going up (Richards 1991, 23). The self-acting incline used the weight of a loaded wagon going down the incline to pull an empty wagon to the top (Lewis 1976). The earliest counter balance inclines were introduced in Penrhyn Quarry in 1800-01. A drum house was positioned at the top of each incline, around which the rope was wound. In some cases a continuous chain ran round a horizontal sheave at the summit and foot of the incline (Gwyn 2015, 137-9). Some inclines, including one at Penrhyn Quarry from about 1810, were operated by water wheels (Gwyn 2015, 140).

- 12.47 The water balance used a tank on rails ballasted with water to outweigh the ascending wagon. The tank was emptied at the bottom allowing it to rise and the empty wagon to be lowered (Lewis 1976). These ran on inclines but the water balance system was also used to raise loads up vertical shafts. Simple versions had a tank of water in one shaft to balance the load to be hauled up another shaft. More complex versions used two cages to hold the load, each with a tank underneath so that two loads could be raised and lowered together (Gwyn 2015, 153). This method was used at Penrhyn Quarry where eight water balance lifts were installed from 1848 at the top of vertical shafts. A tunnel ran from the quarry floor to the base of the shafts (Lewis 1976; Gwyn 2015, 153)). One water balance at Penrhyn Quarry was double acting allowing full wagons to be transported both up and down at the same time (Gwyn 2015, 141). Two of the water balance head frames still survive (Tanc Sebastopol (PRN 59998) completed 1858, and Tanc Princess May (PRN 60020) from 1895), both constructed of cast iron (Gwyn 2015, 153).
- 12.48 Horse drawn railways were used on the level to be replaced by steam locomotives in 1876 (Richards 1991, 23). Wagons were often pushed by men as well as horses and mules being used, but water power was the main energy source (Gwyn 2015, 78-79). Earliest known use of water power at Penrhyn to drive a pump in 1783, and water courses and wheels are shown on a map of 1793. Penrhyn quarry had four dams built between 1846 and 1879 (Gwyn 2015, 79, 96). Little use of fixed steam engines was made at Penrhyn, although a small steam pump was installed at Sinc Bach to raise water from a sump (Gwyn 2015, 82, 99, 142). Aerial ropeways were also used to move material around the quarry. These generally appeared around 1900 and were known as Blondins, after Charles Blondin who crossed Niagara Falls on a tight rope (Gwyn 2015, 150). A traveller runs on a cable between two masts and is pulled along by an endless rope often powered by a steam engine on the ground. Three Blondins were in use in Penrhyn by 1912 (Gwyn 2015, 151-2) and these were run by electricity by 1913 (Lewis 1976). Aerial inclines were used as well as horizontal Blondins, especially to carry slate down to the mills (Gwyn 2015, 152).
- 12.49 A drainage adit, dug 1849-50, discharged into the Ogwen to drain the quarry. This was at the base of the quarry when dug but as the galleries continued down lower pumps were needed to raise the water to the tunnel. Much of the pumping was done by a massive hydraulic engine built in 1872 and powered by water from Llyn Marchlyn Mawr (Anonymous 192-, 12; Lewis 1976). Some water entered this carried along drainage leats and some was pumped up from lower galleries. The pumps used were both water and electric powered in the 1920s (Anonymous 192-, 12).
- 12.50 In 1906 the quarry was supplied with electricity from the Cwm Dyli hydro-electric power station on the south slopes of Snowdon, but also established its own hydro-electric generation in 1927-8 (Gwyn 2015, 92). By 1920s power was supplied by electric, water power, stream and oil. Llyn Marchlyn Mawr supplied the water for hydraulic machinery and also to run a turbine to generate electricity. The water of the Afon Ogwen drove an air compressor. Steam power was used for locomotives and four steam excavators, but there were also 16 petrol locomotives (Anonymous 192-, 13-14).
- 12.51 The *caban* was an important element of the quarry. This was a rudimentary shelter with a fireplace in which men gathered for their lunch. *Cabanau* varied in size and might accommodate 10 to 80 men. The *caban* became a social and political focus.

Formal discussions took place as well as signing and poetry reading (Gwyn 2015, 171).

- 12.52 There were only three quarry hospitals in north-west Wales, at Ffestiniog, Dinorwig and Penrhyn, with the Penrhyn hospital being the earliest. The Penrhyn Quarry Hospital (PRN 5703) was built in 1840-42 in the quarry grounds, and replaced an earlier hospital built in Bangor in 1820. The quarry hospital had its own mortuary (PRN 5701) (Gwyn 2015, 175).
- 12.53 Throughout the second half of the 20th century the quarry progressively extended south-west following the best quality slate (plates 1 to 3), until the present day when it has reached close to the limits of the permission in this area.
- 12.54 In 1965 Lady Douglas Pennant sold 51% of the shareholding of the quarry to Marchwiel Holdings Ltd, later Alfred McAlpine Plc, which obtained the remainder of the shares in 1973 (Boyd 1985, 1). In 2007 Welsh Slate bought the quarry and the quarry continues to produce a range of products as well as roofing slates (<http://www.welshslate.com>).

Statutory and non-statutory designations

- 12.55 There are no Scheduled Ancient Monuments within the study area. There were two listed buildings in the study area. Pont Ogwen (PRN 11699, listed building reference 23378) is just on the edge of the study area, and is grade II listed. The quarry offices (PRN 59997, listed building reference 23392) was also grade II, but the original offices collapsed into a subsiding tunnel and were rebuilt so nothing remains of the building that was listed.
- 12.56 The quarry lies within the non-statutory Dyffryn Ogwen Landscape of Outstanding Historic Interest (No. 28 HLW (Gw) 10 (Cadw 1998, 105-8)), and forms one of the most important elements of this landscape. It also falls within Historic Landscape Character Area 41 – Moel y Ci/Gwaen Gynfi unenclosed uplands (GAT Report 351, 2000). The quarry lies just outside the Snowdonia National Park, but is clearly visible from within the area of the National Park, especially from the Carneddau on the opposite side of Nant Ffrancon. It should be noted that the Landscape and Visual Impact of the continued quarrying operations are considered in Chapter 7 of this Volume.

Surviving Archaeological Features

- 12.57 All archaeological sites mentioned in this chapter are identified with a Primary Record Number (PRN). These identify the site within the Gwynedd Historic Environment Register (HER) and provide a way to cross reference work done on the sites at different periods and by different organisations. PRNs are used throughout the text, tables and appendices to provide a unique identifier and prevent confusion over sites. The full list of sites with their grid references, descriptions and mitigation recommendations is to be found in **Appendix 12/3**. For location of sites refer to figures 1.7 to 1.8.
- 12.58 In 1991 Richards (1991, 23, 24) stated that the upper workings on the south side of the quarry were still well-preserved with inclines and drum houses, mills, engine sheds and several dressing sheds. There was an almost complete electric ropeway and a steel-pyloned Blondin. The archaeological assessment conducted by GAT in August 1995 (Gwyn and Davidson 1995: GAT Report **176**) also identified a wide

range of sites that relate to earlier 19th and 20th century phases of quarrying at Penrhyn. However since this assessment there have been considerable changes in the quarry. Of the 123 features identified in that report 60 have been destroyed through consented quarrying and associated operations without recording. This includes one of only two listed buildings in the survey area as the main offices (PRN 59997, listed building no. 23392), which were grade II listed, collapsed into a subsided tunnel and had to be entirely rebuilt (plate 10).

- 12.59 The most significant features identified in the 1995 report were two water balance lifts, with their headframes still complete, which were considered to be of national importance. These still survive (PRN 59998 and 60020). Of the 9 sites considered to be of regional importance five have been destroyed, although one of the surviving sites (PRN 58490) has been reclassified during the current work as of local importance.
- 12.60 Report 176 did not cover all the area of the quarrying permissions so the current work has added to the list some sites found during other projects, especially near Dol-awen Farm and along the river bank. Thirty six new sites were also found during the current fieldwork, most identified during fieldwork but four added from the desk-based study. Based on all surveys undertaken, a total of 209 sites have been identified within the study area. Of those 68 have been destroyed through consented quarrying and associated operations and 141 survive (including 2 shafts that may still survive underground but all surface traces are destroyed).
- 12.61 Twelve sites are classed as category A (of national importance) (see **Appendix 12/1** for definition of classifications), but most of these are elements of a prehistoric settlement (PRN 5380) with paddocks and enclosures at the southern end of the quarry (figure 1.4). The two other sites of this category are water balance lifts with the head frames still surviving and lift shafts and other details (PRN 59998 and 60020) (plates 11 and 15). Eleven sites are classed as category B (regional importance); there are 12 sites in this category in the database but one site has been given two separate PRNs (the compressor house PRN 5698 and 60021). Some of these are more minor elements of the prehistoric settlement (PRN 5380), and one is a complex multi-cellular sheepfold (PRN 29989) of a type that only exists in the Carneddau of North Wales (plate 9). Most in this category are the more important elements of the quarry. The quarry hospital (PRN 5703) (plate 7) would be considered of national importance if it was better preserved. Similarly the Fullersite plant (PRN 60019), which produced finely crushed slate dust was unique and of very considerable economic importance in the early 20th century slate industry, but there is little evidence of pre-1945 remains surviving (plate 13) so it is classed as category B.
- 12.62 Apart from the two well-preserved water-balances the only surviving machinery is found in a compressor house (PRN 5698/60021) (plate 4), which provided compressed air to drive machinery in the quarry. This still contains a turbine, which was driven by water brought in through a large pipe and the compressor that the turbine powered. The compressor dates from 1918 and the turbine from 1929, making them early and important examples.
- 12.63 Other sites include the best preserved examples of quite common quarry structures, but critical to the functioning of the quarry. As many other examples within Penrhyn Quarry have been destroyed the importance of these is increased. They include a complete line of gwaliau (PRN 60026), the shelters used by the slate splitters, although the roofs on many of these are collapsing (plate 17), and

the best preserved drum house (PRN 60035) at the top of the most complete of the inclines (PRN 60036).

- 12.64 The bridge across Afon Ogwen from the quarry to Ogwen Bank (PRN 11699) is a grade II listed building, classed as category B. This is on the very edge of the study area but is directly related to the quarry as it provided access to Lord Penrhyn's villa at Ogwen Bank. The parapets of the bridge are covered in graffiti, some of which reflects this link to the quarry, in particular a drawing of a De Winton steam engine (plate 8).
- 12.65 The majority of sites are classed as of local importance (category C) and most are modern or damaged features within the quarry. The study area does however cover small areas of farmland around the foot of the slate heaps. The derelict buildings of late 19th century farms to the east of Mynydd Llandygai and next to the river on the north eastern side of the quarry account for several of these C class sites. The main farm complexes, Braich y Gwair (PRN 58490) and Dolawen (PRN 22553), preserve a considerable amount of detail on how these small farms functioned, but other similar farms can be found in the area still upstanding and in use. They are surrounded by fields and other structures relating to the farming of the area.
- 12.66 Near Mynydd Llandygai are also the very reduced and confused remains of a terrace of houses for quarry workers (Tai'r Mynydd, PRN 58483). These are part of the development of Mynydd Llandygai by the Penrhyn estate as accommodation for the quarrymen. Like other houses in the village they had long narrow gardens for use as allotments, but both houses and gardens are now just overgrown heaps of rubble, although raspberry canes and plum trees still survive to indicate that the gardens were used to produce fruit and no doubt vegetables as well.
- 12.67 The quarry structures include weighbridge houses (plate 19) for weighing the slates as they were produced, critical to the workers who were paid by what they produced. There are also sections of inclines (plate 20) with drum houses, a smithy, electricity substations (plate 18), an electricity transformer house (plate 16), slate mills built in the early 20th century (plate 12), and sheds and shelters. One of the most interesting features, classed as category C because of its late date, is a near complete *caban* (PRN 60722) (plate 22). This still has pencil marks of cribbage scores on the white washed walls (plate 23).
- 12.68 The spoil heaps of a quarry change constantly. The 25 inch OS maps show the expansion of the spoil heaps between 1889 and 1914 with shifting tramways and barrow runs along their tops. This process has continued at an even faster rate since 1914 and little can still be seen of the early quarry heaps. Most of the tramways and other structures that can now be seen on the old quarry heaps on the north-eastern, northern and western sides of the quarry were visible on aerial photographs of 1947 but not on the earlier maps. Where heaps shown on the 1914 map have still survived these have been recorded as sites in the database, and have been classed as category C sites. The spoil heaps are dangerous and difficult to access so these areas were not inspected in detail on the ground and some structures relating to them are likely still to survive. Some structures dating to between 1914 and 1947 do certainly survive on some of the later heaps, but these have not been recorded.
- 12.69 Three areas have been identified where spoil heaps survive much as they are shown on the 1914 25 inch map (PRN 60739, 60740, 60741) (plate 24). These are on the western, northern and north-eastern limits of the quarry area. The areas are

composed of discontinuous patches of surviving heaps, within which there are some original structures.

- 12.70 The category D sites are minor sites relating to the quarry or sites that are very fragmentary and damaged. The category D sites also include two entirely buried water balance shafts. These are likely to be too damaged to be of much archaeological significance.
- 12.71 Of the three sites with a U (unknown) classification, two are on the site of the prehistoric settlement (PRN 5380), one of these may date to the medieval rather than prehistoric period but much more investigation would be necessary to demonstrate this. The other site could be a small paddock related to a prehistoric roundhouse (PRN 5760) lying just outside the study area.

Table 1-1
Number of sites in each category of importance

Category of importance	No of sites
A (National)	12
B (Regional)	11
C (Local)	96
D (Minor or damaged)	19
U (Unknown)	3
Total	141

ASSESSMENT OF EFFECTS

- 12.72 Welsh Slate has planning permission to continue operating the quarry until 2032, which will see the expansion of the quarry workings to the south-west. No sites are known within this area apart from a small sheepfold (PRN 12640), which has already been destroyed by a new leat and trackway. As part of an application to extend the quarry workings (planning permission [ref]), the limit of extraction was realigned to avoid an area having a high density of archaeology, mainly a prehistoric settlement with surrounding enclosures (PRN 5830). This area has already been recorded and investigation has been carried out of features under threat. Figure 1.4 shows the current condition of this area and the sites within it.
- 12.73 As long as no disturbance takes place beyond the current line of fencing in this area no archaeology not fully recorded will be at risk. However a new drainage leat has already been dug through the area beyond the fence causing some damage to the edge of the prehistoric settlement area. It is important that Welsh Slate makes its staff aware that archaeological advice will be needed for any work in this area to ensure that archaeological features are avoided.
- 12.74 This chapter excludes the impact of any potential development in the area leased by ZipWorld as this is under a separate planning permission for non-mineral uses.
- 12.75 Outside the area of the working quarry the quarry hospital (PRN 5703) and Bryn Llwyd house (PRN 5699) are tall ruined buildings, which are unstable, with collapse of some walls or chimneys likely. The hospital in particular is potentially accessible to the public as it lies near the right of way (Lon Las Ogwen) in woodland. Demolition with recording may be considered appropriate should the building be conceded a risk to health and safety..

- 12.76 The normal operation of the quarry has had a very considerable impact on the archaeology as recorded in the 1995 survey (Gwyn and Davidson 1995) so it is possible that further developments in the quarry may also have considerable impact. However haul roads and spoil heaps have been established and the development of the quarry to the south-west are unlikely to require significant changes to these in areas with surviving archaeology. Future risk to the archaeology may be much less than it has been over recent years, although future developments cannot be predicted.
- 12.77 One specific risk is the need to rebuild one of the older structures in the Fullersite Plant area (PRN 60019), now largely occupied by the washing and grading plant. This corrugated iron building is becoming dilapidated and dangerous so there is an intention to demolish and rebuild it. This will lead to the complete loss of the current building.
- 12.78 The naturally occurring re-vegetation over the older parts of the quarry may have an impact on structures. Trees are already growing on some structures, especially inclines, and disturbance from the roots will add the instability of these structures.
- 12.79 The naturally occurring re-vegetation is likely to be the only cause of disturbance in the areas of the old spoil heaps.
- 12.80 Detailed assessments of impact will be necessary if work is proposed that will impact on any of the sites listed in **Appendix 12/3**.

MITIGATION

- 12.81 Specific recommendations for recording and mitigation are given for each site in the gazetteer (**Appendix 12/3**). These recommendations only apply if the sites listed are to be significantly impacted by the future development of the quarry, such as new haul roads and expansion of spoil heaps. In most cases the basic recommendation is to avoid any groundworks or demolition within the vicinity of recorded features.
- 12.82 It must be noted that only detailed survey will identify all features within a given area. The field work carried out for this EIA was a basic and very rapid inspection concentrating on known sites. Previous archaeological work within the quarry has been no more detailed. There can therefore be no guarantee that all sites have been identified. In advance of any potential damage not only should the sites identified be recorded but the full area of the disturbance should receive at least level 1 recording (see Appendix 12/2 for a definition of recording levels). This may lead to the identification of features requiring further investigation.
- 12.83 In addition all surviving structures listed in Appendix 12/3 should be avoided when trees are being planted to aid restoration of the disused parts of the quarry. Trees may be planted around them but it would be beneficial if trees were not planted directly on these structures.
- 12.84 The water balances with surviving head frames require active preservation or they will rapidly deteriorate. Conservation management plans should be produced for these.
- 12.85 If stabilisation or demolition work is to be carried out on the quarry hospital (PRN 5703) and Bryn Llwyd house (PRN 5699) then detailed recording of these is

required before the work is undertaken. The corrugated building in the Fullersite Plant (PRN 60019)/washing and grading plant area, should also be recorded before demolition.

Proposed Conditions

- 12.86 The purpose of the Environment Act Review is to establish a modern set of planning conditions that future operations at the quarry should adhere to. The quarry is already subject to a number of conditions and it is proposed that these conditions are carried forward into the reviewed consent.

RESIDUAL IMPACTS AND EFFECTS

- 12.87 If the mitigation measures are followed the archaeology within the quarry should be preserved or if that is not possible it should be appropriately recorded before it is lost. The data collected for this Environmental Statement should be useful for the proposed bid for World Heritage Status for Penrhyn Quarry as part of the slate quarrying landscape of North Wales.

SUMMARY OF EFFECTS

- 12.88 The detailed effects of on-going consented operations are largely unknown, so most of the mitigatory measures suggested are therefore quite general and largely involve avoiding archaeological features where possible. Recording measures have been given where avoidance is not possible (see **Appendix 12/2** for a definition of recording levels). The table below summarises these mitigatory measures. Full details are given in **Appendix 12/3**.

Table 12-2
Summary of mitigatory measures

Site name	PRN	Significance	Mitigation
Settlement, Gwaen Gynfi	5380	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Weir, Pont Ogwen	5694	C	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Waste Tip Revetting and Slate Plinths, Penrhyn	5695	C	Avoid or level 1 recording
Tank on aqueduct, Penrhyn Quarry	5696	C	Avoid or level 1 recording
Structure, Ogwen Bank	5697	D	Avoid or level 1 recording
Compressor house, Penrhyn Quarry	5698	B	Carver (1993) recommends removing the equipment from this building and conserving the equipment, but getting it back into working order in situ could be a better option if this is possible. Options need discussing with GAPS.
Bryn Llwyd	5699	C	Avoid, level 2 recording if damage is unavoidable. It is recommended that the building is stabilised for public safety. Level 2 recording would be necessary before this takes place.
Waste Tip Revetting, Penrhyn Quarry	5700	C	Destroyed. No recommendations

Site name	PRN	Significance	Mitigation
Mortuary for Penrhyn Hospital	5701	C	Avoid or level 2 recording
Quarry Railway and Incline, Penrhyn	5702	C	Avoid or level 1 recording
Penrhyn Quarry Hospital, Remains of, Bethesda	5703	B	Avoid, level 3 recording if damage is unavoidable.
Pont Ogwen	11699	B	Listed building consent needed for all works on bridge. Recording is likely to be required as part of the consent.
Bank, Llyn Owen Y Ddol	12194	D	Avoid or level 1 recording
Leat, Llyn Owen y Ddol	12196	C	Avoid or level 1 recording
Shelter, Gwaen Gynfi	12197	D	Existing recording is sufficient, no further recommendations
Shelter, Gwaen Gynfi	12260	D	Existing recording is sufficient, no further recommendations
Leat, Llyn Owen y Ddol	12272	C	Avoid or level 1 recording
Shelter, Gwaen Gynfi	12280	D	Existing recording is sufficient, no further recommendations
Trackway, Gwaen Gynfi	12305	C	Avoid or level 2 recording
Walling, Gwaen Gynfi	12315	B	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Hafoty, Possible, Gwaen Gynfi	12327	U	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Trackway, Gwaen Gynfi	12328	C	Already extensively recorded, no further recommendations
Stone Pile, Gwaen Gynfi	12348	D	Destroyed. No recommendations
Enclosure, Gwaen Gynfi	12349	C	Already extensively recorded, no further recommendations
Sheepfold, Gwaen Gynfi	12640	D	Destroyed. No recommendations
Roman Road, Proposed, Caer Llugwy to Bangor	17819	U	No recommendations within quarry area
Dol-Owen house	22553	C	Avoid or level 2 recording
Dol-Owen out-buildings	22554	C	Avoid or level 2 recording
Dol-Owen shed	22555	C	Avoid or level 2 recording
Dol-Awen sheepfold	22558	C	Avoid or level 1 recording
Dolawen sheepfold	22560	C	Avoid or level 1 recording
Multicellular Sheepfold, Gwaen Gynfi	29989	B	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Corrugated iron structures, Penrhyn Quarry	33373	C	Mostly late in date but level 1 recording would be recommended before major changes
Enclosure, Possible, Gwaen Gynfi	37185	U	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Tai'r Mynydd, Site of, Mynydd Llandygai	58483	C	Avoid or level 2 recording
Tros yr Afon, Remains of, Mynydd Llandygai	58484	C	Avoid or level 2 recording
Field Boundary,	58485	C	Avoid or level 2 recording

Site name	PRN	Significance	Mitigation
Mynydd Llandygai			
Structure, Remains of, Mynydd Llandygai	58486	D	Avoid or level 1 recording
Bridge, Mynydd Llandygai	58487	D	Avoid or level 1 recording
Footpaths, Mynydd Llandygai	58488	D	Destroyed. No recommendations
Reservoir with dam and sluice, S of Braich y Gwair	58489	D	Avoid or level 1 recording
Braich y Gwair, Remains of, Mynydd Llandygai	58490	C	Avoid or level 2 recording
Trackway, Mynydd Llandygai	58491	C	Avoid or level 1 recording
Steps, Mynydd Llandygai	58492	C	Avoid or level 1 recording
Structure, E of Tai'r Mynydd	58493	C	Avoid or level 2 recording
Office, Red Lion Level, Penrhyn Quarry	59997	D	This building needs to be delisted
Lift, Red Lion Level, Penrhyn Quarry	59998	A	Preserve in situ, stabilise condition, level 3 recording in advance of damage or alterations.
Lift Strongpoint, Red Lion Level, Penrhyn Quarry	59999	C	Avoid or level 2 recording
Shaft, Red Lion Level, Penrhyn Quarry	60000	C	Avoid or level 2 recording
Retaining Wall, Red Lion Level, Penrhyn Quarry	60001	D	Avoid or level 1 recording
Mill, Red Lion Level, Penrhyn Quarry	60002	C	Level 2 recording in advance of major alterations
Mill, Red Lion Level, Penrhyn Quarry	60003	C	Level 2 recording in advance of major alterations
Mill, Red Lion Level, Penrhyn Quarry	60004	C	Level 2 recording in advance of major alterations
Mill, Red Lion Level, Penrhyn Quarry	60005	C	Destroyed. No recommendations
Structure, Red Lion Level, Penrhyn Quarry	60006	D	Destroyed. No recommendations
Building, Red Lion Level, Penrhyn Quarry	60007	C	Level 1 recording in advance of major alterations
Electricity Substation, Red Lion Level, Penrhyn Quarry	60008	C	Level 1 recording in advance of major alterations
Electricity Substation, Red Lion Level, Penrhyn Quarry	60009	C	Level 1 recording in advance of major alterations
Lift, Red Lion Level, Penrhyn Quarry	60010	C	Avoid or level 1 recording

Site name	PRN	Significance	Mitigation
Structure, Red Lion Level, Penrhyn Quarry	60011	C	Avoid or level 2 recording
Smithy, Red Lion Level, Penrhyn Quarry	60012	C	Avoid or level 2 recording
Lift, Red Lion Level, Penrhyn Quarry	60013	C	Avoid or level 2 recording
Structure, Red Lion Level, Penrhyn Quarry	60014	C	Avoid or level 2 recording
Hydraulic Equipment, Red Lion Level, Penrhyn Quarry	60015	D	Destroyed. No recommendations
Weighbridge House, Red Lion Level, Penrhyn Quarry	60016	C	Avoid or level 2 recording
Structure, Red Lion Level, Penrhyn Quarry	60017	C	Avoid or level 1 recording
Locomotive Shed, Red Lion Level, Penrhyn Quarry	60018	C	Level 1 recording in advance of major alterations
Fullersite Plant, Red Lion Level, Penrhyn Quarry	60019	B	Level 2 recording in advance of redevelopment
Lift, Ponc Sling, Penrhyn Quarry	60020	A	Preserve in situ, stabilise condition, level 3 recording in advance of damage or alterations.
Compressor House, Ponc Sling, Penrhyn Quarry	60021	B	See PRN 5698
Transformer House, Agor Boni, Penrhyn Quarry	60022	C	Level 1 recording in advance of major alterations
Gwaliau, Agor Boni, Penrhyn Quarry	60023	D	Destroyed. No recommendations
Water Channel, Agor Boni, Penrhyn Quarry	60024	C	Avoid or level 1 recording
Bridge Abutments, Agor Boni, Penrhyn Quarry	60025	D	Destroyed. No recommendations
Gwaliau, Agor Boni, Penrhyn Quarry	60026	B	Avoid or level 2 recording
Electricity Substation, Agor Boni, Penrhyn Quarry	60027	C	Avoid or level 2 recording
Weighbridge House, Agor Boni, Penrhyn Quarry	60028	C	Avoid or level 2 recording
Wagon, Agor Boni, Penrhyn Quarry	60029	C	Maintain as a display item
Corbelled Arch, Agor Boni, Penrhyn Quarry	60030	C	Avoid or level 1 recording
Structure, Agor Boni, Penrhyn Quarry	60031	C	Avoid or level 1 recording
Building, Agor Boni, Penrhyn Quarry	60032	C	Avoid or level 1 recording

Site name	PRN	Significance	Mitigation
Shelter, Agor Boni, Penrhyn Quarry	60033	C	Avoid or level 1 recording
Bridge Abutments, Ponc y Lefel, Penrhyn Quarry	60034	C	Avoid or level 1 recording
Incline Drumhouse, Twlldyndwr, Penrhyn Quarry	60035	B	Avoid or level 2 recording
Incline, Twlldyndwr to Red Lion, Penrhyn Quarry	60036	B	Avoid or level 2 recording
Bridge Abutments, Twlldyndwr, Penrhyn Quarry	60037	C	Avoid or level 1 recording
Locomotive Shed, Twlldyndwr, Penrhyn Quarry	60038	C	Avoid or level 1 recording
Water Tank, Twlldyndwr, Penrhyn Quarry	60039	C	Avoid or level 1 recording
Weighbridge House, Twlldyndwr, Penrhyn Quarry	60040	D	Destroyed. No recommendations
Locomotive Shed, Twlldyndwr, Penrhyn Quarry	60041	D	Destroyed. No recommendations
Circular Blast Shelter, Twlldyndwr, Penrhyn Quarry	60042	D	Destroyed. No recommendations
Structure, Twlldyndwr, Penrhyn Quarry	60043	D	Destroyed. No recommendations
Water Channel, Twlldyndwr, Penrhyn Quarry	60044	D	Destroyed. No recommendations
Smithy, Twlldyndwr, Penrhyn Quarry	60045	D	Destroyed. No recommendations
Structure, Twlldyndwr, Penrhyn Quarry	60046	D	Destroyed. No recommendations
Blondin Motor Shed, Twlldyndwr, Penrhyn Quarry	60047	D	Destroyed. No recommendations
Blondin Motor Shed, Twlldyndwr, Penrhyn Quarry	60048	D	Destroyed. No recommendations
Compressed Air Pipe, Twlldyndwr, Penrhyn Quarry	60049	D	Destroyed. No recommendations
Platform, Twlldyndwr, Penrhyn Quarry	60050	D	Destroyed. No recommendations
Platform, Twlldyndwr, Penrhyn Quarry	60051	D	Destroyed. No recommendations
Water Channel,	60052	D	Destroyed. No recommendations

Site name	PRN	Significance	Mitigation
Twllydyndwr, Penrhyn Quarry			
Weighbridge House and Pit, Twllydyndwr, Penrhyn Quarry	60053	C	Avoid or level 1 recording
Retaining Wall, Penrhyn Quarry	60054	C	Avoid or level 1 recording
Incline, Red Lion to Twllydyndwr, Penrhyn Quarry	60055	C	Avoid or level 1 recording
Bridge Abutments, Twllydyndwr, Penrhyn Quarry	60056	C	Avoid or level 1 recording
Structure, Ponc Blue, Penrhyn Quarry	60057	D	Destroyed. No recommendations
Tunnel, Ponc Blue, Penrhyn Quarry	60058	C	Destroyed. No recommendations
Smithy, Ponc Blue, Penrhyn Quarry	60059	D	Destroyed. No recommendations
Bridge Abutments, Ponc Blue, Penrhyn Quarry	60060	D	Destroyed. No recommendations
Gwaliau, Ponc Blue, Penrhyn Quarry	60061	D	Destroyed. No recommendations
Gwaliau, Ponc Blue, Penrhyn Quarry	60062	D	Destroyed. No recommendations
Structure, Ponc Blue, Penrhyn Quarry	60063	D	Destroyed. No recommendations
Weighbridge House, Ponc Blue, Penrhyn Quarry	60064	D	Destroyed. No recommendations
Bridge, Ponc William Owen Level, Penrhyn Quarry	60065	D	Destroyed. No recommendations
Gwaliau, Ponc William Owen Level, Penrhyn Quarry	60066	D	Destroyed. No recommendations
Weighbridge House, Ponc William Owen Level, Penrhyn Quarry	60067	D	Destroyed. No recommendations
Blast Shelter, Ponc William Owen Level, Penrhyn Quarry	60068	D	Destroyed. No recommendations
Blast Shelter, Ponc William Owen Level, Penrhyn Quarry	60069	D	Destroyed. No recommendations
Structure, Ponc William Owen Level, Penrhyn Quarry	60070	D	Destroyed. No recommendations
Rock Cannon, Ponc William Owen Level, Penrhyn Quarry	60071	D	Destroyed. No recommendations

Site name	PRN	Significance	Mitigation
Tunnel, Ponc William Owen Level, Penrhyn Quarry	60072	D	Destroyed. No recommendations
Gwaliau, Ponc William Owen Level, Penrhyn Quarry	60073	D	Destroyed. No recommendations
Compressed Air Pipes, Ponc William Owen Level, Penrhyn Quarry	60074	D	Destroyed. No recommendations
Incline Drumhouse, Ffridd Level, Penrhyn Quarry	60075	D	Destroyed. No recommendations
Incline, Ffridd Level to Twllyndwr, Penrhyn Quarry	60076	D	Destroyed. No recommendations
Bridge, Ffridd Level, Penrhyn Quarry	60077	D	Destroyed. No recommendations
Water Supply System, Ffridd Level to Red Lion, Penrhyn Quarry	60078	D	Destroyed. No recommendations
Caban, Ffridd Level, Penrhyn Quarry	60079	D	Destroyed. No recommendations
Lavatory Block, Ffridd Level, Penrhyn Quarry	60080	D	Destroyed. No recommendations
Caban, Ffridd Level, Penrhyn Quarry	60081	D	Destroyed. No recommendations
Mill, Ffridd Level, Penrhyn Quarry	60082	D	Destroyed. No recommendations
Weighbridge House, Ffridd Level, Penrhyn Quarry	60083	D	Destroyed. No recommendations
Shelter, Ffridd Level, Penrhyn Quarry	60084	D	Destroyed. No recommendations
Structure, Ffridd Level, Penrhyn Quarry	60085	D	Destroyed. No recommendations
Belfry, Ffridd Level, Penrhyn Quarry	60086	D	Destroyed. No recommendations
Winding House, Ffridd Level, Penrhyn Quarry	60087	D	Destroyed. No recommendations
Brakesman's Shelter, Ffridd Level, Penrhyn Quarry	60088	D	Destroyed. No recommendations
Structure, Ffridd level, Penrhyn Quarry	60089	D	Destroyed. No recommendations
Incline, Ffridd Level to Red Lion Level, Penrhyn Quarry	60090	C	Avoid or level 1 recording
Caban, Ffridd Level, Penrhyn Quarry	60091	D	Destroyed. No recommendations
Horizontal Sheave, Ponc Smith, Penrhyn Quarry	60092	D	Destroyed. No recommendations

Site name	PRN	Significance	Mitigation
Corbelled Arch, Ponc Smith, Penrhyn Quarry	60093	D	Destroyed. No recommendations
Incline, Holywell Level to Ffridd Level, Penrhyn Quarry	60094	D	Destroyed. No recommendations
Winding House, Holywell Level, Penrhyn Quarry	60095	D	Destroyed. No recommendations
Office, Holywell Level, Penrhyn Quarry	60096	D	Destroyed. No recommendations
Structure, Holywell Level, Penrhyn Quarry	60097	D	Destroyed. No recommendations
Winding House, Penrhyn Quarry	60128	C	Avoid or level 2 recording
Incline, Penrhyn Quarry	60129	C	Avoid or level 1 recording
Shelter, Remains of, Penrhyn Quarry	60130	C	Avoid or level 1 recording. Unstable ground makes detailed recording dangerous.
Weighbridge House, Penrhyn Quarry	60131	D	Destroyed. No recommendations
Structure, Penrhyn Quarry	60132	D	Destroyed. No recommendations
Mill, Penrhyn Quarry	60133	C	Avoid or level 1 recording, NB the area is unstable and dangerous
Mill, Penrhyn Quarry	60134	C	Avoid or level 1 recording
Mill, Penrhyn Quarry	60135	D	Destroyed. No recommendations
Incline, Remains of, Penrhyn Quarry	60136	C	Avoid or level 1 recording
Corbelled Arch, Penrhyn Quarry	60137	C	Avoid or level 1 recording
Corbelled Arch, Penrhyn Quarry	60138	C	Avoid or level 1 recording
Enclosure near Penrhyn Quarry	60373	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Enclosure near Penrhyn Quarry	60374	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Enclosure near Penrhyn Quarry	60375	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Enclosure near Penrhyn Quarry	60376	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Enclosure near Penrhyn Quarry	60377	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Hut circle near Penrhyn Quarry	60378	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Paddock near Penrhyn Quarry	60379	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Paddock near Penrhyn Quarry	60380	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Stone pile near Penrhyn Quarry	60381	C	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Natural boulders near Penrhyn Quarry	60382	NR	Destroyed. No recommendations

Site name	PRN	Significance	Mitigation
Possible hut circle near Penrhyn Quarry	60383	A	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Possible structure near Penrhyn Quarry	60384	U	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Possible structure near Penrhyn Quarry	60385	U	Destroyed. No recommendations
Cleared area, possible ancient field, near Penrhyn Quarry	60386	B	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Enclosure near Penrhyn Quarry	60387	B	Avoid, level 3 recording and excavation recommended if destruction is unavoidable
Rock cannon, Ffridd Gallery, Penrhyn Slate Quarry	60705	D	Destroyed. No recommendations
Ffordd y Lord (the Lord's Road) within the area of Penrhyn Quarry	60706	D	Destroyed. No recommendations
Structure E of hospital	60707	C	Avoid or level 1 recording
Building SE of hospital	60708	C	Avoid or level 1 recording
Building NW of Bryn Llwyd	60709	C	Avoid or level 1 recording
Tip quarrying	60710	C	Avoid or level 1 recording
Building, Penrhyn Quarry	60711	C	Avoid or level 1 recording
Trackway, Gwaen Gynfi	60712	C	Avoid or level 2 recording
Structure, Penrhyn Quarry	60713	C	Avoid or level 1 recording
Area of preserved levels, Penrhyn Quarry	60714	C	Avoid or level 2 recording including detailed search for other features on the levels
Area of preserved levels, Penrhyn Quarry	60715	C	Avoid or level 2 recording including detailed search for other features on the levels
Quarry pit	60716	C	If surviving levels are to be damaged level 2 recording is recommended including detailed search for other features on the levels
Leat, Penrhyn Quarry	60717	C	Avoid or level 1 recording
DOLAWEN;DOL-OWEN, GARDEN, BETHESDA	60718	D	Avoid or level 1 recording
Probable greenhouse, Penrhyn Quarry Hospital	60719	C	Avoid or level 1 recording
Quarry Hospital Grounds	60720	C	Avoid or level 1 recording
Trackway from Quarry Hospital	60721	D	Avoid or level 1 recording
Caban, Penrhyn Quarry	60722	C	Avoid or level 2 recording
Structure, Penrhyn Quarry	60723	C	Avoid or level 1 recording
Structure, Penrhyn Quarry	60724	C	Avoid or level 1 recording
Building, Penrhyn Quarry	60725	C	Avoid or level 1 recording

Site name	PRN	Significance	Mitigation
Outhouses, Bryn Llwyd	60726	C	Avoid or level 1 recording
Building, Penrhyn Quarry	60727	C	Avoid or level 1 recording
Building, Penrhyn Quarry	60728	C	Avoid or level 1 recording
Blondin base, Penrhyn Quarry	60729	D	Avoid or level 1 recording
Concrete pad, Penrhyn Quarry	60730	D	Avoid or level 1 recording
Building, Penrhyn Quarry	60731	C	Avoid or level 1 recording
Aqueduct, Penrhyn Quarry	60732	C	Avoid or level 1 recording
Trackway, Penrhyn Quarry	60733	D	Avoid or level 1 recording
Building near Braich y Gwair	60734	C	Avoid or level 1 recording
Quarry wagons, near Braich y Gwair	60735	D	Avoid or level 1 recording
Structure W of hospital	60736	C	Avoid or level 1 recording
Revetment wall, Penrhyn Quarry	60738	C	Avoid or level 1 recording
Early slate heaps, Penrhyn Quarry	60739	C	Further investigation needed
Early slate heaps, Penrhyn Quarry	60740	C	Further investigation needed
Early slate heaps, Penrhyn Quarry	60741	C	Further investigation needed
Water balance shaft, Red Lion Level, Penrhyn Quarry	60742	D	This shaft may be revealed by any groundworks in this area and an archaeological watching brief and recording should be carried out in this case.
Water balance shaft, Red Lion Level, Penrhyn Quarry	60743	D	This shaft may be revealed by any groundworks in this area and an archaeological watching brief and recording should be carried out in this case.

CONCLUSIONS

- 12.89 The desk-based assessment and field survey found 141 surviving archaeological features within the study area. These mostly relate to the use of the quarry from the 19th and 20th centuries. However it was also found that a significant number of sites previously recorded had been destroyed in the past 20 years due to the ongoing consented quarrying operations. This is to be expected in a working quarry but none of these sites was recorded before destruction.
- 12.90 Mitigatory measures have been recommended if archaeological sites are threatened by future development. The sites and areas specifically highlighted as having current or likely threats are:
- the Fullersite Plant (60019)/washing and grading plant area where the corrugated iron building will require recording prior to demolition;
 - avoidance of tree planting directly on surviving structures listed in Appendix 12/3;

- a plan for appropriate conservation of the water balance lifts (PRN 59998 and 60020).
- recording of the quarry hospital (PRN 5703) and Bryn Llwyd house (PRN 5699) in advance of any stabilisation/demolition work.

12.91 It is also recommended that Cadw be contacted to request the de-listing of the main offices (PRN 59997) as none of the buildings originally listed now survive.

SOURCES CONSULTED

Published sources

Anonymous, 192-. *The Penrhyn Quarry*, North Wales Chronicle, Bangor

Boyd, J. I. C., 1985. *Narrow Gauge Railways in North Caernarvonshire, volume 2 The Penrhyn Quarry Railways*, Oakwood Press, Headington

Cadw 1998 *Register of Landscapes of Outstanding Historic Interest in Wales*, Cadw, Cardiff

Caffell, G. 1988 *Gwaen Gynfi Archaeology in Wales* 28, 47

Chartered Institute for Archaeologists 2014 [Online] *Standard and Guidance for Historic Environment desk-based assessment*, Chartered Institute for Archaeologists, Reading. Available from: http://www.archaeologists.net/sites/default/files/node-files/ClfAS&GDBA_1.pdf

Dodd, A. H., 1968. *A History of Caernarvonshire 1284-1900*, Bridge Books, Wrexham (reprint 1990)

Dodd, A. H., 1971. *The Industrial Revolution in North Wales*, 3rd Edition, Bridge Books, Wrexham (reprint 1990)

Gwyn, D., 2015. *Welsh Slate, Archaeology and History of an Industry*, RCAHMW, Aberystwyth

Hubback, D., 1987. *Time and the Valley: the past, present and future of the Upper Ogwen Valley*, Gwasg Carreg Gwalch, Llanrwst

Hughes, H.D. 1866 *Hynafiaetheau Llandegai a Llanllechid*

Kenney, J., 2008. Recent excavations at Parc Bryn Cegin, Llandygai, near Bangor, North Wales, *Archaeologia Cambrensis* 157, 9-142

Lewis, M. J. T., 1976. *Llech Slate*, Gwynedd County Council, Caernarfon

Lindsay, J., 1974. *A History of the North Wales Slate Industry*, David and Charles, Newton Abbot

Richards, A. J., 1991. *A Gazetteer of the Welsh Slate Industry*, Gwasg Carreg Gwalch, Llanrwst

Waddelove, E., 1999, *The Roman Roads in North Wales: Recent Discoveries*

Unpublished sources

Gwynedd Archaeological Trust, 2000. *Historic Landscape Characterisation, Ardal Afon*, unpublished GAT report **351**

Boyle, S. D., 1993. *Upland Survey Report - Gwaun Gynfi*, in Kelly, R. S., 1993, *The Upland Survey Project, archaeological fieldwork in the Gwynedd uplands between 1983 and 1992*, unpublished GAT report **22**

Carver, J., 1993. *A5 Bethesda By-pass, Gwynedd: archaeological assessment*, unpublished GAT report **59**

Cooke, R. and Davidson, A., 2010. *Proposed Quarry Realignment, Penrhyn Quarry, Bethesda Archaeological Survey*, unpublished GAT report **880**

Davidson, J., 2010. *Proposed Quarry Realignment, Penrhyn Quarry, Bethesda Archaeological Evaluation*, unpublished GAT report **899**

Flook, H. and Dutton, L.A., 1993. *Proposed Extension, Penrhyn Quarry, Bethesda: Archaeological Assessment Report*, unpublished GAT report **62**

Evans, J., 2008. 'Appendix IV: The Roman Pottery From Parc Bryn Cegin, Llandygai', in Kenney, J., 2008, *Recent Excavations at Llandygai, near Bangor, North Wales*, volume III, unpublished GAT report **764**, 36-47

Gwyn, D. and Davidson, A., 1995. *Penrhyn Slate Quarries, Archaeological Assessment*, unpublished GAT report **176**

Hopewell, D., 2005, *Roman Roads in North-west Wales*, unpublished GAT report **572**

Hopewell, D., 2009. *Proposed Quarry Realignment, Penrhyn Quarry, Bethesda Archaeological Evaluation*, unpublished GAT report **837**

McNicol, D., 2013a. *Proposed Quarry Realignment, Penrhyn Quarry, Bethesda Archaeological Excavation of Suspected Bronze Age Cairn (Feature 15), Mitigation Report*, unpublished GAT report **1105**

McNicol, D., 2013b. *Proposed Quarry Realignment, Penrhyn Quarry, Bethesda Archaeological Watching Brief: Phase 1A*, unpublished GAT report **1131**

McNicol, D., 2015. *Quarry Realignment Project, Penrhyn Quarry, Detailed Recording and Targeted Trenching of Possible Medieval Trackway (Feature 12)*, unpublished GAT report **1238**

Owen, K., forthcoming. *Proposed Quarry Realignment Project, Penrhyn Quarry, Bethesda, Archaeological Watching Brief Report*

On-line sources

Geology of Britain Viewer, British Geological Survey, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Gwynedd County Council 2015 [Online] *Gwynedd Unitary Development Plan 2001-2016*. Available from: http://www.cartogold.co.uk/gwynedd/text/english/04_natural.html

Welsh Government 2014 Planning Policy Wales 2014 [Online] Available from: <http://wales.gov.uk/topics/planning/policy/ppw/?lang=en>

Welsh Office 1996 [Online] *Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology*. Available from: <http://wales.gov.uk/topics/planning/policy/circulars/welshofficecirculars/circular6096/?lang=en>

Archives and other bodies

Gwynedd Historic Environment Register (HER); GAT, Craig Beuno, Garth Road, Bangor, LL57 2RT
HER sites, Listed Building data

National Monuments Record: data held by HER and through the Coflein website

Bangor University Archives and Special Collections: Main Arts Building, College Road, Bangor
Estate map (Penrhyn MS 2205), date 1768

Gwynedd Archives Service
On-line Catalogue
Tithe map for Llandegai parish 1848

Aerial photographs

Welsh Government's Aerial Photography Unit, Cardiff
Library No. 4712, sortie CPE/UK/1996, date 13th April 1947, frames 1326-1330
Library No. 8606, sortie JA Story, date 1st October 1986, frames 5286 0183-6; 5386 0026-8

Google Earth
17th September 2003
20th April 2009

Client data

Client Drawing **P7/75**
Client Drawing **WPEN1202**

GLOSSARY

Adit	a horizontal tunnel or entrance to a mine
Blondin	aerial ropeway for transporting material around quarries, named after Charles Blondin, the tight-rope walker.
Cairn	heap of stones, sometimes just the result of field clearance and sometimes a burial monument
Caban	Welsh term for a tea hut/cabin used by quarry men for their breaks
Cist –	stone box set in a grave to hold human remains
Evaluation trenches	small trenches excavated either by hand or machine by archaeologists to investigate a site without full excavation.
Gwaliau	shelters for men splitting slates by hand
Prehistory	most of human existence, before the appearance of written records. Conventionally split into the Stone Ages, Bronze Age and Iron Age. In North Wales the prehistoric period ends with the arrival of the Romans in AD 60.
Iron Age	the later part of the prehistoric period between about 800 BC to (in North Wales) AD 60.
Medieval	after the end of the Roman period to conventionally the Dissolution of the monasteries in AD 1536 under Henry VIII.
Modern	for the purposes of this report the modern period starts at AD 1900.
Multicellular sheepfold	sheepfold with many small pens and compartments used to manage sheep from several farms run together in a communal flock
Post-medieval	the period after the end of the medieval period. This can be taken to run up to the modern day or is often considered to end about AD 1760 after which the modern period starts. However archaeologists who are not specialists in this period often consider anything pre-dating the 20 th century to be included in the post-medieval period. For convenience this report uses AD 1900 as the end of the post-medieval period. Where features appear on the maps of 1900 they have clearly been in existence prior to this and are included as post-medieval.
Roman period	In Britain from AD 43 to conventionally AD 410, though the Roman period starts in North Wales later than in southern England and AD 60 is generally taken as the beginning here.
Seal-box	small box often of bronze used to protect a soft wax seal on Roman official documents
Sheave	a pulley or wheel with a groove around the rim for hauling material on a cable or transferring force on a belt
Water balance	a mechanism for using water to lift a load. Used on inclines or vertical shafts.

APPENDICES

Appendix I: Definition of categories of importance

To assess the importance of sites and to allow the appropriate mitigatory action to be proposed for each, a framework of categories will be used with each site allocated to a particular category according to its relative importance:

Category A - Sites of National Importance.

This category includes Scheduled Ancient Monuments and Listed Buildings (Grade I and II*) as well as those sites which would meet the requirements for scheduling (ancient monuments) or listing (grade I and II* and certain grade II) or both. Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of Regional Importance These sites are those which would not fulfil the criteria for scheduling, but may include Listed Buildings at grade II. They are sites of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative. Sites that are Listed have legal protection, and it is recommended that all listed buildings are preserved *in situ*.

Category C - Sites of District or Local Importance

These sites are not of sufficient importance to justify a recommendation for preservation if threatened, but nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and Damaged Sites

These are sites which are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category. For these sites the most appropriate mitigation is often rapid recording either in advance or during destruction.

Category U - Sites needing further investigation

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A-D, are temporarily placed in this category, with specific recommendations for further recommendation. This category can also apply to areas as well as individual sites.

Appendix II: Definition of levels of recording

The following definitions are summarised from Historic England, previously English Heritage guidance; for buildings: English Heritage, 2006. *Understanding Historic Buildings, a guide to good recording practice*; for earthworks and other sites: English Heritage, 2007. *Understanding the Archaeological Landscape, a guide to good recording practice*. For detailed descriptions see these documents.

Building recording

Level 1

Level 1 is essentially a **basic visual record**, supplemented by the minimum of information needed to identify the building's location, age and type. Level 1 surveys will generally be of

exteriors only, although they may include superficial interior inspection for significant features. Only if circumstances and objectives allow will any drawings be produced, and these are likely to take the form of sketches.

A Level 1 record will typically consist of: drawings (item 1 (see below)), photography (item 1, sometimes item 2), written account (items 1–4).

Level 2

This is a **descriptive record**, made in circumstances similar to those of Level 1 but when more information is needed. It may be made of a building which is judged not to require any fuller record, or it may serve to gather data for a wider project. Both the exterior and the interior will be viewed, described and photographed. The record will present conclusions regarding the building's development and use. A plan and sometimes other drawings may be made.

A Level 2 record will typically consist of: drawings (item 1, sometimes one or more of items 2–7), photography (items 1, 2, 4), written account (items 1–3, 6).

Level 3

Level 3 is an **analytical record**, and will comprise an introductory description followed by a systematic account of the building's origins, development and use. The record will include an account of the evidence on which the analysis has been based, allowing the validity of the record to be re-examined in detail. It will also include all drawn and photographic records that may be required to illustrate the building's appearance and structure and to support an historical analysis.

A Level 3 record will typically consist of: drawings (item 2, sometimes one or more of items 3–12), photography (items 1–9), written account (items 1–3, 6–9, 11–13, 22, sometimes 5, 14–16, 18–20, 23).

Level 4

Level 4 provides a **comprehensive analytical record** and is appropriate for buildings of special importance. Whereas Level 3 analysis and interpretation will clarify the building's history in so far as it may be deduced from the structure itself, the record at Level 4 will draw on the full range of available resources and discuss the building's significance in terms of architectural, social, regional or economic history. The range of drawings may also be greater than at other levels.

A Level 4 record will typically consist of: drawings (item 2, sometimes one or more of items 3–12), photography (items 1–9), written account (items 1–3, 5–8, 10–22, sometimes 23).

List of **drawing** items

- 1- Sketched plan, section, elevation or detail drawings (if a more thorough drawn record is not made).
- 2- Measured plans (to scale or fully dimensioned) as existing. Plans should show the form and location of any structural features of historic significance, such as blocked doors, windows and fireplaces, masonry joints, ceiling beams and other changes in floor and ceiling levels, and any evidence for fixtures of significance, including former machinery.
- 3- Measured drawings recording the form or location of other significant structural detail, such as timber or metal framing.
- 4- Measured cross-sections, long-sections or elevation sections illustrating the vertical relationships within a building (floor and ceiling heights or the form of roof trusses, for example).

- 5- Measured drawings showing the form of any architectural decoration (the moulding profiles of door surrounds, beams, mullions and cornices, for example) or small-scale functional detail not more readily captured by photography. -
- 6- Measured elevations, where these are necessary to an understanding of the building's design, development or function and not more readily obtained by photography.
- 7- A site plan, typically at 1:500 or 1:1250, relating the building to other structures and to related topographical and landscape features.
- 8- A plan or plans identifying the location and direction of accompanying photographs.
- 9- Copies of earlier drawings throwing light on the building's history.
- 10- Three-dimensional projections when these are of value in understanding the building. If these are to be considered as components of the record they must always be supported by measured plans, sections and elevational details.
- 11- Reconstruction drawings and phased drawings, when these are of value. Since these are by their nature interpretative, the evidence on which any reconstruction or phasing is based must always be given. Successive phases of a building's development may be shown by graded tone (dark to light, with the darker being the earlier), by colour, by sequential diagrams or by annotation. Whenever phased drawings are included in a record, they must be accompanied by the unmarked drawings on which they are based.
- 12- Diagrams interpreting the movement of materials (process flow) or people (circulation), or the segregation of people or activities (eg permeability diagrams), where these are warranted by the complexity of the subject. As with items 10 and 11, the evidence supporting the interpretations must be provided

List of **photography** items

- 1- A general view or views of the building.
- 2- The building's external appearance. Typically a series of oblique views will show all external elevations of the building, and give an overall impression of its size and shape. Where an individual elevation embodies complex historical information, views at right angles to the plane of the elevation may also be appropriate.
- 3- Further views may be desirable to indicate the original design intentions of the builder or architect, where these are known from documentary sources or can be inferred from the building or its setting.
- 4- The overall appearance of the principal rooms and circulation areas.
- 5- Any external or internal detail, structural or decorative, which is relevant to the building's design, development or use and which does not show adequately on general photographs.
- 6- Any machinery or other plant, or evidence for its former existence.
- 7- Any dates or other inscriptions, any signage, makers' plates or graffiti which contribute to an understanding of the building or its fixtures or machinery, if not adequately captured by transcription. A contemporaneous transcription should be made wherever characters are difficult to interpret.
- 8- Any building contents or ephemera which have a significant bearing on the building's history (for example, a cheese press or a malt shovel), where not sufficiently treated in general photographs.
- 9- Copies of maps, drawings, views and photographs, present in the building and illustrating its development or that of its site. The owner's consent may be required.

List of **written** items

- 1- The building's precise location, as a National Grid reference and in address form.
- 2- A note of any statutory designation (listing, scheduling or conservation area). Non-statutory designations (historic parks and gardens registers, local lists etc) may be added.
- 3- The date of the record, the name(s) of the recorder(s) and, if an archive has been created, its location.
- 4- A summary (if no further details are called for) of the building's type or purpose, historically and at present, its materials and possible date(s), in so far as these are apparent from a superficial inspection.
- 5- A table of contents and a list of illustrations or figures.

- 6- An expansion of 4, if appropriate, summarising the building's form, function, date and sequence of development. The names of architects, builders, patrons and owners should be given if known.
- 7- An introduction, setting out the circumstances in which the record was made, its objectives, methods, scope and limitations, and any constraints which limited the achievement of objectives.
- 8- Acknowledgements to all those who made significant contributions – practical, intellectual or financial – to the record or its analysis, or who gave permission for copyright items to be reproduced.
- 9- A discussion of published sources relating to the building and its setting, an account of its history as given in published sources, an analysis of historic map evidence (map regression) and a critical evaluation of previous records of the building, where they exist.
- 10- An expansion of 9, if appropriate, drawing additionally on primary documentary sources.
- 11- An account of the building's overall form (structure, materials, layout) and its successive phases of development, together with the evidence supporting this analysis.
- 12- An account of the past and present uses of the building and its parts, with the evidence for these interpretations. An analysis of any circulation pattern or decorative, iconographic or liturgical scheme. An account of any fixtures, fittings, plant or machinery associated with the building, and their purposes. For an industrial building, a sequential account of the ways in which materials or processes were handled.
- 13- Any evidence for the former existence of demolished structures or removed plant associated with the building.
- 14- A summary of the findings of any specialist reports (dendrochronology or paint analysis, for example).
- 15- A discussion of the building's past and present relationship to its setting: for example its relationship to local settlement patterns, to a field system, to a park, garden, moat, graveyard or other artificial landscape; its part in any larger architectural or functional group of buildings; its visual importance as a landmark.
- 16- An assessment of the potential for further investigative or documentary work, and of the potential survival of below-ground evidence for the history of the building and its site.
- 17- A discussion of the architectural or historical context or significance of the building locally, regionally or nationally, in terms of its origin, purpose, form, construction, design, materials, status or historical associations.
- 18- Copies of historic maps, drawings, views or photographs illustrating the development of the building or its site (the permission of owners or copyright holders may be required).
- 19- Copies of other records of the building, including specialist reports (again with any necessary permissions), or a note of their existence and location.
- 20- Any further information from documentary sources, published or unpublished, bearing on any of these matters, or bearing on the circumstances of its building, designer, craftsmen, ownership, use and occupancy, with a note on the sources of the information.
- 21- Relevant information from owners, builders, architects or others who may be acquainted with the building, including oral history.
- 22- Full bibliographic and other references, or a list of the sources consulted.
- 23- A glossary of architectural or other terms likely to be unfamiliar to readers.

Recording field monuments and other sites

Level 1

This is mainly a visual record, supplemented by the minimum of information needed to identify the archaeological site's location, possible date and type. This is the least complex record, and will typically be undertaken when the aim is to provide essential core information to agreed standards. This would be accompanied by a simplified cartographic record.

A Level 1 record will typically consist of: the written account (Items 1–5, and 12 (see below)), a location map and site plan (Items 13 and 14) and basic photography.

Level 2

A Level 2 record provides a basic descriptive and interpretive record of an archaeological monument or landscape, as a result of field investigation. It is both metrically accurate and analytical, depicting the real landscape context of the archaeological features.

A Level 2 record will typically consist of: the written account (Items 1–5, 8–12), survey drawings (Items 13–14 and 18 (and in exceptional cases Item 15)), ground photography, as appropriate.

Level 3

A Level 3 record provides an enhanced and integrated, multi-disciplinary record of an archaeological field monument or landscape, resulting from the process of field investigation. An accurately located, measured survey at an appropriate scale (at 1:1 250 or larger), will always be part of the record. To some extent, Level 3 field investigation may be seen as being open ended, and the extent of the recording necessary will be agreed with GAPS in relation to each site. The recording may include field surveys, records of buildings, unpublished documents, aerial and ground photography, geophysical survey, field-walking, excavation records and other local sources.

A Level 3 record will typically consist of: the written account (Items 1–12), survey drawings (Items 13–21), ground photography, as appropriate.

List of specific recording items

- 1- The type (classification) of the archaeological field monument being investigated, and its period; using the Thesaurus of Monument Types.
- 2- The exact location of the site; the NGR (up to 8 figures, as appropriate) and the community, and Unitary Authority; along with identification numbers (NMR, SMR, HER, SAM) for the site.
- 3- The name of the compiler, the date of the investigation and reason(s) for the survey, with details of site ownership and present land use.
- 4- The key source (eg an aerial photograph or principal publication).
- 5- A summary of the salient features – this is particularly important for monuments that have lengthy and complex descriptive reports.
- 6- A concise description of the site, including information on plan, form, dimensions and area, function, age, developmental sequence and past land use.
- 7- A detailed description of the site, including the same information as Item 6 plus full analysis and interpretation with supporting evidence presented.
- 8- Consideration of the topographical setting of the monument and its relationship to other sites and landscapes, and to historic buildings in the immediate vicinity.
- 9- The potential for further investigation and for other forms of survey should be assessed and recommendations made. Any finds made during the investigation should be noted.
- 10- Relevant information from other sources, including published or unpublished accounts and oral information.
- 11- A brief assessment of the local, regional and national significance of the site or landscape with regard to its origin, purpose, form and status (ie its academic context).
- 12- A brief Event Record: this is a succinct description of the activities that were necessary for the compilation of the monument record, which may be coupled with the information provided in Item 3.
- 13- A diagrammatic plan showing the location or extent of the monument or landscape.
- 14- A metrically accurate site plan, typically at 1:1 000 or 1:2 500, showing the form of the site or landscape. The use of larger scales (e.g. 1:500 or 1:250) may occasionally be justified, where relatively intricate detail needs to be shown.
- 15- Profiles illustrating salient vertical and horizontal differences in the ground surface. Their position must be marked on the site plan.
- 16- Interpretive diagram(s) showing successive phases of development; phase plans must be accompanied by an unaltered copy of the survey from which the interpretation has been devised.
- 17- Reconstruction drawings may be relevant.
- 18- Copies of transcriptions of aerial photographs.
- 19- Copies of plans that throw light on the history and interpretation of the monument. This includes any excavation plans which contribute to an understanding of the visible remains. The

location of excavation trenches should be clearly shown on the new survey, with some indication of their accuracy.

20- Plans derived from geophysical or geochemical investigation. The limits of survey or common points must be shown.

21- Gridded plans showing the location of archaeological objects and the extent of artefact spreads found by 'field-walking'.

Appendix III: Site Gazetteer

PRN 5380 Settlement, Gwaen Gynfi

Grid reference: SH60906388

Importance: A

Period: Prehistoric

HER Description:

To the immediate north and north east of a multi-cellular sheepfold are two conjoining enclosures of rectangular plan. There is a hut circle against the inner E wall of the E enclosure. <1>

Five enclosures or paddocks (2-6) defined by wandering walls (Plate 3) typical of prehistoric settlement in this area. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior of the enclosures are partially cleared of stone.

In the eastern corner of enclosure 4 are two linked, roughly built, small pens with dimensions of 9.0 x 5.0m and 2.5m x 2.0m (Plate 4). A narrow passage leads into enclosure 4.

A small hut circle (7) with an overall diameter of 5.5m is built into the north-eastern wall of enclosure 5 (Plate 3). The hut circle is well defined with piled rubble walls 1.0m thick and an entrance on the north-west.

Two probable outlying paddocks (8-9) to the north-west are defined by natural scarps. There appears to have some clearance here, with stones piled among the natural boulders on the edge of the scarp. There may also have been some clearance (10) to the north-east although the stone appears to have been dumped among the natural boulders as opposed to have been made into wandering walls. A 1.5m wide meandering trackway (11) approaches the settlement from the north and runs into enclosure 3 and then passes through the south-eastern wall. It is not clear if this is contemporary with the settlement or a later path.

The settlement occupies a natural terrace within the boulder fields on the edge of the bogs to the north-west and west. The area is well-drained and sheltered by the higher ground to the south and south-east. The site was presumably partially cleared during the construction of the multicellular sheepfold. The partial remains of straight stone built walls are spread across the site, perhaps being part of the settlement enclosure wall. (Hopewell, 2009) (Cooke & Davidson, 2010).

Remains of an enclosure complex at 370m OD, on more or less flat ground beneath a 5m high boulder field on a generally north- west facing slope. A large sheepfold stands in the centre of the site, doubtless accounting for the robbed-out state of most of the surviving features.

Five large paddocks or enclosures ranging in size from 20m x 15m to 50m x 50m, defined by 'wandering walls' composed of small stones and generally 1.0m thick. Within the eastern-most paddock, and of one build with its east wall, is a hut circle, 5.5m diameter overall, with rubble walls 1.0m thick. In the south-east corner of the central paddock are two roughly built linked enclosures, 9.0m x 4.0m and 2.5m x 2.0m internally. From the larger of these a passage 4.0m long and 0.75m-1.0m wide, faced on both sides with large stones, leads into the eastern paddock. This feature was doubtless used for stock control.

From a gap 4.0m wide in the north wall of the central paddock, a trackway 1.5m-1.9m wide winds downhill through rocky ground, intermittently, traceable for 200m (to SH60866411).

60m north of the paddocks, immediately west of the track, is a 1.0m long stretch of walling, 0.7m high at most and 0.5m-0.75m wide, built of roughly piled large stones. Most of the ground to the west of the track was overgrown with bracken, obscuring any features which may lie between this wall and the paddocks.

60m to the south-west of the paddocks, a second stretch of trackway, 35m long, runs southwards through rocky ground, with cleared stones piled to either side (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN 302989):

No description but 3 good oblique photos (AP_2006_1615-1617)

Notes for current project:

Quarry realignment has cut away the possible area of field (PRN 60386) to the SE of the settlement and a deep drainage channel has been dug clipping the boundary of field PRN 60373, destroying possible structure PRN 60385 and probably damaging possible structure PRN 60385. The drainage channel was dug after the

watching brief on the working in the realignment area was undertaken in 2013 and was not archaeologically monitored.

Condition: Damaged, Fair. Very over grown and unclear but detail does survive. Some damage from drainage channel cut through edge of settlement

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 5694 Weir, near Pont Ogwen

Grid reference: SH6270065363

Importance: C

Period: Post Medieval

HER Description:

A weir with a series of stepped catch-ponds is located to the south of Pont Ogwen in area 1. The weir itself is marked on the 1914 OS 1:2500 map but its origin is presently unclear (Carver 1993).

NMR Description (NPRN):

Notes for current project:

Weir appears on 25 inch maps from 1889 with a sluice at SW end but there is an additional sluice added by 1900 which fed into an aqueduct. Sometime after 1914 the aqueduct was realigned but still seems to have taken water out of this second sluice.

Condition: Intact, Fair. Vulnerable to erosion but in fairly good condition

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 5695 Waste Tip Revetting and Slate Plinths, Penrhyn

Grid reference: SH6263165363

Importance: C

Period: Post Medieval

HER Description:

At the base of waste tips lining the River Ogwen on its western bank in area 1 are various examples of stone revetting designed to prevent the tips spreading. Also a series of plinths of slate block construction are located alongside the river bank adjacent to the revetment. Each measuring c.1.5m x 2.0m x 1.5m, the plinths are spaced between two and three metres apart. They are most likely an industrial feature, constructed for support of a leat or aqueduct system (Carver 1993).

NMR Description (NPRN):

Notes for current project:

A length of revetment about 30m long survives to the S of the cycle track. This is up to 3m high in places. No trace of the slate plinths could be seen and it is assumed that these were lost when the cycle track was constructed.

Condition: Damaged, Fair. Some of the revetment has been lost and none of the slate plinths could be found and are assumed lost when the cycle track was constructed.

Management recommendations: Avoid or level 1 recording

PRN 5696 Tank on aqueduct, Penrhyn Quarry

Grid reference: SH6262865376

Importance: C

Period: Modern

HER Description:

A brick built structure 10.0m in length, 2.0m wide and 0.75m high is located on the west bank of the River Ogwen at Pont Ogwen. A flat roof of large slate slabs retains two cast iron inspection covers in situ. Within the structure are pipework and tap fittings and it was noted that a brick built dividing wall separates the structure in two (Carver 1993).

NMR Description (NPRN):

Notes for current project:

Brick structure c.0.6m high with a large screw thread projecting from the top. It is built at the base of the revetment to the quarry heap and a channel runs from it.

A tank is shown on the 1900 and 1914 25 inch maps associated with an aqueduct, but the aqueduct seems to have been realigned sometime after 1914 (PRN 60732) and the tank was probably also rebuilt and is clearly directly associated with the later aqueduct, although the new tank seems to have been built on the location of the original one.

The original grid reference for this feature (SH62646534) was not sufficiently accurate and was confusing. A more accurate grid reference has been given.

Condition: Near Intact, Good. Seems to be fairly intact but over grown

Management recommendations: Avoid or level 1 recording

PRN 5697 Structure, Ogwen Bank

Grid reference: SH6248065530

Importance: D

Period: Post Medieval

HER Description:

Located within an area of dense rhododendron growth was a short length of slate block wall, 2.0m in length, 0.80m in width and 0.30m exposed height. The structure is probably associated with the quarry (Carver 1993).

NMR Description (NPRN):**Notes for current project:**

Not seen due to dense vegetation. The precision of this grid reference is in some doubt.

Condition: Near Intact, Fair. Current condition could not be checked but probably still as described.

Management recommendations: Avoid or level 1 recording

PRN 5698 Compressor house, Penrhyn Quarry

See plate 4

Grid reference: SH6248165537

Importance: B

Period: Modern

HER Description:

Located 150m east of Bryn Llwyd is a large stone-built building with a collapsed roof, surrounded by high tip material on the west and north sides. The structure houses a turbine engine which survives in good condition with an identification plate mounted on one side giving the date of manufacture as 1918. The building itself is dated from 1929 from an inscribed stone above the entrance. A large pipeline (0.40m in diameter) leads from the engine into dense undergrowth to the south. The function of the engine in relation to the quarry power system is not certain at the present time (Carver 1993).

NMR Description (NPRN):**Notes for current project:**

The building is slate built with slate cut by a circular saw. This building actually houses a turbine coupled to a vertical cylinder air compressor (Gwyn 2015, 89). The plate on the turbine has a date of 1929 and the plate on the air compressor has a date of 1918. No date stone above the entrance could be seen despite nothing obscuring this area. The large iron pipe running from the building is still intact and in quite good condition. The pipe brought water in to power the turbine, which drove the air compressor, which powered drills and other machinery in the quarry (Gwyn 2015, 90).

Condition: Near Intact, Fair. Half the roof is still in place but overgrown and very vulnerable. The rest of the building is sound and well-preserved.

Management recommendations: Carver (1993) recommends removing the equipment from this building and conserving the equipment, but getting it back into working order in situ could be a better option if this is possible. Options need discussing with GAPS.

PRN 5699 Bryn Llwyd

See plate 5

Grid reference: SH6240765598

Importance: C

Period: Post Medieval

HER Description:

A small complex of stone built buildings is located within the proposed area of disturbance at Penrhyn quarry. Probably former farm buildings, the date and origins are not yet established (Carver 1993).

NMR Description (NPRN):

Notes for current project:

This record is taken to refer only to the main house at Bryn Llwyd, PRN 60726 is the record for the surviving outhouses.

Large fine two storey house built of stone (not slate). The plan of the building is nearly square. The NW wall is rendered externally with a trellis nailed to it. There is a chimney stack in each gable with fireplaces on both floors. Both floors seem to have had two rooms but these may have been further subdivided. There is a very wide door or windows to the ground in the SW wall as well as a normal door. There is a door in the NE wall.

There are tall pine trees to the SW of the house in an area that was once the garden but conifers are not indicated on the 1889 to 1914 25 inch maps in this area.

The quarry manager is believed to have lived at Bryn Llwyd.

Condition: Damaged, Fair. The roof and floors have gone but the gables and NE wall survive to full height, with the SW wall surviving partially to full height. The fireplaces and other internal features survive. The whole structure appears rather unsafe and vulnerable to collapse.

Management recommendations: Avoid, level 2 recording if damage is unavoidable. It is recommended that the building is stabilised for public safety. Level 2 recording would be necessary before this takes place.

PRN 5700 Waste Tip Revetting, Penrhyn Quarry

Grid reference: SH6235765692

Importance: C

Period: Post Medieval

HER Description:

Stone revetting at the base of waste tips to the NW of Bryn Llwyd, is associated with the location of one of numerous quarry railway routes which previously crossed this area. The revetting stands to a height of 1.5m (Carver 1993).

NMR Description (NPRN):

Notes for current project:

The original grid reference (SH62316572) for this feature was insufficiently accurate and confusing. The description suggests that the revetting was in the area of the new grid reference. This area has been altered for an access route to the ZipWorld launch and landing platforms and the revetting has been destroyed.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 5701 Mortuary for Penrhyn Quarry Hospital

See plate 6

Grid reference: SH6240465771

Importance: C

Period: Post Medieval

HER Description:

A small building 5.0m x 3.0m, constructed of slate blocks is located alongside a former railway route in Penrhyn quarry. No roof remains, but one gable end is intact. Walls remain to an average height of 2.0m (Carver 1993).

NMR Description (NPRN):

Notes for current project:

The original grid reference for this building (SH62326575) was insufficiently accurate and confusing. A correct grid reference has been given.

This is a small building constructed of sawn slate blocks. The roof does not survive. There is a door in the N end and a window in the E wall. There is a very wide window or an access hatch in the W wall. The building is rendered internally and has an alcove inside the N wall and a slot/support hole in the S wall.

The building is marked as a mortuary on the 1914 25 inch map but the building is also shown on the 1900 map, although not on the 1889 map. It is located beside a former tramway (PRN 5702).

Condition: Damaged, Fair. There is no roof but otherwise it is well preserved and the walls stand nearly to full height.

Management recommendations: Avoid or level 2 recording

PRN 5702 Quarry Railway and Incline, Penrhyn

Grid reference: SH6240065789 C

Importance: C

Period: Post Medieval

HER Description:

The route of this former rail-line is traceable as a c.4.0m wide bench in waste tip material. It is visible from the new quarry access road to a point overlooking the old school buildings at Pont y Twr. At this point it becomes indistinct due to disturbance of the tip. The site of the former incline is located mid-way along the rail route descending towards the northeast. This is badly disturbed by collapsed tip material (Carver 1993).

NMR Description (NPRN):

Notes for current project:

The original grid reference for this site (SH 62336583) was insufficiently accurate and confusing. This is a tramway that ran to a tip that ended to the west of the school. A new grid reference has been given on the line of the tramway. The tramway still survives along much of its length to the north of the quarry road. It is a broad bench in the slate waste. Occasional stretches of rough revetting survive on E, down slope side. The tramway ends about SH 6245565903 and the spoil at this end of the waste tip has been dug away and removed.

The incline mentioned in the original record appears to be an access route from the hospital to the mortuary shown on the 1914 25 inch map.

Much of the route of the tramway is shown on the 1900 map, but it had altered at the northern end before the 1914 map. The tramway is shown as just a footpath on the 1914 map. A tramway shown on the 1889 map runs along a different line, at least at the northern end.

Condition: Near Intact, Fair. No rails or other traces of the tramway itself but the track bed survives quite well with a footpath running along it. The "incline" is now a rather eroded path.

Management recommendations: Avoid or level 1 recording

PRN 5703 Penrhyn Quarry Hospital, Remains of, Bethesda

See plate 7

Grid reference: SH6246265820

Importance: B

Period: Modern

HER Description:

The ruined remains of Penrhyn hospital survive in woodland 100m west of the present main quarry access road at Pont y Twr. The main two storey building, built in 1842, survives with little damage although the roof has been stripped and timber work is generally collapsed. The interior is partially filled with rubble and no surviving internal features are apparent. Two smaller buildings nearby are in a similar condition. The hospital, one of only three examples constructed in North Wales for quarry workers, constitutes an important part in the history of Penrhyn Quarry and that of the North Wales slate industry as a whole (Carver 1993).

NMR Description (NPRN 418939):

No description but some good photos.

Notes for current project:

Two storey multi-phase structure predominantly built of slate with some stone and brick used in places. Exterior partly rendered. Fireplaces survive internally.

The hospital, originally in Bangor, was moved to the site near the quarry in 1842. Anaesthetics were used for an amputation in the hospital in 1848, only a year after this technique was first used in Edinburgh, making Penrhyn Hospital a site of medical innovation.

Condition: Damaged, Fair. Roof missing and floors absent but walls stand mostly to full height. Interior contains much rubble and large trees.

Management recommendations: Avoid, level 3 recording if damage is unavoidable. This area is open to public access and it is recommended that the building is stabilised for public safety. Level 3 recording would be necessary before this takes place.

PRN 11699 Pont Ogwen

See plate 8

Grid reference: SH6264665402

Importance: B

Period: Post Medieval

HER Description:

NMR Description (NPRN 23800):

Substantial late eighteenth century bridge of rubblestone with a slate slab coping and string course. Single wide segmental arch with voussoirs and arch-ring, coping slightly rising to centre; corner piers. Source: CADW listing database. RCAHMW, 03 February 2014.

Listed Building Description:

Grade II listed building reference no. 23378. Almost certainly built c1790 to connect Lord Penrhyn's now demolished villa at Ogwen Bank, designed by Benjamin Wyatt, with Penrhyn Quarry. The Afon Ogwen here forms the boundary with Llanllechid community. Roughly coursed rubblestone with slate slab coping and string course. Single wide segmental arch with voussoirs and arch-ring, coping slightly rising to centre; corner piers.

Notes for current project:

Description from NMR and listed buildings record: Substantial late eighteenth century bridge of rubblestone with a slate slab coping and string course. Single wide segmental arch with voussoirs and arch-ring, coping slightly rising to centre; corner piers. Almost certainly built c1790 to connect Lord Penrhyn's now demolished villa at Ogwen Bank, with Penrhyn Quarry.

The slate tops of the parapets of the bridge are covered with graffiti. Much of it is recent but some dated to the late 19th century. Fairly early images include an

elephant, a man with a pipe and a jug. Of particular interest is a rather worn drawing of a De Winton steam engine.

Condition: Intact, Good. Good condition. Graffiti is vulnerable to damage by new graffiti and general wear.

Management recommendations: Listed building consent needed for all works on bridge. Recording is likely to be required as part of the consent.

PRN 12194 Bank, Llyn Owen Y Ddol

Grid reference: SH6119464703

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Bank: earth and stone bank at E edge of Llyn Owen y Ddol. Generally 2m wide and 0.7m high. Runs NE from the recently dredged mud at the edge of the lake for 26m turning to NW for 2m before terminating (Boyle 1993).

A short, slightly curving section of bank orientated approx NW-SE. C. 0.5m high and 1.5m wide. Completely turfed over with a break in the middle of the bank. It is located in boggy ground to E of Llyn Owen y Ddol.

The location coincides with a building on the 25 inch maps from 1889 to 1914. The bank may be the remains of the demolished building, but no evidence of building rubble visible.

Condition: Damaged, Fair. Overgrown but fairly clear

Management recommendations: Avoid or level 1 recording

PRN 12196 Leat, Llyn Owen y Ddol

Grid reference: SH6120464593

Importance: C

Period: Post Medieval

HER Description:

Bank and ditch, now dry, running around south end of Llyn Owen y Ddol. Emerges from beneath quarry tips and runs west south- west for 200m to a stream running west north-west. Consists of ditch 4.0m wide, 1.3m deep with slight upcast bank on north side. The stream has been embanked on its north-east side, presumably in order to channel it into the leat feeding the lake from the south- west (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

Very straight infilled channel running ENE to WSW. The E end comes to an abrupt end under a quarry tip. Cut by new drain at E end. Shown on 1889 25 inch map but not on 1900 or 1914 maps so presumably out of use before 1900. Fed into main drain PRN 60717.

Condition: Near Intact, Fair. Largely infilled but still surviving quite well.

Management recommendations: Avoid or level 1 recording

PRN 12197 Shelter, Gwaen Gynfi

Grid reference: SH6120864463

Importance: D

Period: Post Medieval

HER Description:

Roughly built rectangular structure in rocky ground. 3.0m x 2.3m internally. Walls (partly consisting of natural boulders) up to 1.1m high. May be a hide or butt constructed during military exercises (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

Very roughly built structure. Survives to c.1m on SW side where natural boulders are joined together by very rough walling. Round the N side the feature is defined by just a ring of cleared stones. There is no reason to suggest that this is a shooting butt or to associate it with the army. It is probably a very temporary shelter for a shepherd.

Condition: Damaged, Poor. Collapsed but it was probably very well built

Management recommendations: Existing recording is sufficient, no further recommendations

PRN 12260 Shelter, Gwaen Gynfi

Grid reference: SH6121364460

Importance: D

Period: Post Medieval

HER Description:

6m south-east of 1704.1. Rectangular structure built against natural boulders in rocky ground. 1.3m x 1.0m. Walls up to 0.8m high. Open on the north (downslope) side (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

Very roughly built structure open to the north. Just a few stones piled on boulders in a rough arc. There is no reason to suggest that this is a shooting butt or to associate it with the army. It is probably a very temporary shelter for a shepherd.

Condition: Damaged, Poor. Collapsed but it was probably very well built

Management recommendations: Existing recording is sufficient, no further recommendations

PRN 12272 Leat, Llyn Owen y Ddol

Grid reference: SH6123664634

Importance: C

Period: Post Medieval

HER Description:

Ditch 2.0m wide, 1.2m deep, now dry, with slight bank on north-east side. Runs north-west from east end of 1703.1, by which it has been cut, to the south edge of Llyn Owen y Ddol (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

The ditch is blocked by large boulders and a bank at the SE end. Shown on 1889 25 inch map but not on 1900 or 1914 maps so presumably out of use before 1900.

Condition: Damaged, Fair. Dry and largely infilled but fairly intact. Some disturbance at ends

Management recommendations: Avoid or level 1 recording

PRN 12280 Shelter, Gwaen Gynfi

Grid reference: SH6118564478

Importance: D

Period: Post Medieval

HER Description:

Roughly built structure in rocky ground, 25m north-west of 1704.1. Consists of large stones piled on and between natural boulders. 3.5m x 2.75m. Perhaps a shooting butt associated with 1704.1 and 1704.2 (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

Very slight structure with a few stones placed on boulders to form a rough semi-circle. Other large boulders also provide some shelter. No more than 0.5m high. There is no reason to suggest that this is a shooting butt or to associate it with the army. It is probably a very temporary shelter for a shepherd.

Condition: Damaged, Poor. Collapsed but it was probably very well built

Management recommendations: Existing recording is sufficient, no further recommendations

PRN 12305 Trackway, Gwaen Gynfi

Grid reference: SH6091363924

Importance: C

Period: Prehistoric?

HER Description:

From a gap 4.0m wide in the north wall or the central paddock, a trackway 1.5m-1.9m wide winds downhill through rocky ground, intermittently, traceable for 200m (to SH60866411) (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

A 1.5m wide meandering trackway (PRN 12305) approaches the settlement (PRN 5380) from the north and runs into enclosure 3 and then passes through the south-eastern wall. It is not clear if this is contemporary with the Prehistoric settlement or a later path (Cooke and Davidson 2010).

Not damaged by quarry realignment.

Condition: Damaged, Fair. Denuded and overgrown. Difficult to see.

Management recommendations: Avoid or level 2 recording

PRN 12315 Walling, Gwaen Gynfi

Grid reference: SH6089363970

Importance: B

Period: Prehistoric

HER Description:

60m north of the paddocks, immediately west of the track, is a 1.0m long stretch of walling, 0.7m high at most and 0.5m-0.75m wide, built of roughly piled large stones. Most of the ground to the west of the track was overgrown with bracken, obscuring any features which may lie between this wall and the paddocks (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

Not damaged by quarry realignment or drain.

Condition: Damaged, Fair. Denuded and overgrown. Difficult to see.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 12327 Hafoty, Possible, Gwaen Gynfi

Grid reference: SH6096663975

Importance: U

Period: Unknown

HER Description:

The remains of a rectangular enclosure or building (Plate 5) lie in stony ground just to the west of trackway 11. The structure is defined by spread rubble walls and has external dimensions of 6.0m x 2.5m. The eastern wall is almost destroyed. The interior is on two levels with the north end about 0.5m lower than the south. The original form of the structure is unclear. It could be a long hut or hafoty but could also be interpreted as a simple shelter or animal pen. (Hopewell, 2009) (Cooke & Davidson, 2010).

Foundations of a rectangular building or enclosure in rocky ground. 6.0m x 2.5m within walls perhaps 1.0m thick originally, now spread to 1.75m thick. The east wall in particular is almost totally destroyed. The interior is on two levels, the north end being 0.5m lower than the south. Stands immediately west of Trackway 1709 (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

Not damaged by quarry realignment or drain.

Condition: Near Destroyed, Poor. Denuded and overgrown. Difficult to see.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 12328 Trackway, Gwaen Gynfi

Grid reference: SH60986398

Importance: C

Period: Medieval?

HER Description:

A 1.5m wide trackway meanders around natural boulders and up the natural scarps. It has been cleared of stones which are piled on either side. (Hopewell, 2009) (Cooke & Davidson, 2010).

Winds through rocky ground for c. 90m, from SH60936400 to SH61006391. 2.0m wide, with cleared stones piled to either side (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

Trackway 1.8m wide, 0.06m - 0.2m deep. No evidence of surface, southern half removed by excavation in 2015 by GAT. The trackway was surveyed and photographed prior to the excavation of a trial trench towards its southern end. No evidence of any surface was uncovered, and it is likely that the trackway was created by the removal of stones along its length, and that the depth was due to the general use of the trackway. No finds were uncovered during the excavation, and therefore a date for the trackway is uncertain. However, given its location, in close proximity to the possible medieval hafoty (PRN 12327) it is likely to be of a comparable date (McNicol 2015).

Only very southern end damaged by quarry realignment.

Condition: Damaged, Fair. Denuded and overgrown. Difficult to see.

Management recommendations: Already extensively recorded, no further recommendations

PRN 12348 Stone Pile, Gwaen Gynfi

Grid reference: SH6106463974

Importance: D

Period: Post Medieval?

HER Description:

An oval grassed-over pile of stones with dimensions of 6.0m x 5.0m and about 0.3m high. It stands on a natural terrace between a boulder field and the quarry. The upland survey (in 1989) recorded apparently more recently dumped stones on top. It is now fairly uniform. The site may be simple field clearance but could also be interpreted as a Bronze Age burial cairn. It therefore needs further assessment. (Hopewell, 2009) (Cooke & Davidson, 2010).

Oval, grassed over, pile of stones, 6.0m x 5.0m, with apparently more recently dumped stones on top. 0.3m high (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

A roughly rectangular stone structure, measuring approximately 7m by 5m, aligned east-west. Fully excavated by GAT in 2013. No finds were recovered. The date and function of this structure is uncertain. However, given its shape and size, it is most likely the remains of a post-medieval peat and/or hay drying platform

(McNicol 2013). A quadrant of this feature was previously excavated by GAT in 2010 (Davidson 2010).

Removed by quarry realignment after recording listed above.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 12349 Enclosure, Gwaen Gynfi

Grid reference: SH6106664039

Importance: C

Period: Post Medieval

HER Description:

A sub-rectangular enclosure with dimensions of 5.0m x 2.5m. Built from roughly coursed walling 1.0m high and 0.7m thick against natural boulders to the east. Probably a sheep pen. (Hopewell, 2009) (Cooke & Davidson, 2010).

Sub-rectangular, 5.0m x 2.5m within roughly-coursed walling 1.0m high and 0.7m thick. Built against natural boulders to the east (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

A fairly simple sub-rectangular structure, consistent with a sheepfold or stock pen.

The site was cleared and recorded in 2010 by GAT and two small trenches were dug into it. The feature was a sub-rectangular dry stone enclosure approximately 7m x 5m, with walls up to 1m high. It was divided unevenly in two by a low internal wall, and was located on a slope backing onto natural boulders. There was no evidence of an earlier structure underneath the recorded enclosure.

No conclusive datable evidence was obtained, however a fragment of post-medieval Buckley ware was found pressed into the top of floor deposit. This indicates use in the late 18th or 19th century. This may have been a sheep pen or a cwt myn for goat kids (Davidson 2010).

Not yet impacted by quarry realignment (30/07/2015).

Condition: Damaged, Fair. Overgrown and collapsed but in fairly good condition

Management recommendations: Already extensively recorded, no further recommendations

PRN 12640 Sheepfold, Gwaen Gynfi

Grid reference: SH6133563494

Importance: D

Period: Post Medieval

HER Description:

Ruined sheep fold in slight hollow near the bottom of a steep NW facing slope. Main enclosure 7.1m by 5.7m within walls 1.0m thick, now much spread. 'D' shaped enclosure at NE end, 5.0m. by 2.5m internally (Boyle 1993, Flook and Dutton 1993, Gwyn and Davidson 1995)

NMR Description (NPRN):

Notes for current project:

Removed by new drain and trackway running around end of quarry.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 15840 Penrhyn Quarry - Landscape

Grid reference: SH62106530 C

Importance: AA

Period: MULTI-PERIOD

HER Description:

Penrhyn Quarry.

Historic background: a major slate quarry, still in active production under Alfred McAlpine Slate products, once the largest slate quarry in the world. Its origins are almost certainly medieval, but it reaped the benefit of direct management and substantial investment from the 1760s onwards. It was served by a 2' gauge railway to the sea from 1801, realigned for locomotive operation between 1874 and 1879, and was equipped with a slab mill from c.1803.

Key historic landscape characteristics: slate quarry landscape.

A galleried slate quarry of great size, still in active production. Despite the scale of present quarrying operations, the quarry preserves the industrial landscape of the nineteenth century. Incline planes, galleries and ancillary structures survive as landscape features, and the quarry preserves a number of examples of quarry machinery from the 19th and 20th centuries. Operations are currently concentrated on the upper part of the quarry, and are likely to continue moving towards the south-west, but tipping continues to take place on the site of the 19th century workings.

Some attempt is being made to encourage tree-growth on the tips. The Felin Fawr workshops complex which formerly served the quarry at Coed y Parc survives largely intact.

Conservation priorities and management: preservation of the quarry landscape within the constraints of modern operation, including tips. Appropriate adaptation to areas not presently owned by Alfred McAlpine Slate Products such as Felin Fawr workshops area.

NMR Description (NPRN):

Notes for current project:

The quarrying landscape as a whole is being proposed for World Heritage Status and if accepted will be of international significance.

Condition: Damaged, Fair. Survival is variable across the landscape

Management recommendations: Application for World Heritage Status is currently being prepared

PRN 17819 Roman Road, Proposed, Caer Llugwy to Bangor

Grid reference: SH66976041

Importance: U

Period: Roman

HER Description:

Waddelove (1999, 77-101) propose a route from Caer Llugwy to a hypothetical camp at Penrhyn, Bangor following amongst other things, the line of the old coach road, the turnpike through Nant y Benglog and Lord Penrhyn's along the the W side of the Nant Ffrancon. It seems likely that Waddelove has identified some stretches of early road but it requires further fieldwork in order to assess its Roman character. A report from Tim Strickland (pers. comm.) of Gifford and Partners shows through geological analysis that a slate used in the roofing of legionary barracks in Chester (Princess Street, 1981/2) had come from 'within a mile of Bethesda'. This perhaps adds credence to the idea of a Roman road running down the Ogwen valley. Requires further field assessment. <2>

NMR Description (NPRN):

Notes for current project:

The existence of this road is far from being proved, but a Roman road is possible down the valley and if it did exist it is likely that it would have crossed the area later used by the quarry. Any traces within the quarry area would have been destroyed long ago.

Condition: Destroyed, Destroyed. Roman road within area of the quarry has long been destroyed but it is possible traces may be found elsewhere if this road existed.

Management recommendations: No recommendations within quarry area

PRN 20061 Penrhyn Slate Quarry, Llandygai

Grid reference: SH62006500 C

Importance: AA

Period: Post Medieval

HER Description:

Penrhyn quarry remains the largest slate quarry in the world and amongst the largest man-made excavations in the world. It is of outstanding historical importance, although much archaeology has been destroyed by the scale of modern working.

The Coed y Parc complex is of great importance, as having two early mills and a range of ancillary structures. This complex is being managed by Arfon Borough Council, who hope to set up craft workshops in the existing buildings.

Though it was not possible to visit the main quarry site, it is believed that two DeWinton water-balance shafts survive practically intact. If this is the case, these would be of international importance. The quarry has an extensive archive, preserved at CRO and UWB (Gwyn and Davidson 1995).

Slate Gwaliau at Felin Fawr, Penrhyn scheduled 3/8/98 C297.

NMR Description (NPRN 40564):

Penrhyn Quarry makes up the largest slate workings in the world, and has remained in continuous production since long before the capitalisation of the workings by the first Lord Penrhyn in the late eighteenth century. By 1898 the quarry employed 2809 men, and 1916 men in 1937-8.

The quarry was worked partly as a stepped gallery and partly as a pit, but from about 1850 it began to employ water-balance shafts (e.g. NPRNs 33616, 400729) to raise loaded wagons. The Italianate-style quarry office (NPRN 308403) was built around 1860 during a period of expansion. Production of roofing slates remained entirely unmechanised until the introduction of electricity in 1912 led to the building of a range of mills on 'Red Lion', the main quarry level, and the installation of 'blondin' ropeways in the upper quarry. In the mid-1960s the site was bought by McAlpine which led to extensive modernisation.

In the nineteenth century Penrhyn, along with Dinorwic Quarry, dominated the Welsh slate industry. Penrhyn Quarry holds a significant place in the history of the British Labour Movement as the site of two prolonged strikes by workers demanding better pay and safer conditions. The first strike lasted for eleven months in 1896, and the second began in November 1900 and lasted for three years.

RCAHMMW, 4 November 2011.

Notes for current project:

This is an active working quarry and many changes have been made over recent years. The old parts of the quarry are far from complete and many features identified in 1995 have since been lost.

Condition: Damaged, Poor. Much of the older parts of the quarry no longer exist and many features have been lost

Management recommendations: Application for World Heritage Status is currently being prepared

PRN 22553 Dol-Owen house

Grid reference: SH6295064906

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Building marked at Dol-Owen on 1889 25 inch map and Dol-Awen on 1900 map, but by 1914 the name of Dol-Awen has moved to a new house built on the site what appears to have been a large farmyard with barns. However the original house still appears to be in use in 1914. The house is also shown on the 1848 tithe map, so it must be at least early 19th century in date. Visible as a ruin on 1947 AP (lib. No. 4712, frame 1330).

The remains on the ground are fairly well-preserved, although quite hard to understand due to rubble, collapse and overgrowth. There are several adjacent structures or rooms built of field stone with a little slate, especially used for lintels.

Condition: Damaged, Poor. The walls survive to over 3m in places but elsewhere are entirely collapsed. No roof surviving.

Management recommendations: Avoid or level 2 recording

PRN 22554 Dol-Owen out-buildings

Grid reference: SH62976489

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Shown as long building with 3 wings on 1889 25 inch map, altered by 1900 and entirely demolished by 1914. Also shown on tithe map so must be at least early 19th century in date.

Despite being shown as almost entirely demolished in 1914 some of this building does survive on the ground. The remains of a long narrow building orientated c. SW-NE, can be seen, constructed of field stone with occasional pieces of quarried slate. Covered in bracken and more foundations may be visible in winter.

Condition: Damaged, Poor. The walls stand up to 1.5m high in places but are mostly collapsed.

Management recommendations: Avoid or level 2 recording

PRN 22555 Dol-Owen shed

Grid reference: SH62976483

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Shown as a rectangular building on 1889 25 inch map, largely demolished by 1914, with only two walls standing defining a level yard. This building is not on the tithe map, so presumably dates to the later 19th century.

The two sides shown in 1914 are still standing up to 1.5m high and the foundations of the rest of the building can be seen. It is built up against a rock outcrop and built of field stone with some quarried slate in the NE wall.

Condition: Damaged, Poor. Largely demolished by 1914, only the remains of two walls still stand.

Management recommendations: Avoid or level 2 recording

PRN 22558 Dol-Awen sheepfold

Grid reference: SH6291264716

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Fairly roughly built sheepfold with two large pens built up against rock outcrop. A field wall runs along E side. Some large stones used in construction. Marked as "Old Sheepfold" on 1914 map and as "sheepfold" on 1889 map.

Condition: Damaged, Fair. Fairly collapsed but layout still clear

Management recommendations: Avoid or level 1 recording

PRN 22560 Dolawen sheepfold

Grid reference: SH62916453

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Shown on 1889 map but not later, but APs suggest that it still survives. It was not seen on the ground due to dense and high bracken cover.

Condition: Damaged, Fair. Some upstanding walls seem to remain.

Management recommendations: Avoid or level 1 recording

PRN 29989 Multicellular Sheepfold, Gwaen Gynfi

See plate 9

Grid reference: SH60896385

Importance: B

Period: Post Medieval

HER Description:

The most obvious site in the area is a large well-preserved multicellular sheepfold (Plate 2). This is 29m in diameter and typically stands to a height of 1.5m. It consists of 18 cells arrayed around a central larger cell. There are entrances running into the central cell from the west and east but access between the cells is often solely by means of sheep creeps (i.e. low entrances c.0.8m high with a lintel carrying the wall over the top). This presumably facilitated dividing up the flocks and the entrances could be closed with a flat stone. Overlies part of PRN 5380. (Hopewell, 2009) (Cooke & Davidson, 2010)

The sheepfold is well preserved, with walls up to 2.0m high. Measuring 30m x 30m overall it consists of a central enclosure 14m x 12m from which radiate sixteen smaller enclosures (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):**Notes for current project:**

Not damaged by quarry realignment

Condition: Intact, Fair. Slight collapse but generally in good condition

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 33373 Corrugated iron structures, Penrhyn Quarry

Grid reference: SH6197765600

Importance: C

Period: Modern

HER Description:

A group of corrugated iron slate mills of uncertain date (Batten, 2011).

NMR Description (NPRN):**Notes for current project:**

There are two corrugated iron structures close to the grid reference given. These are at SH6198965613 and SH6196765590. These do not appear on the 1914 25 inch map and are clearly 20th century in date. The Fullersite Plant (PRN 60019) is also of corrugated iron. A recently rebuilt mill (PRN 60005) is of modern corrugated materials.

Condition: Intact, Fair. In use and in fairly good condition but in need of repair

Management recommendations: Mostly late in date but level 1 recording would be recommended before major changes

PRN 37185 Enclosure, Possible, Gwaen Gynfi

Grid reference: SH61206444

Importance: U

Period: Unknown

HER Description:

15m east of hut 2562.1. South wall, 7m long, consists of a rough line of large stones. Only traces of east and west end walls survive. No trace of north wall, but edge of natural scree suggests a width of c. 5m (Boyle 1993, Flook and Dutton 1993).

NMR Description (NPRN):

Notes for current project:

The enclosure is no longer obvious due to being over grown but there is a stone-free area and a line of stones buried in the grass may represent the SW side.

Condition: Damaged, Poor. Very overgrown and unclear

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 58483 Tai'r Mynydd, Site of, Mynydd Llandygai

Grid reference: SH614652

Importance: C

Period: Post Medieval

HER Description:

A series of dwellings of nineteenth century pattern but with some twentieth-century building material (e.g. concrete and brick) apparent in the rubble. Map evidence (OS 25" County Series, 1914) suggests a row of eight terraced cottages alongside the track, with a series of out-buildings and long allotments below. The houses have been demolished, but some of the out-buildings and allotment walls remain (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

On 1889 25 inch map but not on 1848 tithe map. Still shown on 1914 25 inch map but derelict and partly demolished by 1947 (AP lib. No. 4712, frames 1326-7).

The area is very over grown and there are numerous piles of rubble visible but little of the structure of the houses or the layout of their gardens is visible at least in summer. Raspberry canes and plum trees indicate the location of the allotments.

Condition: Near Destroyed, Poor. Mainly piles of rubble

Management recommendations: Avoid or level 2 recording

PRN 58484 Tros yr Afon, Remains of, Mynydd Llandygai

Grid reference: SH61396532

Importance: C

Period: Post Medieval

HER Description:

A smallholding, seemingly of post 1840 date as it is not marked on either the tithe map or the first edition OS map. Cottage with attached farm building. Walls stand to eaves height but roof collapsed (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Contrary to Gwyn and Davidson (1995) this site is on the 1889 1st edition 25 inch map, although it is not on 1848 tithe map. Still shown on 1914 25 inch map but is derelict by 1947 (AP lib. No. 4712, frames 1326-7).

Small stone-built range with some slate incorporated into the construction. Central dwelling has mortared masonry but the attached outbuildings are of drystone. Walls stand up to 1m high.

Condition: Damaged, Fair. Derelict and overgrown

Management recommendations: Avoid or level 2 recording

PRN 58485 Field Boundary, Mynydd Llandygai

Grid reference: SH6148565338

Importance: C

Period: Post Medieval

HER Description:

The remains of a field boundary marked by a line of rough boulders also marks a distinct break of slope, seemingly created by ploughing. Whereas this feature is typical of Prehistoric sites, in this instance it could be Post-medieval in date (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Previous grid reference (SH615653) is insufficiently accurate. Improved grid reference provided.

There is a rough line of boulders along a scarp. Some are quite neatly set on edge and are up to 1m long. The scarp, if not the line of boulders, continues to SH6145765349. The 25 inch maps from 1889 to 1914 do not show a boundary in this location so it seems likely that this is earlier than late 19th century but the presence of trees still marking its line does suggest a post-medieval date. It may possibly be the NE boundary of a small field shown on the tithe map and labelled as No. 6, associated with a dwelling.

Condition: Damaged, Poor. Very denuded

Management recommendations: Avoid or level 2 recording

PRN 58486 Structure, Remains of, Mynydd Llandygai

Grid reference: SH61456531

Importance: D

Period: Post Medieval

HER Description:

Rectangular structure built at the top of the terrace (105). A level platform with foundation stones c. 4m square is all that remains. "Jumper" marks evident in the stones date the feature to post eighteenth century (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

This feature could not be found at the grid reference or "at the top of the terrace" (PRN 58485). It is unlikely to have been removed or destroyed but may have been grown over and obscured. The 25 inch maps don't show any structures in this area.

Condition: Damaged, Uncertain. Probably heavily grown over

Management recommendations: Avoid or level 1 recording

PRN 58487 Bridge, Mynydd Llandygai

Grid reference: SH6151565319

Importance: D

Period: Modern

HER Description:

A small bridge across the stream, possibly also built to form a dam as it curves upstream to withstand the pressure of water (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Part weir, part bridge. A vertical wall of unmortared stone runs across the stream as the stream drops down about 1m. The wall has channels in the side to take the water and these were probably bridged by slabs. A short trackway runs to the bridge from the SE. This seems to be a ford for livestock with a small footbridge.

It is shown on the 1914 25 inch map but not earlier. It does not form part of the system of footpaths over this area the crossing seems to be purely for agricultural use, perhaps to aid access of machinery to the field.

Condition: Intact, Fair. Some collapse but generally good condition

Management recommendations: Avoid or level 1 recording

PRN 58488 Footpaths, Mynydd Llandygai**Grid reference:** SH6147665302 C**Importance:** D**Period:** Post Medieval**HER Description:**

A sequence of early footpaths, assumed to be for access to the upper levels of the quarry (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Paths running from Tai'r Mynydd and from the end of a road to the north cross at the grid reference given on their way to the quarry up the soil heaps. There is little to see on the ground although the path from the north feeds into PRN 58491, which is well defined and leads to the steps PRN 58492. Any trace of the path from Tai'r Mynydd where it ascended the spoil heap has been buried under subsequent slate heaps.

Where the paths run through the fields they are on a similar line on 1889 to 1914 25 inch maps but where they ascend the slate heaps varies.

Condition: Near Destroyed, Very Bad. Generally little visible and some parts of the paths have been buried under slate heaps

Management recommendations: No recommendations

PRN 58489 Reservoir with dam and sluice, S of Braich y Gwair**Grid reference:** SH6144665478**Importance:** D**Period:** Post Medieval**HER Description:**

A dam on the lower side of a small reservoir. 1.5m high, 3m wide, with sluice in north-west corner. Probably for agricultural use associated with Braich y Gwair (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

A small reservoir, oval in plan, with a dam around NE side, which is a grass covered bank. A gap in the middle of the dam is probably the location of the former sluice. The dam is shown on the 1889 25 inch map and the sluice specifically marked on the 1900 and 1914 maps. The reservoir appears to have been fed from a stream that runs from the W to disappear under the slate heaps to the E. There is no indication on the maps of a leat running from the reservoir but water was presumably fed down to Braid y Gwair Farm to power machinery.

Condition: Intact, Good. The pond it mostly dried up and obscured by a stand of willows but the dam still holds.

Management recommendations: Avoid or level 1 recording

PRN 58490 Braich y Gwair, Remains of, Mynydd Llandygai**Grid reference:** SH6147765527**Importance:** C**Period:** Post Medieval**HER Description:**

A farmstead, certainly of nineteenth century date, and possibly earlier. There are two concentrations of buildings, one to the south-east, which contains the remains of a house, and another group by the side of a stream to then north-west. Buildings mostly remain to eaves height, with roofs now missing (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

A complex of multi-phased structures built of field stone with alterations in slate. The larger gabled building is the farmhouse with various barns and pens around it. On 1889 25 inch map but not on 1848 tithe map. Still shown on 1914 25 inch map but derelict and partly demolished by 1947 (AP lib. No. 4712, frames 1326-7).

Condition: Damaged, Fair. No roofs but walls stand to maximum of 2.5m high. Generally quite well preserved and detail of layout can still be seen

Management recommendations: Avoid or level 2 recording

PRN 58491 Trackway, Mynydd Llandygai

Grid reference: SH61506526

Importance: C

Period: Post Medieval

HER Description:

A 2m wide track lined with stone walls c. 1m high. A ford is clearly visible where it crosses the small stream (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Trackway as described, no significant deterioration. Shown on 1889 to 1914 25 inch maps. Leads to steps (PRN 58492) up slate heap.

Condition: Intact, Fair. Walls are somewhat collapsed and rather overgrown but quite well preserved

Management recommendations: Avoid or level 1 recording

PRN 58492 Steps, Mynydd Llandygai

Grid reference: SH6150465214

Importance: C

Period: Post Medieval

HER Description:

Steps up the side of the tip at the end of track (112) (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Slate steps built into slate heap zig-zagging up the heap. At the bottom they are overgrown with grass and it appears to be a grass track but higher up the steps are exposed. The steps are up to 1m wide. The steps lead to a path along the slate heap into the quarry. The steps are shown on the 25 inch maps from 1889 to 1914 with very slight variations in the zig-zags.

Condition: Intact, Fair. Steps largely covered with grass so hard to identify as steps and in places covered with rubble but generally well preserved.

Management recommendations: Avoid or level 1 recording

PRN 58493 Structure, E of Tai'r Mynydd

Grid reference: SH6146665204

Importance: C

Period: Post Medieval

HER Description:

A series of structures, now part buried under the tips, of which the most obvious remaining is a small structure with a monopitch roof alongside a small stream. May have been a small-holding, but no name is given on the maps (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Small rectangular structure built of mixed slate and field stone. Walls stand to 2m high. It is associated with small enclosures. The associated sub-rectangular enclosure is shown on all the 25 inch maps from 1889 to 1914 but the building

itself is only shown on the 1889 and 1914 maps, perhaps having been abandoned and then rebuilt. There seems to only ever to have been one building and there is no evidence that any part of the complex is buried under the slate heaps contrary to Davidson, Gwyn & Riley, 1995. The location of this building is fairly close to one shown on the tithe map on roughly the same alignment (building on NE side of field no 5). Inaccuracies on the tithe map mean that it is hard to prove that these are the same buildings but it is possible, however the later map evidence for complete rebuilding suggests that none of the early 19th century structure is likely to survive above ground.

Condition: Damaged, Fair. No roof but upstanding walls. Overgrown and layout unclear

Management recommendations: Avoid or level 2 recording

PRN 59997 Office, Red Lion Level, Penrhyn Quarry

See plate 10

Grid reference: SH6202465395

Importance: D

Period: Post Medieval

HER Description:

Attractive building, still in use as office. Now with extension to rear (Gwyn and Davidson 1995).

NMR Description (NPRN 308403):

The Penrhyn Quarry office is a single-storey building in Italianate style, dating from around 1860 when the quarry (nprn 40564) was undergoing expansion; in recent years the office building has been considerably extended. The walls are coursed and dressed rubblestone, with finely jointed voussoirs to door and window surrounds, under a mainly hipped slate roof.

B.A.Malaws, RCAHMMW, 15 May 2008.

Listed Building Description:

Grade II listed building reference no. 23392. Single-storey building in a simpler version of the free Italianate style used for the Penrhyn Estate office at Porth Penrhyn. Regularly coursed and dressed rubblestone blocks with finely jointed voussoirs to door and window surrounds; mainly hipped slate roof. Main elevation has projecting stepped gable to left with round-arched recess framing tripartite sash window with glazing bars and 4-paned sash window above; entrance to right return through segmental-headed 4-panel door. Main section to right has 2 segmental-headed sash windows with similar 2-paned sash window to right again in front wall of small hip-roofed square projection. 2 similar 6-paned sashes in segmental-headed surrounds to right return of main section and 3 sash windows to back wall, all to left of lean-to porch in angle with rear projection giving access to large C20 extension linked to original building. Slate slab ridge stack to far right of main range and similar stacks towards top of its hipped ends.

Notes for current project:

Modern two storey slate built structure used as visitor centre and reception featuring decorative slate cladding to the upper storey. This structure appears entirely modern, with no evidence of the former office building surviving. Two small modern decorative slate structures stand to the immediate northwest.

The original listed building was photographed by the RCAHMMW in 2002 but sometime after that it is said to have collapsed into a tunnel and was entirely rebuilt. A RCAHMMW AP of 2006 shows the current building.

Condition: Destroyed, Destroyed. Original building has been demolished and entirely re-built.

Management recommendations: This building needs to be delisted

PRN 59998 Lift, Red Lion Level, Penrhyn Quarry

See plate 11

Grid reference: SH6202065430

Importance: A

Period: Post Medieval

HER Description:

"Sebastopol" water-balance shaft and associated headframe supported on tubular girders. Water tank survives, though part of the feed system to the cages is missing. One cage survives at the foot of the shaft, the other is missing. Recently repainted (Gwyn and Davidson 1995).

NMR Description (NPRN 400729):

One of two (the other is nprn 33616) water balance lifts surviving at Penrhyn Slate Quarry (nprn 40564). The machine was used to raise loaded slate wagons from lower levels of the quarry to the Red Lion Level where the processing mills were situated. Two moveable platforms, each one with a water tank underneath, operated in a vertical shaft. One platform, with a full tank of water and conveying an empty wagon, would descend hauling up the other platform, its water tank empty and conveying a loaded wagon. The capacity was five tons. A raised tank in the headframe served as a top-up for the tanks on the tables. The bottom of the shaft was accessed by a tunnel from the working gallery. There were originally eight water balances at Penrhyn, the first one installed in June 1852; this one was named 'Edward', probably after Edward, Baron Penrhyn.

RCAHMMW, 15 May 2008.

Notes for current project:

Tanc Sebastopol was completed in 1858 (Gwyn 2015, 153).

A small slate/wood structure with a single pitch slate roof survives to the rear of the headframe (NE). It retains some machinery/controls. The slate surround to the entrance in the SE gable features late 19th/early 20th century engraved graffiti including names, dates and a horses head in profile.

There was a second water balance adjacent to this one but the area is now under the lawn and nothing survives. Both are shown on the 1889 to 1914 25 inch maps.

A photograph held by Welsh Slate shows both water balances complete and probably in use in what appears to be the 1950s.

Condition: Near Intact, Fair. Water tank survives. One cage survives at the foot of the shaft. Some rust & rot visible, but condition generally good. Shaft remains open.

Management recommendations: Preserve in situ, stabilise condition, level 3 recording in advance of damage or alterations.

PRN 59999 Lift Strongpoint, Red Lion Level, Penrhyn Quarry

Grid reference: SH6209265477

Importance: C

Period: Post Medieval

HER Description:

Strongpoint which supported the headframe for water balance lift over shaft (PRN 60000) (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Low slate base of headframe structure with one upstanding piece of walling 1.5m high. There are iron fixtures and pipes in the base, which includes some huge slate slabs in its construction.

Condition: Damaged, Poor. Very overgrown, all superstructure demolished and the base is damaged

Management recommendations: Avoid or level 2 recording

PRN 60000 Shaft, Red Lion Level, Penrhyn Quarry

Grid reference: SH6209665483

Importance: C

Period: Post Medieval

HER Description:

"Lord" water-balance shaft. Remains as open shaft, plumper blocks and rail survive around lip (Gwyn and Davidson 1995).

NMR Description (NPRN 33616):

One of two (the other is nprn 400729) water balance lifts surviving at Penrhyn Slate Quarry (nprn 40564). The machine was used to raise loaded slate wagons from lower levels of the quarry to the Red Lion Level where the processing mills were situated. Two moveable platforms, each one with a water tank underneath, operated in a vertical shaft. One platform, with a full tank of water and conveying an empty wagon, would descend hauling up the other platform, its water tank empty and conveying a loaded wagon. The capacity was five tons. A raised tank in the headframe served as a top-up for the tanks on the tables. The bottom of the shaft was accessed by a tunnel from the working gallery. There were originally eight water balances at Penrhyn, the first one installed in June 1852; this one was named 'Lord'.

RCAHMW, 15 May 2008.

Notes for current project:

The shaft is still open and is fenced off. A modern pump has been installed in a corrugated iron hut next to the shaft to drain it. The rails and other fixtures still survive around the edge of and inside the shaft.

Two shafts are shown in this area from 1889 on the 25 inch maps but the other one, to the SE, appears to have been entirely filled in and no surface trace is visible.

Condition: Damaged, Fair. Shaft still survives with some original features.

Management recommendations: Avoid or level 2 recording

PRN 60001 Retaining Wall, Red Lion Level, Penrhyn Quarry

Grid reference: SH6206665487

Importance: D

Period: Post Medieval

HER Description:

High retaining wall supporting made up ground on Red Lion level (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

A revetment wall is shown in this area on the 1914 25 inch map but dumping of material has raised the ground level and all that survives of the wall is a line of rubble, which may overlie the wall or may be the demolished remains of it.

Condition: Near Destroyed, Very Bad. Wall demolished or buried, area is very heavily overgrown and difficult to see.

Management recommendations: Avoid or level 1 recording

PRN 60002 Mill, Red Lion Level, Penrhyn Quarry

Grid reference: SH6199065520

Importance: C

Period: Modern

HER Description:

Longitudinal roofing-slate mill, former "D" mill, converted to workshops. Bearings for lineshafting visible (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Not on 1914 map, so 20th century in date. Built over tramways.

Single storey slate built gabled structure, partially rendered and displaying significant repair/modification. Currently used as stores. The slate clad roof, supported by King-pin trusses is double pitched with a change in gradient at the mid-point of either pitch, the lower section being of a more gradual pitch than the upper.

Condition: Intact, Good. Good, remains in use, though repair/modification evident

Management recommendations: Level 2 recording in advance of major alterations

PRN 60003 Mill, Red Lion Level, Penrhyn Quarry

See plate 12

Grid reference: SH6202065534

Importance: C

Period: Modern

HER Description:

Longitudinal roofing-slate mill, former "C" mill, converted to storeshed (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Not on 1914 map, so 20th century in date. Built over tramways.

Single storey slate built gabled structure, partially rendered and displaying significant repair/modification. Irregular gable shape, there is a change of gradient to the SW pitch, the lower section being of a more gradual pitch than the upper. A small metal chimney rises from the SW pitch. A section of the NE pitch has been cut away to create a bay.

Condition: Intact, Good. Good, remains in use, though repair/modification evident

Management recommendations: Level 2 recording in advance of major alterations

PRN 60004 Mill, Red Lion Level, Penrhyn Quarry

Grid reference: SH6206365558

Importance: C

Period: Modern

HER Description:

Longitudinal roofing-slate mill, former "B" mill, converted to canteen (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

On 1914 map but not 1900 map, so early 20th century in date.

Slate built mill with new slate roof. Some of the original windows and other openings are blocked but visible. Many original features survive inside despite being converted for use as a canteen and toilets.

Condition: Near Intact, Good. In use and in good repair but adapted for new uses

Management recommendations: Level 2 recording in advance of major alterations

PRN 60005 Mill, Red Lion Level, Penrhyn Quarry

Grid reference: SH6211565590

Importance: C

Period: Post Medieval

HER Description:

Longitudinal roofing-slate mill, former "A" mill, still in use as splitting shed (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The current slate splitting and dressing mill seems to be an entirely recent construction and is made of corrugated metal. The mill shown on the 1914 25 inch map (contemporary with PRN 60004) had been completely demolished before the Davidson and Gwyn survey in 1995, but was still there in 1947 (AP). The present building clearly post-dates 1947.

Condition: Destroyed, Destroyed. It appears that this structure has been entirely rebuilt but some of the original structure may remain.

Management recommendations: No recommendations

PRN 60006 Building, Red Lion Level, Penrhyn Quarry

Grid reference: SH6189165456

Importance: D

Period: Post Medieval

HER Description:

Converted to, but not built as, a smithy at its south-east end; the north-west end is used to store core samples (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

No evidence of this building found, apparently recently demolished. Shown on 25 inch maps from 1889.

Condition: Destroyed, Destroyed. Demolished

Management recommendations: No recommendations

PRN 60007 Building, Red Lion Level, Penrhyn Quarry

Grid reference: SH6188265608

Importance: C

Period: Modern

HER Description:

Small rectangular structure with pitched slate roof. Side door at S end - large side windows now blocked. Appears to be relatively recent structure. Electricity connection at gable end. Large workshop door inserted in gable end. Former attached structure at north end now demolished. Function unknown (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

As described. The largely demolished structure at the N end is a later addition.

Roof still intact on main building and building still in use as a store.

Shown on 1914 25 inch map and not earlier.

Condition: Near Intact, Good. Roofed and still in use.

Management recommendations: Level 1 recording in advance of major alterations

PRN 60008 Electricity Substation, Red Lion Level, Penrhyn Quarry

Grid reference: SH6190765772

Importance: C

Period: Modern

HER Description:

Of pre-first world war design. Still in use to supply fullersite plant (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Tall slate built, heavily pointed gabled structure with a double pitched slate roof.

Slate panels with small circular openings set at the top of the gables allow cable entry. A small buttress has been added to the northern gable. Not shown on 1914 25 inch map so possibly built just pre-WWI.

Condition: Intact, Good. Remains in use, good condition, original windows

Management recommendations: Level 1 recording in advance of major alterations

PRN 60009 Electricity Substation, Red Lion Level, Penrhyn Quarry

Grid reference: SH6192465765

Importance: C

Period: Modern

HER Description:

Of pre-first world war design. Still in use to supply fullersite plant (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Tall slate built, heavily pointed gabled structure with a double pitched slate roof. Slate panels with small circular openings set at the top of the gables allow cable entry. Not shown on 1914 25 inch map so possibly built just pre-WWI.

Condition: Intact, Good. Remains in use, good condition.

Management recommendations: Level 1 recording in advance of major alterations

PRN 60010 Lift, Red Lion Level, Penrhyn Quarry

Grid reference: SH6204065236

Importance: C

Period: Post Medieval

HER Description:

"George" water-balance shaft, fenced off; none of the headframe survives (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The shaft is almost entirely infilled and the rectangular shape of its plan can only just be seen. Shaft marked on 25 inch maps from 1889 to 1914.

Condition: Near Destroyed, Very Bad. Entirely infilled and difficult to see

Management recommendations: Avoid or level 1 recording

PRN 60011 Structure, Red Lion Level, Penrhyn Quarry

Grid reference: SH6204065232

Importance: C

Period: Post Medieval

HER Description:

Slate support for tank to power water balance lift (see PRN 60010) (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Narrow rectangular slate built tower, c.5m high, to support tank. Iron nails or supports project from NE side. It is topped with coping slabs.

Condition: Near Intact, Good. Well preserved

Management recommendations: Avoid or level 2 recording

PRN 60012 Smithy, Red Lion Level, Penrhyn Quarry

Grid reference: SH6203665225

Importance: C

Period: Post Medieval

HER Description:

Remains of a smithy, walls remain to eaves height. Hearth in situ (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The original grid reference for this site (SH6202265186) was incorrect and has been corrected.

This is a slate built building with a large window and a door. There is a lean-to on the SE end with large slabs in its roof. All the structure is roofed in slate and has recently been reroofed. Still in use. Interior not inspected but apparently the hearth is still there.

A building is shown on the 1900 and 1914 25 inch maps in this location with tram tracks running from it. It seems unlikely that this was the smithy but the building may have been reused.

Condition: Intact, Good. Good condition, reroofed, still in use for storage

Management recommendations: Avoid or level 2 recording

PRN 60013 Lift, Red Lion Level, Penrhyn Quarry

Grid reference: SH6202865220

Importance: C

Period: Post Medieval

HER Description:

"Douglas" water balance shaft, filled with rubble to within 1m of surface (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Circular stone lined shaft just visible to the NW of tank (PRN 60014). Almost entirely filled in with slate waste and somewhat overgrown. Shaft marked on 25 inch maps from 1889 to 1914.

Condition: Near Destroyed, Very Bad. Almost entirely filled in with slate waste and somewhat overgrown

Management recommendations: Avoid or level 2 recording

PRN 60014 Water tank, Red Lion Level, Penrhyn Quarry

Grid reference: SH6203065217

Importance: C

Period: Post Medieval

HER Description:

Water tank for water balance lift (see PRN 60013) and slate supports (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Slate built open sided base supporting a large tank constructed of slate slabs

Condition: Near Intact, Good. Fairly good condition, hidden in woodland

Management recommendations: Avoid or level 2 recording

PRN 60015 Hydraulic Equipment, Red Lion Level, Penrhyn Quarry

Grid reference: SH6202265223

Importance: D

Period: Post Medieval

HER Description:

Stop-cock arrangement for water supply system (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Not found on 27/07/2015. Probably lost in undergrowth.

Condition: Not known, Uncertain.

Management recommendations: No recommendations

PRN 60016 Weighbridge House, Red Lion Level, Penrhyn Quarry

Grid reference: SH6201465277

Importance: C

Period: Post Medieval

HER Description:

Structure survives but no machinery. Concrete weigh-pit (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Small slate built single storey gabled structure with a double pitched slate clad roof. A small extension has been added to the northern gable, this is built in a similar style to the rest and has a single pitched roof. Today used as an office. Weigh-pit is still under floor under boards.

Previous grid reference (SH6201665251) is inaccurate and has been replaced.

Condition: Intact, Good. Structure survives in good condition but no machinery. Some modification including new windows.

Management recommendations: Avoid or level 2 recording

PRN 60017 Building, Red Lion Level, Penrhyn Quarry

Grid reference: SH6204165350

Importance: C

Period: Modern

HER Description:

Structure survives intact; in use as store (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

There are the remnants of a slate built structure. The walls to the N and E survive to 1m high. There is demolition material to the S and terracing and it is difficult to see the plan of the original structure. This building seems to post-date the 1914 25 inch map.

Condition: Near Destroyed, Very Bad. Largely demolished

Management recommendations: Avoid or level 1 recording

PRN 60018 Locomotive Shed, Red Lion Level, Penrhyn Quarry

Grid reference: SH6180565781

Importance: C

Period: Modern

HER Description:

Two-road locomotive shed, in re-use. Survives intact (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

This is a slate building with two large doors in the SE end. It has unusual green slate in this gable end. Still in use. Post-dates 1914 25 inch map but on 1947 AP.

Condition: Intact, Good. Good condition. In use.

Management recommendations: Level 1 recording in advance of major alterations

PRN 60019 Fullersite Plant, Red Lion Level, Penrhyn Quarry

See plates 13 and 14

Grid reference: SH6188665730

Importance: B

Period: Modern

HER Description:

Though much of this is of modern construction, it contains the earlier (pre 1945) buildings associated with the plant, built out of corrugated iron (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The plant went into production in 1922 and was extended in 1929-30. It was a complex of corrugated iron buildings in an enclosed yard with its own electricity sub-station (Gwyn 2015, 123).

It seems unlikely that any of the 1920s buildings are still in existence, except the electricity sub stations (PRN 60008 and 60009). The oldest building appears to be a large hangar-like corrugated iron building with a porched entrance on NW side. Some equipment is still present inside. However this is clearly not shown on the 1947 AP so dates to later half of 20th century.

Condition: Damaged, Poor. Few original buildings survive. The oldest is post 1947 and is intact but in fairly poor condition and deteriorating

Management recommendations: Level 2 recording in advance of redevelopment

PRN 60020 Lift, Ponc Sling, Penrhyn Quarry

See plate 15

Grid reference: SH6215465372

Importance: A

Period: Post Medieval

HER Description:

"Princess May" water-balance shaft and associated headframe. This survives more completely intact than "sebastopol" in that it includes one of the cages at the surface level, complete with water-tank above the floor for the wagon, the water-supply system is intact, and the "ship's wheel" control system survives in the shed adjacent (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Tanc Princess May dates from 1895 (Gwyn 2015, 153).

The water balance shaft and headframe are still quite complete, as far as could be seen. Close inspection was not possible because of dangers of access. The cage is still visible.

Condition: Near Intact, Fair. Fairly good condition but not actively maintained and rusting and some elements appear loose.

Management recommendations: Preserve in situ, stabilise condition, level 3 recording in advance of damage or alterations.

PRN 60021 Compressor House, Ponc Sling, Penrhyn Quarry

Grid reference: SH6248165537

Importance: B

Period: Modern

HER Description:

Contains Gilbert Sykes of Kendal pelton wheel dated 1929 powering Fullerton Hodcart and Barclay two-cylinder vertical compressor of 1500 cu ft capacity, dated 1919. Related waterpipes, set in concrete bases, and compressed air pipes survive near the building (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

There is some confusion about this site as the original grid reference (SH6247565655) is incorrect. There is nothing at this location and no evidence that there was any building demolished. The description makes it clear that this is the same site as PRN 5698 and the grid reference has been corrected to reflect this.

The HER entry contains a typo and should read "Gilbert Gilkes of Kendal pelton wheel". The date on the air compressor is actually 1918.

Condition: Near Intact, Fair. Half the roof is still in place but overgrown and very vulnerable. The rest of the building is sound and well-preserved.

Management recommendations: See PRN 5698

PRN 60022 Transformer House, Agor Boni, Penrhyn Quarry

See plate 16

Grid reference: SH6200365195

Importance: C

Period: Modern

HER Description:

Tall stone building with pitched slate roof. Out of use but contains transformer equipment (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

The original grid reference for this site (SH6196465177) was wrong and a new grid reference has been given. This is a substantial building with a porch on the NW side made of slate slabs. The door in this porch is blocked. There are large blocked windows and holes for the electricity cables to exit near the eaves. It is currently in use as an explosives magazine. Gwyn (2015, 93) states that it was built in 1920-21.

There is a photograph on Coflein of a transformer house at Penrhyn Quarry (NPRN 40564, photo ref. DI2013_0690), dated 1985. Gwyn (2015, 93) reproduces this photograph and labels it "the transformer house at Penrhyn is situated on 'Agor Boni' level". However this photograph is NOT of PRN 60022. It is suspected that this was not on Agor Boni level but it is not known where this transformer house was.

Condition: Intact, Good. Good condition, in use as an explosives store.

Management recommendations: Level 1 recording in advance of major alterations

PRN 60023 Gwaliau, Agor Boni, Penrhyn Quarry

Grid reference: SH6199365196

Importance: D

Period: Post Medieval

HER Description:

Row of gwaliau between transformer house (PRN 60022) and the incline (PRN60055). Poor condition with only rear wall still standing except for side wall abutting incline. Water channel (PRN 60024) runs along front (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

All traces of these structures have now been removed to make room for a lock-up store near the incline. Near the transformer house there is some revetting of the slate heap that might be the back wall of the gwaliau but there is no evidence that it is any more than normal revetting.

The gwaliau, which ran from c.SH6200465180 to SH6198265209, are shown on the 1900 and 1914 25 inch maps but not on the 1889 map.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60024 Water Channel, Agor Boni, Penrhyn Quarry

Grid reference: SH6194565251 C

Importance: C

Period: Post Medieval

HER Description:

Concrete open water channel; function unknown (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

A channel with slate sides runs S from SH6201865180 following the curve of the level around the base of the slate heap. It has been lost or filled in where it ran NW past the transformer house (PRN 60022) but can be seen running along the NE side of the surviving gwaliau (PRN 60026) to about SH6191165288. The 25 inch maps from 1889 to 1914 show a tramway running exactly along this route and it seems most likely that this channel was a drain or other feature directly related to the tramway rather than isolated drainage.

Condition: Damaged, Fair. Some parts have been destroyed but others survive fairly well

Management recommendations: Avoid or level 1 recording

PRN 60025 Bridge Abutments, Agor Boni, Penrhyn Quarry

Grid reference: SH6199565232

Importance: D

Period: Post Medieval

HER Description:

Carried incline (PRN60055) over Agor Boni. Bridge gone (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

No remains could be seen. Probably buried under dumped slate.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60026 Gwaliau, Agor Boni, Penrhyn Quarry

See plate 17

Grid reference: SH6194465247 C

Importance: B

Period: Post Medieval

HER Description:

Row of four booths, in better condition than PRN60023, with roofs and intermediate walls surviving (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Row of some 13 slate built, dry stone booths running NW-SE. Remnants of roofs comprising un-dressed timbers supporting large slate slabs survive in some instances. The booths appear to vary in size somewhat.

The gwaliau are shown on the 25 inch maps from 1889 to 1914. The 1914 map shows 13 booths.

Condition: Damaged, Fair. Significant collapse but still distinguishable

Management recommendations: Avoid or level 2 recording

PRN 60027 Electricity Substation, Agor Boni, Penrhyn Quarry

See plate 18

Grid reference: SH6194265294

Importance: C

Period: Modern

HER Description:

Constructed out of concrete blocks and rendered; ashlar markings. "Pagoda" design with cupola above hipped roof (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Appears to be built of slate and rendered with the render marked to imitate ashlar. The roof is intact but in poor condition. There are some remains of equipment inside.

Gwyn (2015, 93) claims that this sub-station was built 1920-1, but it appears on the 1914 25 inch map where it is labelled as an electricity sub-station. There is no evidence that the transformer house (PRN 60022) was built by that date, so presumably it worked in association with another transformer house.

Condition: Intact, Fair. Fairly good condition but roof in poor condition likely to deteriorate

Management recommendations: Avoid or level 2 recording

PRN 60028 Weighbridge House, Agor Boni, Penrhyn Quarry

Grid reference: SH6192854292

Importance: C

Period: Post Medieval

HER Description:

Roof fallen but otherwise survives intact. Concrete pit, but no machinery. Small extension at north end (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

A small slate building with a chimney and fireplace with mantelpiece intact. There is a toilet on the NW end. Outside, on the NE side of the building, is the pit for the weighbridge and the pit extends into the building.

Condition: Near Intact, Fair. Most of the slates on the roof are either loose or lost but otherwise the building is well preserved.

Management recommendations: Avoid or level 2 recording

PRN 60029 Wagon, Agor Boni, Penrhyn Quarry

Grid reference: SH6207465267

Importance: C

Period: Post Medieval

HER Description:

2' gauge wagon for locomotive coal, end-loading (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

A wagon was recorded at SH6193054300 by Davidson and Gwyn (1995) but it is no longer at that location. The wagon is probably the one that is now displayed at the grid reference given.

Condition: Near Intact, Good. Good condition, now displayed for visitors

Management recommendations: Maintain as a display item

PRN 60030 Corbelled Arch, Agor Boni, Penrhyn Quarry

Grid reference: SH6190765294

Importance: C

Period: Post Medieval

HER Description:

Triangular corbelled arch takes water channel (PRN 60024) through incline (PRN60036) (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

NW-SE orientated corbelled arch. This would have taken a tramway under the incline not just a waster channel.

Condition: Intact, Good. Good. Complete, no collapse

Management recommendations: Avoid or level 1 recording

PRN 60031 Structure, Agor Boni, Penrhyn Quarry

Grid reference: SH6193865325

Importance: C

Period: Post Medieval

HER Description:

Round plan; foundations only (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

D-shape foundations of small structure, max height 1m, c. 2m diameter. Dry stone, slate built.

Condition: Damaged, Poor. Foundations only

Management recommendations: Avoid or level 1 recording

PRN 60032 Building, Agor Boni, Penrhyn Quarry

Grid reference: SH6196665268

Importance: C

Period: Post Medieval

HER Description:

Rectangular structure 11m by 5m, divided into two rooms. Ruinous - walls stand c 1.5m high max. Unknown function (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Small slate built structure aligned NE to SW, with 2 rooms and an extension on the NE end. There are doors in the NE and SW ends of the building and between the two rooms. The building is shown on the 25 inch maps from 1889 to 1914 but is longer in 1889 than later.

Condition: Damaged, Poor. Collapsed building with no roof and walls up to 1m high. Becoming overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60033 Shelter, Agor Boni, Penrhyn Quarry

Grid reference: SH6195965284

Importance: C

Period: Post Medieval

HER Description:

Small rectangular structure with monopitch roof. No windows, single door. Unknown function (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Small slate building with monopitch roof made of large slate slabs. There is a blocked window and a door on the E side. The building is shown on the 1889 and 1900 25 inch maps but not on the 1914 map although its condition suggests that it was still in use then, and was certainly standing.

Condition: Intact, Good. Good condition. Some slight damage to the roof but generally sound

Management recommendations: Avoid or level 1 recording

PRN 60034 Bridge Abutments, Ponc y Lefel, Penrhyn Quarry

Grid reference: SH6190265255

Importance: C

Period: Post Medieval

HER Description:

Abutments only survive. Carried Ponc y Lefel tramway over incline (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

High revetment walls supporting sides of a deep gap in the tramway level where the incline cuts through it. These would have supported a bridge to take the

tramway over the incline. The revetments/bridge abutments are quite well preserved and projecting stones are visible at the start of the bridge. Shown on 25 inch maps from 1889 to 1914.

Condition: Damaged, Fair. Little trace of the bridge remains but the abutments are fairly well preserved

Management recommendations: Avoid or level 1 recording

PRN 60035 Incline Drumhouse, Twllydyndwr, Penrhyn Quarry

Grid reference: SH6188165174

Importance: B

Period: Post Medieval

HER Description:

Well-preserved structure, roofed, contains base for electric motor on first floor, accessed by staircase. No machinery (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Two storey slate-built winder house with a slate clad hipped roof supported by a pair of simple collar beam trusses. External slate steps run southwards up to a 1st floor door in the N elevation. Partial concrete first floor providing base for electric motor. Single small window in W wall on 1st floor. Shown on 25 inch maps from 1889 to 1914.

Condition: Near Intact, Good. Roof survives and concrete floor. Generally in good condition

Management recommendations: Avoid or level 2 recording

PRN 60036 Incline, Twllydyndwr to Red Lion, Penrhyn Quarry

Grid reference: SH6189865243

Importance: B

Period: Post Medieval

HER Description:

Incline powered by PRN60035. Good condition but heavily overgrown (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Incline built of large slate blocks with archways where tramways crossed under it. Still survives most of its original length from drum house (PRN 60035) down to Agori Boni level. It originally continued down the Red Lion level but that end has been removed. One of the most complete inclines in the quarry. Shown on 25 inch maps from 1889 to 1914.

Condition: Near Intact, Good. Good condition but heavily overgrown, with trees growing on the trackbed, which will cause problems in the future.

Management recommendations: Avoid or level 2 recording

PRN 60037 Bridge Abutments, Twllydyndwr, Penrhyn Quarry

Grid reference: SH6189165210

Importance: C

Period: Post Medieval

HER Description:

Abutments only, no bridge survives (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

High revetment walls supporting sides of a deep gap in the tramway level where the incline cuts through it. These would have supported a bridge to take the

tramway over the incline. The revetments/bridge abutments are quite well preserved and one timber of the bridge survives. Shown on 25 inch maps from 1889 to 1914.

Condition: Damaged, Fair. Little trace of the bridge remains but the abutments are fairly well preserved

Management recommendations: Avoid or level 1 recording

PRN 60038 Locomotive Shed, Twllyndwr, Penrhyn Quarry

Grid reference: SH6189665173

Importance: C

Period: Post Medieval

HER Description:

Single road locomotive shed with coal siding leading into lean-to structure. Now roofless, but walls remain to eaves height. Inspection pit evident (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

NE-SW orientated, single storey slate built gabled structure with a wide opening in the NE gable and central inspection pit in floor. Small extensions with single pitched roofs have been added to either elevation. The SE extension retains some machinery associated with the adjacent water tank (PRN 60039). Shown on 25 inch maps from 1889 to 1914, although slightly different plan in 1889. A tramway is shown running from the shed but nothing of that can be seen today.

Condition: Damaged, Fair. Roofless, but walls mostly remain to eaves height, badly overgrown

Management recommendations: Avoid or level 1 recording

PRN 60039 Water Tank, Twllyndwr, Penrhyn Quarry

Grid reference: SH6189165162

Importance: C

Period: Post Medieval

HER Description:

Large water tank situated on a slate plinth, derives from PRN60078 (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Tank built of a mixture of wood and metal panels. Shown on 25 inch maps from 1889 to 1914, and labelled as a tank on 1914 map.

Condition: Intact, Fair. Some rot to wood panels but remains in use

Management recommendations: Avoid or level 1 recording

PRN 60040 Weighbridge House, Twllyndwr, Penrhyn Quarry

Grid reference: SH6189365136

Importance: D

Period: Post Medieval

HER Description:

Probable weighbridge, though no machinery or pit survives. May have been converted into an office. Small rectangular structure with chimney in end gable and a lean-to addition on longitudinal side with dual entry porch to original structure and lean-to (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Area completely levelled. No trace of building.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60041 Locomotive Shed, Twllyndwr, Penrhyn Quarry

Grid reference: SH6188565074

Importance: D

Period: Post Medieval

HER Description:

Survives to eaves height, but roof collapsed. Lean-to coal siding. Inspection pit survives. Overlies large ruined building (PRN60043) on south side, of unknown function (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Area partly levelled, partly under slate heap.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60042 Circular Blast Shelter, Twllyndwr, Penrhyn Quarry

Grid reference: SH6189165093

Importance: D

Period: Post Medieval

HER Description:

Circular structure, assumed to be blast shelter. Ruinous condition, wall remains to a height of 2m on south side, but only to foundation level on north (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Area completely levelled. No trace of building.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60043 Structure, Twllyndwr, Penrhyn Quarry

Grid reference: SH6188165064

Importance: D

Period: Post Medieval

HER Description:

Almost entirely demolished. Underlies PRN60041 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under slate heap

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60044 Water Channel, Twllyndwr, Penrhyn Quarry

Grid reference: SH6183065011

Importance: D

Period: Post Medieval

HER Description:

Stone-lined water channel. Purpose unknown (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under slate heap

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60045 Smithy, Twllyndwr, Penrhyn Quarry

Grid reference: SH6187565031

Importance: D

Period: Post Medieval

HER Description:

Now roofless, front wall collapsed, but remainder survives to eaves height. Hearth in rear longitudinal wall. Additional room to left or front (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under slate heap

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60046 Structure, Twllyndwr, Penrhyn Quarry

Grid reference: SH6195065050

Importance: D

Period: Post Medieval

HER Description:

Concrete mounting, 6m long, 1.5m wide, 2.6m high. Hole through centre bottom with two cams on one spindle, possibly used for tensioning blondin cables on PRN60047 and PRN60050 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under small slate heaps at edge of levelled area

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60047 Blondin Motor Shed, Twllyndwr, Penrhyn Quarry

Grid reference: SH6196065053

Importance: D

Period: Post Medieval

HER Description:

Survives to eaves height. Monopitch roof collapsed. Large horizontal opening towards concrete platform (PRN60050) (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under small slate heaps at edge of levelled area

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60048 Blondin Motor Shed, Twllyndwr, Penrhyn Quarry

Grid reference: SH6194265049

Importance: D

Period: Post Medieval

HER Description:

Slightly larger than PRN60047, roofed. Machine bases survive but no ironwork. Possibly also housed a compressor (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under small slate heaps at edge of levelled area

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60049 Compressed Air Pipe, Twllyndwr, Penrhyn Quarry

Grid reference: SH6191265047

Importance: D

Period: Modern

HER Description:

NMR Description (NPRN 0):

Notes for current project:

Under slate heap

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60050 Platform, Twlldyndwr, Penrhyn Quarry

Grid reference: SH6196165055

Importance: D

Period: Post Medieval

HER Description:

Strongpoint for blondin ropeway system. Large concrete platform, connected with PRN60047 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under small slate heaps at edge of levelled area

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60051 Platform, Twlldyndwr, Penrhyn Quarry

Grid reference: SH6194965047

Importance: D

Period: Post Medieval

HER Description:

Strongpoint for blondin ropeway system. Large concrete platform, connected with PRN60048 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Under small slate heaps at edge of levelled area

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60052 Water Channel, Twlldyndwr, Penrhyn Quarry

Grid reference: SH6193365058

Importance: D

Period: Post Medieval

HER Description:

Shallow, slate-walled channel (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Area completely levelled. The channel was related to a tramway.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60053 Weighbridge House and Pit, Twlldyndwr, Penrhyn Quarry

See plate 19

Grid reference: SH6191565195

Importance: C

Period: Post Medieval

HER Description:

Roofed structure. Pit and part of the balance mechanism survive (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

A small building, alignment NW-SE, with a fireplace and chimney with a toilet on the NW end. The toilet building has one wall made of 2 large slate slabs. There is also a small structure on the SW end the corner of which has collapsed. The roof on the main building is damaged with half the slates lost and the roof of the toilet has been lost completely. There is a weighbridge pit outside on the NE side extending inside the building. Remains of the balance mechanism survive in the pit.

Condition: Near Intact, Fair. The roof is in a poor condition, with half the slates gone, but the rest of the building is in a fair condition. The toilet has also lost its roof.

Management recommendations: Avoid or level 1 recording

PRN 60054 Retaining Wall, Penrhyn Quarry

Grid reference: SH6192865219 C

Importance: C

Period: Post Medieval

HER Description:

Impressive slate built bastion. Accommodates incline (PRN60055) at SE end (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Slightly curving retaining slate wall

Condition: Near Intact, Good. Good

Management recommendations: Avoid or level 1 recording

PRN 60055 Incline, Red Lion to Twllydyndwr, Penrhyn Quarry

See plate 20

Grid reference: SH6194865200 C

Importance: C

Period: Post Medieval

HER Description:

A transporter (trwnc) incline, water-balanced, steeply graded, for uphaulage of rubble from water balance shafts PRN60010 and PRN60013 to the Twllydyndwr tips (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

Substantial slate-built incline. Shown on 25 inch maps from 1889 to 1914. Lower part of incline no longer survives.

Condition: Damaged, Fair. What survives is well-preserved, though somewhat overgrown

Management recommendations: Avoid or level 1 recording

PRN 60056 Bridge Abutments, Twllydyndwr, Penrhyn Quarry

Grid reference: SH6187065285

Importance: C

Period: Post Medieval

HER Description:

Abutments only survive. Carried incline (PRN60090) over Twllydyndwr tramway (Gwyn and Davidson 1995).

NMR Description (NPRN):**Notes for current project:**

The original grid reference given for this was SH6184065282, but compared to the plan in Davidson and Gwyn 1995 this is incorrect and the location is probably close

to the new grid reference given. Due to the confusion over the grid reference this site was not closely inspected but APs suggest the bridge abutments are seriously damaged.

Condition: Near Destroyed, Very Bad. NW abutment probably lost, SE abutment may survive

Management recommendations: Avoid or level 1 recording

PRN 60057 Structure, Ponc Blue, Penrhyn Quarry

Grid reference: SH6190564840

Importance: D

Period: Post Medieval

HER Description:

Ruinous rectangular structure, walls survive up to 2m high in one corner. Possibly caban (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60058 Tunnel, Ponc Blue, Penrhyn Quarry

Grid reference: SH6190364912

Importance: C

Period: Modern

HER Description:

Tunnel for tramway to take slate through ridge of bastard slate (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

The tunnel probably survives but is inaccessible and could not be inspected. The NW end is certainly buried under slate waste but the SE end may still be exposed. Shown on 1914 25 inch map but not earlier.

Condition: Not known, Uncertain. Probably still surviving but partially buried

Management recommendations: No recommendations

PRN 60059 Smithy, Ponc Blue, Penrhyn Quarry

Grid reference: SH6184064953

Importance: D

Period: Post Medieval

HER Description:

Standing to eaves height but roofless, though chimney survives. Central door with single (blocked) front window. Hearth centre rear (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60060 Bridge Abutments, Ponc Blue, Penrhyn Quarry

Grid reference: SH6183864975

Importance: D

Period: Post Medieval

HER Description:

Bridge now gone, but abutments stand some 4m high (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60061 Gwaliau, Ponc Blue, Penrhyn Quarry

Grid reference: SH6180765016

Importance: D

Period: Post Medieval

HER Description:

Row of eight booths; roof collapsed but walls still standing - c. 1.5m at rear and sloping up to front. Each measures 4.8m wide by 3.2m deep. Small alcoves in at least one side wall in each booth (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60062 Gwaliau, Ponc Blue, Penrhyn Quarry

Grid reference: SH6178865074

Importance: D

Period: Post Medieval

HER Description:

Five booths and associated stackyard, as PRN60061 but with some roofs surviving (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Under haul road

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60063 Structure, Ponc Blue, Penrhyn Quarry

Grid reference: SH6181265061

Importance: D

Period: Post Medieval

HER Description:

Ruinous structure of uncertain function (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60064 Weighbridge House, Ponc Blue, Penrhyn Quarry

Grid reference: SH6182165029

Importance: D

Period: Post Medieval

HER Description:

Remains of weighbridge house with concrete weighbridge pit. No machinery surviving (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60065 Bridge, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6180664947

Importance: D

Period: Post Medieval

HER Description:

Bridge over incline (PRN60076) timber supports across slate buttresses with slate bed (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60066 Gwaliau, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6176064996

Importance: D

Period: Post Medieval

HER Description:

Ruinous structures (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Under haul road

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60067 Weighbridge House, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6176165057

Importance: D

Period: Post Medieval

HER Description:

Structure only survives. No machinery (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60068 Blast Shelter, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6184264916

Importance: D

Period: Post Medieval

HER Description:

Circular plan with square porch, c 5m diameter. Heavy slate pitched roof supported on timber beams (Gwyn and Davidson 1995).

NMR Description (NPRN 0):**Notes for current project:**

Photograph on Coflein (NPRN 40564, photo ref. DI2013_0683), dated 1985.

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60069 Blast Shelter, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6184964909

Importance: D

Period: Post Medieval

HER Description:

Adjacent and similar to PRN60068. There is a central upright wooden support (possibly secondary) (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Photograph on Coflein (NPRN 40564, photo ref. DI2013_0683), dated 1985.

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60070 Structure, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6186964901

Importance: D

Period: Post Medieval

HER Description:

Possible shelter. Monopitch roof (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60071 Rock Cannon, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6187864818

Importance: D

Period: Post Medieval

HER Description:

Situated on lip of working gallery, partially destroyed by quarrying. Thirteen holes and connecting firing channels survive (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Jones (2002) Appendix A No. 181. 30 holes, with channels. Part of cannon had been quarried away.

Now buried under slate waste heaps.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60072 Tunnel, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6187464859

Importance: D

Period: Post Medieval

HER Description:

Through bastard slate; to accommodate tramway (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps. The tunnel may survive under the slate waste but it is completely and deeply buried.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60073 Gwaliau, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6187764959

Importance: D

Period: Post Medieval

HER Description:

Four booths, walls remaining up to 1m high, and associated stackyard (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60074 Compressed Air Pipes, Ponc William Owen Level, Penrhyn Quarry

Grid reference: SH6188864935

Importance: D

Period: Post Medieval

HER Description:

Running alongside water pipes, approx. 4" diameter (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60075 Incline Drumhouse, Ffridd Level, Penrhyn Quarry

Grid reference: SH6173864890

Importance: D

Period: Post Medieval

HER Description:

Possibly a very early drumhouse which may date from the first application of rail transport to Ffridd level. Its relative antiquity is suggested by the fact that it is largely built out of country rock rather than slate. It is on the "through" pattern, with drum and brake intact. It was supplanted by PRN60087, a more modern drumhouse (c. 1912 ?). The house is in poor condition and structurally unstable (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60076 Incline, Ffridd Level to Twllyndwr, Penrhyn Quarry

Grid reference: SH6176664914

Importance: D

Period: Post Medieval

HER Description:

Counterbalance incline formation in good condition (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60077 Bridge, Ffridd Level, Penrhyn Quarry

Grid reference: SH6175664903

Importance: D

Period: Post Medieval

HER Description:

Slate abutments for bridge over PRN60076 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60078 Water Supply System, Ffridd Level to Red Lion, Penrhyn Quarry

Grid reference: SH6172464880

Importance: D

Period: Post Medieval

HER Description:

Water supply system from Llyn Owen y Ddol to Red Lion emerges from underneath tips at Ponc Holywell. Intermediate tank situated at Ffridd level. Water carried in cast iron pipes approx. 5" diameter (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60079 Caban, Ffridd Level, Penrhyn Quarry

Grid reference: SH6172164919

Importance: D

Period: Post Medieval

HER Description:

Now roofless rectangular structure for use by locomotive men (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60080 Lavatory Block, Ffridd Level, Penrhyn Quarry

Grid reference: SH6171064955

Importance: D

Period: Post Medieval

HER Description:

Monopitch rectangular structure built of slate. Roof now missing. Internal slate fittings still present (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60081 Caban, Ffridd Level, Penrhyn Quarry

Grid reference: SH6174564879

Importance: D

Period: Post Medieval

HER Description:

Rectangular monopitch structure, now in use as a storeshed. For mill workers (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60082 Mill, Ffridd Level, Penrhyn Quarry

Grid reference: SH6181364877

Importance: D

Period: Post Medieval

HER Description:

Longitudinal pattern roofing-slate mill, now roofless. Steel roof trusses survive, as do slate walls, concrete pillars, site of central electric motor apparent. Probably built for central saw tables. No evidence of mechanical dressers, suggesting that hand-trimming with cyllell bach survived here (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60083 Weighbridge House, Ffridd Level, Penrhyn Quarry

Grid reference: SH6183864824

Importance: D

Period: Post Medieval

HER Description:

Slate-built with pitched roof. Building survives, although roof partly missing. Concrete bridge-pit, but no machinery (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60084 Shelter, Ffridd Level, Penrhyn Quarry

Grid reference: SH6182464887

Importance: D

Period: Post Medieval

HER Description:

Small slate-built structure with monopitch roof. Entrance through corner (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60085 Structure, Ffridd Level, Penrhyn Quarry

Grid reference: SH6186664800

Importance: D

Period: Post Medieval

HER Description:

Rectangular structure with monopitch roof, now with most slates missing. Probably originally weighbridge house, although later converted to shelter / caban (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60086 Belfry, Ffridd Level, Penrhyn Quarry

Grid reference: SH6187464792

Importance: D

Period: Post Medieval

HER Description:

Wooden framework c. 3m high used to support bell preserved in quarry office. Used to warn before blasting (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60087 Winding House, Ffridd Level, Penrhyn Quarry

Grid reference: SH6170065180

Importance: D

Period: Post Medieval

HER Description:

Large incline winding house with a first floor capable of holding an electric motor to power a haulage drum. Possibly allowed for both counterbalance and uphaulage. No machinery, and now roofless. PRN60035 is a similar and better example (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60088 Brakesman's Shelter, Ffridd Level, Penrhyn Quarry

Grid reference: SH6170565172

Importance: D

Period: Post Medieval

HER Description:

Small slate-built shelter for men operating PRN60087 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60089 Structure, Ffridd level, Penrhyn Quarry

Grid reference: SH6176065058

Importance: D

Period: Post Medieval

HER Description:

Ruinous structure, south of PRN60087. May have been a weighbridge (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Buried under slate waste heaps

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60090 Incline, Ffridd Level to Red Lion Level, Penrhyn Quarry

Grid reference: SH6188465304

Importance: C

Period: Post Medieval

HER Description:

A large double-track incline in good condition (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The original grid reference given for this was SH6183865286, but compared to the plan in Davidson and Gwyn 1995 this is incorrect and the location is probably close to the new grid reference given. Due to the confusion over the grid reference this site was not closely inspected but APs suggest the some trace of the lower part of the incline survives.

Condition: Damaged, Poor. Some remains of lower part of incline survive but upper part completely destroyed

Management recommendations: Avoid or level 1 recording

PRN 60091 Caban, Ffridd Level, Penrhyn Quarry

Grid reference: SH6170065209

Importance: D

Period: Post Medieval

HER Description:

Slate-built structure with mono-pitch roof. For labourers working the tip-run (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60092 Horizontal Sheave, Ponc Smith, Penrhyn Quarry

Grid reference: SH6168464822

Importance: D

Period: Post Medieval

HER Description:

Horizontal incline haulage sheave, protected by small mono-pitch shelter. Does not appear large enough to have been primary sheave; possibly this hauled wagons on an incline parallel to PRN60094 to the level below Holywell (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60093 Corbelled Arch, Ponc Smith, Penrhyn Quarry

Grid reference: SH6167864829

Importance: D

Period: Post Medieval

HER Description:

A corbelled arch, carries incline PRN60094 over Ponc Smith level (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60094 Incline, Holywell Level to Ffridd Level, Penrhyn Quarry

Grid reference: SH6165064800

Importance: D

Period: Post Medieval

HER Description:

Counterbalance incline. Survives intact (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60095 Winding House, Holywell Level, Penrhyn Quarry

Grid reference: SH6164464790

Importance: D

Period: Post Medieval

HER Description:

Served incline PRN60094. Through pattern. In very poor condition (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60096 Office, Holywell Level, Penrhyn Quarry

Grid reference: SH6165364781

Importance: D

Period: Post Medieval

HER Description:

Marker's office, with the word "Holywell" on the lintel, and the date "July 1894" on the internal plasterwork. Roofed (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60097 Structure, Holywell Level, Penrhyn Quarry

Grid reference: SH6165364768

Importance: D

Period: Post Medieval

HER Description:

Ruinous. Possibly shelter (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Destroyed or buried under slate waste.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60128 Winding House, Penrhyn Quarry

Grid reference: SH6264065081

Importance: C

Period: Post Medieval

HER Description:

Large winding house with a first floor capable of holding an electric motor to power a haulage drum.

Possible allowed for both counterbalance and uphaulage (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Tall slate-built structure, aligned NW-SE, with a small structure on the NW end.

There are slate steps up the SW side of the structure to the top. Shown on 1900 and 1914 25 inch maps but not 1889.

Condition: Near Intact, Fair. The upper floor has partly collapsed and it is roofless but fairly well-preserved.

Management recommendations: Avoid or level 2 recording

PRN 60129 Incline, Penrhyn Quarry

Grid reference: SH6263265109

Importance: C

Period: Post Medieval

HER Description:

Incline formation, top end of trace only survives (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Fairly short section of incline (c.40m long) running NW down from the winding house. Lower part of incline completely destroyed. Shown on 1900 and 1914 25 inch maps but not 1889.

Condition: Damaged, Poor. Surviving section in good condition but rest of incline destroyed

Management recommendations: Avoid or level 1 recording

PRN 60130 Shelter, Remains of, Penrhyn Quarry

Grid reference: SH6258165118

Importance: C

Period: Post Medieval

HER Description:

Gwaliau in ruinous condition, in danger of collapse (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Three gwaliau booths in a line aligned W-E. These have no roofs but the walls generally survive to nearly full height. Some of the fallen roof slabs can be seen leaning against the walls. Shown on 1900 and 1914 25 inch maps but not 1889. The 1914 shows 17 booths, most to the W of the surviving structures but at least 1 may have been to the E.

Condition: Damaged, Poor. Walls are fairly well-preserved but are starting to collapse. Ground is very unstable in this area and further collapse is likely. These are only 3 of the original 17 booths.

Management recommendations: Avoid or level 1 recording. Unstable ground makes detailed recording dangerous.

PRN 60131 Weighbridge House, Penrhyn Quarry

Grid reference: SH6260665114

Importance: D

Period: Post Medieval

HER Description:

Structure survives, but no machinery (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Nothing survives at this grid reference. The area seems to have been levelled and allowed to revegetate.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60132 Structure, Penrhyn Quarry

Grid reference: SH6255465105

Importance: D

Period: Post Medieval

HER Description:

Ruinous, of unknown function (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

The grid reference places this in a dangerous and inaccessible area. Nothing could be seen from a distance and the recent APs suggest that this building has been destroyed.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60133 Mill, Penrhyn Quarry

Grid reference: SH6261865047

Importance: C

Period: Post Medieval

HER Description:

Transverse pattern roofing-slate mill. In ruinous condition, with walls surviving to eaves height in places (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Slate-built building orientated NW-SE. Gabled single storey structure. NE gable has fallen off cliff edge. There are 2 doors in the SE elevation. This mill was not shown on the 1914 25 inch map or any earlier ones and was of 20th century date.

Condition: Damaged, Poor. SE gable stands to full height, NE gable absent, no roof. Side walls generally stand to full height but there are serious cracks as the building subsides.

Management recommendations: Avoid or level 1 recording, NB the area is unstable and dangerous

PRN 60134 Mill, Penrhyn Quarry

Grid reference: SH6261665016

Importance: C

Period: Post Medieval

HER Description:

Transverse pattern roofing-slate mill - as PRN60133 (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

5

Condition: Near Destroyed, Very Bad. Very ruinous and overgrown

Management recommendations: Avoid or level 1 recording

PRN 60135 Mill, Penrhyn Quarry

Grid reference: SH6262265219

Importance: D

Period: Post Medieval

HER Description:

Transverse pattern roofing-slate mill as PRN60133 (Gwyn and Davidson 1995).

NMR Description (NPRN 0):

Notes for current project:

Nothing can be seen at the grid reference originally given (SH6257065018), although the area could not be accessed because it is very dangerous. There is no evidence of a third mill in this area. Only two mills are shown on the Davidson and Gwyn 1995 plan. There was a mill at c.SH6262265219 but this area is entirely covered with slate heaps and anything that was there has been demolished.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60136 Incline, Remains of, Penrhyn Quarry

Grid reference: SH6258264901 C

Importance: C

Period: Post Medieval

HER Description:

Only part of formation survives (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Much of the incline is destroyed or damaged but there is a well-preserved section surviving at the grid reference given. This is built of large slabs of undressed slate and runs downwards towards the NE. On the NW side are overhanging eaves as if a wider trackbed was supported at one point. The SW end of this part of the incline splays outwards and this plan is reflected on the 1889 map where a bridge over a tramway was present before the incline was built. This splayed masonry is almost certainly the remains of this earlier bridge. Another section of the same incline survives around SH6255464856. The upper part of this is built of large slate slabs but this ends in a vertical joint and the lower part of the incline is built of much smaller slate pieces. This joint coincides with the end of a bridge shown on the

1889 map, similar to the one lower down. The smaller stones were used when the incline itself was built, reusing the bridge as part of the structure.

The incline is shown on the 1900 and 1914 25 inch maps but not on the 1889 map which shows a short bridge.

A small square slate footing was noted at SH6259664935.

Condition: Damaged, Poor. Largely destroyed but one section is still well preserved including traces of pre-incline structure. Severely overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60137 Corbelled Arch, Penrhyn Quarry

Grid reference: SH6258564904

Importance: C

Period: Post Medieval

HER Description:

Through incline PRN60136 (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

Well-preserved arch through incline to take a tramway under the incline. Tramway shown running under incline on 1900 and 1914 25 inch maps. On the 1889 map the tramway runs under a short bridge and it is almost certain that the arch dates from this period and the bridge has been incorporated into the later incline.

Condition: Intact, Good. Well preserved

Management recommendations: Avoid or level 1 recording

PRN 60138 Corbelled Arch, Penrhyn Quarry

Grid reference: SH6254964848

Importance: C

Period: Post Medieval

HER Description:

Through incline PRN 60136 (Gwyn and Davidson 1995).

NMR Description (NPRN):

Notes for current project:

A short section of incline PRN 60136 survives with an arch running through it that would have taken a tramway under the incline. The incline here has different phases of build and the arch belongs to the first phase, which the 1889 25 inch map shows was actually a short bridge, later incorporated into the incline.

Condition: Near Intact, Fair. The arch is well-preserved but the W half is filled in. Obscured by a small willow tree.

Management recommendations: Avoid or level 1 recording

PRN 60373 Enclosure near Penrhyn Quarry

Grid reference: SH60876383

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

An enclosure or paddock, defined by wandering walls. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior is partially cleared of stone. Part of PRN 5380.

A deep drainage channel has been dug clipping the boundary of this paddock and destroying part of it. The drainage channel was dug after the watching brief on the

working in the realignment area was undertaken in 2013 and was not archaeologically monitored.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60374 Enclosure near Penrhyn Quarry

Grid reference: SH60856387

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

An enclosure or paddock, defined by wandering walls. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior is partially cleared of stone. Part of PRN 5380.

A deep drainage channel has been dug which runs just outside this field and seems not to have significantly damaged it. The drainage channel was dug after the watching brief on the working in the realignment area was undertaken in 2013 and was not archaeologically monitored.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60375 Enclosure near Penrhyn Quarry

Grid reference: SH60906390

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

An enclosure or paddock, defined by wandering walls. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior is partially cleared of stone. A narrow passage leads into this enclosure. Part of PRN 5380. Not damaged by quarry realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60376 Enclosure near Penrhyn Quarry

Grid reference: SH6093763907

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

An enclosure or paddock, defined by wandering walls. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior is partially cleared of stone. Part of PRN 5380. Not damaged by quarry realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60377 Enclosure near Penrhyn Quarry

Grid reference: SH60936393

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

An enclosure or paddock, defined by wandering walls. The walls are no more than 0.3m high and consist of roughly piled small stones linking, probably in situ, natural boulders. The interior is partially cleared of stone. Part of PRN 5380. Not damaged by quarry realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60378 Hut circle near Penrhyn Quarry

Grid reference: SH6094463914

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

A small hut circle with an overall diameter of 5.5m is built into the north-eastern wall of enclosure PRN 60376. The hut circle is well defined with piled rubble walls 1.0m thick and an entrance on the northwest. Part of PRN 5380. Not damaged by quarry realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60379 Paddock near Penrhyn Quarry

Grid reference: SH60786390

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

A possible outlying paddock defined by natural scarps. There appears to have been some clearance with stones piled among the natural boulders on the edge of the scarp. Part of PRN 5380. Out of quarry area, not inspected 30/07/2015.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60380 Paddock near Penrhyn Quarry

Grid reference: SH60876393

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):**Notes for current project:**

A possible outlying paddock defined by natural scarps. There appears to have been some clearance with stones piled among the natural boulders on the edge of the scarp. Part of PRN 5380.

A deep drainage channel has been dug which runs through this area. The drainage channel was dug after the watching brief on the working in the realignment area was undertaken in 2013 and was not archaeologically monitored.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60381 Stone pile near Penrhyn Quarry

Grid reference: SH60986394

Importance: C

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

Stone Pile - The stone appears to have been dumped among the natural boulders as opposed to have been made into wandering walls. Part of PRN 5380 (Cooke and Davidson 2010). Fenced off so that it was avoided by 2015 quarry realignment work (McNicol 2015). Not damaged by realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60382 Natural boulders near Penrhyn Quarry

Grid reference: SH6100863946

Importance: NR

Period: Not Applicable

HER Description:

NMR Description (NPRN):

Notes for current project:

Naturally occurring boulders.

On the surface this site appeared to be a small, low sub-circular structure (Cooke and Davidson 2010), however a 2m x 1m trench excavated by GAT in 2010 revealed bed rock or large glacial erratic boulders protruding from the natural glacial till. There was no evidence of deliberate human construction, and there were no associated archaeological deposits (Davidson 2010).

Removed by quarry realignment work.

Condition: Destroyed, Destroyed. Removed by quarry realignment work.

Management recommendations: No recommendations

PRN 60383 Possible hut circle near Penrhyn Quarry

Grid reference: SH6097863976

Importance: A

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

Small hut circle with rough stone built walls on natural glacial boulders. The walls are approximately 0.3m high and the internal diameter measures approximately 3.0m (Cooke and Davidson 2010). Fenced off so that it was avoided by 2015 quarry realignment work (McNicol 2015). Not damaged by quarry realignment.

Condition: Damaged, Fair. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60384 Possible structure near Penrhyn Quarry

Grid reference: SH6094963984

Importance: U

Period: Unknown

HER Description:

NMR Description (NPRN):

Notes for current project:

Possible Prehistoric structure. Roughly circular with stone piling on natural glacial boulders; however the general spread of stone in this area makes identification difficult. The walls are approximately 0.3m high, with internal diameter of approximately 4-5m (Cooke and Davidson 2010).

Probably damaged by drainage channel. Bracken too high to identify site on 30/07/2015.

Condition: Damaged, Poor. Overgrown and denuded, hard to identify.

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60385 Possible structure near Penrhyn Quarry

Grid reference: SH6094463986

Importance: U

Period: Unknown

HER Description:

NMR Description (NPRN):

Notes for current project:

Possible Prehistoric structure. Roughly circular with stone piling on natural glacial boulders; however the general spread of stone in this area makes identification difficult. The walls are approximately 0.3m high, with internal diameter of approximately 4-5m.

A deep drainage channel has been dug which runs through the location of this site. Nothing could be seen at this location and it is assumed that the channel has destroyed the site. The drainage channel was dug after the watching brief on the working in the realignment area was undertaken in 2013 and was not archaeologically monitored.

Condition: Destroyed, Destroyed. Presumed destroyed by digging of drainage channel

Management recommendations: No recommendations

PRN 60386 Cleared area, possible ancient field, near Penrhyn Quarry

Grid reference: SH60996388

Importance: B

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

Level terrace - Possibly cleared. Two trenches were excavated in this area by GAT in 2010. They revealed soft, dark humic soil which ranged from 0.2m -0.3m in depth, and this lay directly over natural glacial till. The lack of subsoil and shallow topsoil combined with poor

drainage suggested the area had never been ploughed. It was concluded that the level terrace, whilst possibly having undergone some clearance, does not bear any evidence for arable cultivation or other occupation (Davidson 2010).

Part of this area has been destroyed by the quarry realignment but only after the recording listed above and a watching brief (McNicol 2013).

Condition: Damaged, Poor. Part of area destroyed by quarry realignment

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60387 Enclosure near Penrhyn Quarry

Grid reference: SH6093063891

Importance: B

Period: Prehistoric

HER Description:

NMR Description (NPRN):

Notes for current project:

In the eastern corner of enclosure PRN 60375 are two linked, roughly built structures with dimensions of 9m x 5m and 2.5m x 2m (Cooke and Davidson 2010).

Not disturbed by quarry realignment.

Condition: Damaged, Fair. Over grown and not clear to see

Management recommendations: Avoid, level 3 recording and excavation recommended if destruction is unavoidable

PRN 60705 Rock cannon, Ffridd Gallery, Penrhyn Slate Quarry

Grid reference: SH61926489

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN 0):

Notes for current project:

Jones's Appendix A No. 180. 55 holes, with channels. Located one gallery directly above No. 181

Buried under recent slate tipping. Too dangerous to access but almost certainly completely buried.

Condition: Destroyed, Destroyed.

Management recommendations: No recommendations

PRN 60706 Ffordd y Lord (the Lord's Road) within the area of Penrhyn Quarry

Grid reference: SH6255064620 C

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Part of Lord Penrhyn's road running up Nant Ffrancon from Ogwen Bridge and now completely obscured under slate heaps.

By 1790-1 Lord Penrhyn had built a road up Nant Ffrancon, extended in 1797 to the site of his hotel at Capel Curig, to be opened in 1798. It ran up the west side of Nant Ffrancon and part of its route is now buried under slate tips. This early road was rapidly replaced by the turnpike road built in 1805 (Hubback 1987, 67, 71; Boyd 1985, 6-7). The lower part of the road between the quarry and Abercegin was built in the 1780s and was used for transporting slates to the port (Boyd 1985, 7). In the area of the quarry the road is shown on the tithe map running from Ogwen Bridge. South of the quarry the cycle track follows the line of the road.

The main function of the road was to carry slates to the port from the quarry and it was an improvement of an earlier track along the W side of the valley. It was replaced for carrying slates by a tramway in 1801 (Gwyn 2015, 213).

The stretch of road that ran through the area of the quarry was destroyed by quarrying activity in the 19th century but its route can be seen beyond the quarry limits.

Condition: Destroyed, Destroyed. Buried by slate heaps and destroyed by quarrying in the 19th century. Nothing now visible in the area of the quarry.

Management recommendations: No recommendations

PRN 60707 Structure E of Penrhyn Quarry Hospital

Grid reference: SH6250165815

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

A group of three small buildings with a small enclosure between. One building is fairly well preserved with walls up to 1m high. It is built of slate with some brick around a wide door in the S wall. A door in the E wall would have led into a small building but almost nothing of this survives. The slate walls of a small enclosure, shown as unroofed on the 1914 map are rougher and less well built than the building walls. To the north of that the remains of the third building are visible only as a level platform.

The buildings in their current plan are shown on the 1914 25 inch map. The main building also appears on the 1900 and 1889 maps but the other smaller structures are different on the earlier maps.

These buildings are presumably related to the hospital but are probably related to the garden rather than medical functions.

Condition: Damaged, Poor. No roofs surviving and walls at max 1m high. Some details are obscured and one building is entirely demolished.

Management recommendations: Avoid or level 1 recording

PRN 60708 Building SE of hospital

Grid reference: SH6248665788

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Single storey rectangular slate built building sub-divided into 5 small rooms that do not appear to have been interconnected.

Shown on 3rd ed 25 inch map but not earlier. Presumably associated with the hospital.

Condition: Damaged, Fair. No roof but walls survive to gable height. Overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60709 Building NW of Bryn Llwyd

Grid reference: SH6238765632

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Single storey slate built rectangular building with a single pitched slate roof. Orientated N-S. Doorway in S gable allows access to 2 small interconnecting rooms with wooden floors, rendered walls and small windows in the E elevation. A low doorway at the E end of the N elevation allows access to a small privy. A double wooden seat survives. This does not appear to be an agricultural building so it is assumed that it is related in some way to the quarry.

Shown on 1889 to 1914 25 inch maps.

Condition: Intact, Good. Very overgrown but roof is intact

Management recommendations: Avoid or level 1 recording

PRN 60710 Tip quarrying, Penrhyn Quarry

See plate 21

Grid reference: SH6241165878

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Gwyn (2015, 74) records that examples of tip quarrying have been noted at SH62286587. This area was inspected but not trace of tip quarrying could be seen. The area appeared to have been recently disturbed and dumped on probably as part of the construction of the adjacent ZipWorld landing platform. However evidence of tip quarrying was seen at SH6241165878 and it is likely that more would be found if the spoil heaps were carefully searched.

The tip quarrying seen comprised a neat sub-circular mound of trimming waste with two slight curving walls or revetments on the N uphill side. One revetment was higher than the other and it appeared to be a shelter wall with a bench below. These walls were partly covered by slate waste but fairly clear to see. The slate heaps only settled into their current form by 1914 (as shown on the 25 inch map) so the tip quarrying is likely to be early 20th century in date.

Condition: Damaged, Fair. Fairly good condition and not too buried or overgrown

Management recommendations: Avoid or level 1 recording

PRN 60711 Building, Penrhyn Quarry

Grid reference: SH6262065084

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Slate-built building aligned E-W, with a fireplace in the main room and a toilet on the E end. The walls mostly survive to full height but are suffering from serious

subsidence. The whole area is very unsafe and the ground could slump up to 20m away from the current cliff edge.

Shown on 1900 and 1914 25 inch maps, but not on 1889 map. An additional room or building has been added on the W end since 1914.

Condition: Damaged, Poor. Roofless but generally fairly well preserved but very unstable. Ground likely to give way and serious cracks due to subsidence visible.

Management recommendations: Avoid or level 1 recording

PRN 60712 Trackway, Gwaen Gynfi

Grid reference: SH60846373 C

Importance: C

Period: Unknown

HER Description:

NMR Description (NPRN):

Notes for current project:

60m to the south-west of the paddocks, a second stretch of trackway, 35m long, runs southwards through rocky ground, with cleared stones piled to either side (Boyle 1993).

The trackway can be seen quite clearly in places at least. It is about 2m wide and has cleared stones roughly built up in places marking its edges.

Condition: Damaged, Poor. Slight and not always easy to see. Rather overgrown.

Management recommendations: Avoid or level 2 recording

PRN 60713 Structure, Penrhyn Quarry

Grid reference: SH6195565016

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Slate built rectangular structure visible on 1947 AP, although apparently not in use then but not shown on 1914 25 inch map.

Not accessible for close inspection but appears to be a fairly high revetted platform with a structure built against the S end.

Condition: Damaged, Fair. Fairly good condition

Management recommendations: Avoid or level 1 recording

PRN 60714 Area of preserved levels, Penrhyn Quarry

Grid reference: SH6199065000 C

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Small area where original levels are visible and quite well-preserved. No safe access for recording. Some original features may survive in this area.

The 25 inch maps suggest these levels have changed only slightly since 1889.

Condition: Near Intact, Fair. Overgrown but essential well-preserved

Management recommendations: Avoid or level 2 recording including detailed search for other features on the levels

PRN 60715 Area of preserved levels, Penrhyn Quarry

Grid reference: SH6219764710 C

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Small area where original levels are visible. No safe access for recording on most of the levels. The levels are well preserved and there is likely to be some structures and other features surviving on them. From a distance wooden ladders can be seen still in place between some of the levels.

Condition: Damaged, Fair. Area of intact levels with probably some features surviving on them including in situ wooden ladders

Management recommendations: Avoid or level 2 recording including detailed search for other features on the levels

PRN 60716 Quarry pit, Penrhyn Quarry

Grid reference: SH6226065225 C

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

The deep pit at the base of the galleries was opened around 1905 (Lewis 1976). It was still in use in the 1980s (AP Lib No. 8606, frames 5286 0183-6) but was flooded by 2003 (Google Earth). A small area of levels that are fairly well-preserved are still above water at the NE end of the pool.

Condition: Damaged, Poor. Mostly flooded

Management recommendations: If surviving levels are to be damaged level 2 recording is recommended including detailed search for other features on the levels

PRN 60717 Leat, Penrhyn Quarry

Grid reference: SH6121664538 C

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Very slight earthwork, just visible on APs but missed on the ground. Almost entirely infilled but would have been an open leat channel. Part of major drain running through the quarry but only surviving in a section south of Llyn Owen y Ddol.

Condition: Damaged, Poor. Almost entirely infilled and very hard to see on the ground

Management recommendations: Avoid or level 1 recording

PRN 60718 Garden at Dolawen (Dol-owen)

Grid reference: SH6301164836 C

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN 86358):

This garden is depicted on the Second Edition Ordnance Survey 25-inch map of Caernarvonshire XII, sheet 10 (1900). Its main elements on that map include parkland and walk. C.H. Nicholas, RCAHMW, 10th August 2006.

Notes for current project:

There is little evidence of a garden on the ground. There is a track through the rocky outcrops leading to the main Dolawen farm and some footpaths. There are some fine old oak trees and this area may have been grazed parkland but there is little evidence of deliberate landscaping.

Condition: Damaged, Uncertain. Not much of a garden seems to have existed but some traces of possible parkland survive

Management recommendations: Avoid or level 1 recording

PRN 60719 Probable greenhouse, Penrhyn Quarry Hospital

Grid reference: SH6248865859

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

A low brick rectangular structure with outer walls no more than 0.3m high. There are lower inner walls or kerbing with a soil-filled space between. Neither inner or outer walls were ever any higher and the outer walls still have bolts for attaching a wooden super-structure. This appears to be the base of a greenhouse within the grounds of the Quarry Hospital. This structure is shown on the 1914 25 inch map but not on earlier maps. The hospital grounds did not cover this area in 1900.

Condition: Damaged, Poor. Superstructure destroyed but brick base survives well. Somewhat overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60720 Penrhyn Quarry Hospital Grounds

Grid reference: SH6247865827 C

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Traces of the layout of the hospital garden and grounds survive. Some paths can be seen and some small structures survive. The greenhouse has been recorded as PRN 60719 but other structures shown on the maps may survive but have not been recorded. The garden is surrounded by a well-built slate wall. The 1889 25 inch map shows an oval enclosure around the hospital with numerous paths and conifer trees planted within it. The 1900 map shows a small extension to the N and the 1914 shows a larger extension to the N and a loss of the original oval boundary.

Some ornamental and fruit trees still survive in the garden.

Condition: Damaged, Poor. Very overgrown and difficult to see many features.

Management recommendations: Avoid or level 1 recording

PRN 60721 Trackway from Penrhyn Quarry Hospital

Grid reference: SH6247265868 C

Importance: D

Period: Post Medieval

HER Description:**NMR Description (NPRN):****Notes for current project:**

Trackway running from the hospital to the school. Revetted on one side by a wall up to 2m high to hold back the slate heaps. Track appears on 25 inch OS maps from 1889 but the slate heaps only extend up to it on the 1914 map so the revetment is early 20th century in date.

Condition: Near Intact, Fair. Some wall collapse but general good condition. Still seems to be in use.

Management recommendations: Avoid or level 1 recording

PRN 60722 Caban, Penrhyn Quarry

See plates 22 and 23

Grid reference: SH6228064718

Importance: C

Period: Modern

HER Description:**NMR Description (NPRN):****Notes for current project:**

Well preserved caban, built of slate, aligned WNW to ESE. The main room has the base for a stove in the centre and fixings for benches and tables around the walls. The roof is of slate and essentially complete. It is supported by whole oak tree trunks with some beech. The interior is plastered and white washed with cribbage scores marked on the wall in pencil. There is an entrance room with boards fixed around the walls probably for coat hooks, and a toilet on the ESE end of the building. There are iron shutters on the outside of the building.

The caban is not shown on the 3rd edition (1914) 25 inch map or on earlier ones so it was built well into the 20th century.

Condition: Near Intact, Fair. Roof largely intact but deteriorating, some shutters are loose. Good condition but vulnerable.

Management recommendations: Avoid or level 2 recording

PRN 60723 Structure, Penrhyn Quarry

Grid reference: SH6227364723

Importance: C

Period: Modern

HER Description:**NMR Description (NPRN):****Notes for current project:**

Small rectangular, slate structure built against rock face. Largely collapsed.

Condition: Damaged, Poor. Largely collapsed. Walls only up to 0.5m high, lots of rubble and no trace of a roof.

Management recommendations: Avoid or level 1 recording

PRN 60724 Structure, Penrhyn Quarry

Grid reference: SH6226764730

Importance: C

Period: Modern

HER Description:**NMR Description (NPRN):****Notes for current project:**

Small, square, slate building, well preserved. Built against a corner in the rock face with open side to NE. Roof of large slates supported by I beams. In the back of the structure is a bench of shelf of slate supported on I beams. There are also slates on the floor. This does not appear to be shown on the 25 inch maps but it is probably too small.

Condition: Near Intact, Good. Well preserved with roof intact.

Management recommendations: Avoid or level 1 recording

PRN 60725 Building, Penrhyn Quarry

Grid reference: SH6228264810

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Square slate building with door in NW side and toilet on NE side. No access for close inspection. Not on 1914 25 inch OS map so fairly late date.

Condition: Damaged, Fair. No roof but walls upstanding

Management recommendations: Avoid or level 1 recording

PRN 60726 Outhouses, Bryn Llwyd

Grid reference: SH6239765611

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Fairly small buildings with pens attached made of large slate slabs. One room/building is open to the SE and the other has a door in the NW side. The wall enclosing the Bryn Llwyd farmyard forms part of the complex.

This is the NW end of the range of outbuildings associated with Bryn Llwyd as shown on the 1914 25 inch map. There is little trace on the ground of the building between these and the main house.

Condition: Damaged, Fair. Roofless but otherwise quite well preserved. Very overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60727 Building, Penrhyn Quarry

Grid reference: SH6189965341

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Small slate built structure surviving in a ruinous condition. The walls stand to a maximum height of 2m, the roof is entirely absent. This structure appears on the 25 inch maps from 1889 to 1914.

Condition: Damaged, Poor. Ruinous with no roof but walls surviving to max height of 2m.

Management recommendations: Avoid or level 1 recording

PRN 60728 Building, Penrhyn Quarry

Grid reference: SH6204265187

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Building made of sawn slate blocks with only one and a half walls standing. There was a very large window in the S end wall with the window frame intact but no glass and a slot or gap beneath it. There are electricity cables outside and insulation where the cables entered the building.

Condition: Near Destroyed, Poor. Largely collapsed with only one wall standing to full height.

Management recommendations: Avoid or level 1 recording

PRN 60729 Blondin base, Penrhyn Quarry

Grid reference: SH6204065166

Importance: D

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Fixing point for the base of a Blondin. It is a concrete pad with iron bolts in it and other fitting adjacent. There are lengths of cable nearby and a short section of slate walling on the quarry edge.

Condition: Damaged, Fair. Overgrown with moss and all superstructure removed but base is in reasonable condition

Management recommendations: Avoid or level 1 recording

PRN 60730 Concrete pad, Penrhyn Quarry

Grid reference: SH6196865249

Importance: D

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Rectangular concrete pad over a slate base only 0.4m high. No evidence of a superstructure. Function unknown. This does not appear on the 1914 map and must be later.

Condition: Near Intact, Fair. Good condition

Management recommendations: Avoid or level 1 recording

PRN 60731 Building, Penrhyn Quarry

Grid reference: SH624576573

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Building shown on 1889 to 1914 25 inch maps. Paths from it lead towards Bryn Llwyd and it is probably related to the farm rather than the quarry. Modern APs show heaps of material in this area, confirmed by a survey provided by Welsh Slate. This site was not inspected on the ground on 30/07/2015 due to dense

vegetation and confusion about which site was which but it is likely that the building has been largely or entirely destroyed.

Condition: Near Destroyed, Very Bad. Probably destroyed or nearly destroyed

Management recommendations: Avoid or level 1 recording

PRN 60732 Aqueduct, Penrhyn Quarry

Grid reference: SH6267465374 C

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Channel, rock-cut in parts and built up elsewhere. Lined with concrete in places. A slate footbridge crosses it next to an iron gate across it with a mechanism with a screw thread and a long iron pole, which may have operated the sluice in the weir. There is an aqueduct shown on the 1900 and 1014 25 inch maps taking water from the weir, but this runs to the S of PRN 60732. At some point after 1914 the aqueduct has been realigned, although it still seems to be taking water from the same sluice on the weir. PRN 60732 is this later realigned later aqueduct and it is related to tank PRN 5696. Little of the earlier aqueduct seems to have survived.

Condition: Damaged, Fair. Generally well preserved where it survives but parts have been lost including the section up to the weir

Management recommendations: Avoid or level 1 recording

PRN 60733 Trackway, Penrhyn Quarry

Grid reference: SH6150065161 C

Importance: D

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Track running up spoil heap into quarry. Blocked off with large boulders. Slate revetment on one side and line of boulders along track edge on the other. Surface of track grassed over. Appears of some antiquity but recent APs show that it is a very modern quarry track recently closed and grown over.

Condition: Near Intact, Fair. Blocked off but quite well-preserved and not overgrown.

Management recommendations: Avoid or level 1 recording

PRN 60734 Building near Braich y Gwair

Grid reference: SH6145265540

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

A small building with other structures attached. The main building, which is nearly square in plan, could be a small dwelling with the attached structures being pens and sheds. However the middle structure has what appears to be a wheel pit in the floor although no fixings for a wheel are visible and there is no leat to feed a water wheel.

The buildings are constructed of field stone but with large slate slabs forming some of the pens and walls.

The building is on the 25 inch maps from 1889 and is clearly part of the Braich y Gwair farmstead, but presumably has a specific function.

Condition: Damaged, Fair. No roof but most of the walls are upstanding though there has been some collapse.

Management recommendations: Avoid or level 1 recording

PRN 60735 Quarry wagons, near Braich y Gwair

Grid reference: SH6151065416

Importance: D

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

The remains of two quarry wagons survive at the base of the spoil heap. They are upside down and partly buried in the ground. Their wheels have been lost but they are still fairly solid and otherwise complete.

Condition: Damaged, Poor. Wheels lost and wagons are upside down partly buried in the ground. Vulnerable to rust.

Management recommendations: Avoid or level 1 recording

PRN 60736 Structure W of hospital

Grid reference: SH6244065840

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Small derelict structure to the W of the main hospital building, and adjacent to the cycle track. It is built of drystone slate and the walls survive to a max. height of 1.5m.

Not shown on 1914 25 inch map or on earlier maps, so presumably fairly late in date.

Condition: Damaged, Fair. No roof but walls survive fairly well

Management recommendations: Avoid or level 1 recording

PRN 60738 Revetment wall, Penrhyn Quarry

Grid reference: SH6190665206 C

Importance: C

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

A tall vertical wall about 7m high supporting Twllyndwr level. The wall is crossed by inclines (PRN 60036 and 60055). Shown on 1900 and 1914 25 inch maps but not on 1889 map.

Condition: Near Intact, Good. Very well preserved for nearly all its length. Some lost at NW end.

Management recommendations: Avoid or level 1 recording

PRN 60739 Early slate heaps, Penrhyn Quarry

See plate 24

Grid reference: SH6150065080 C

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Small discontinuous areas of slate heaps on the western side of the quarry that appear as shown on 1914 25 inch map.

Condition: Near Intact, Fair. Most of the heaps have been buried by later spoil but those that are still exposed are quite well preserved

Management recommendations: Further investigation needed

PRN 60740 Early slate heaps, Penrhyn Quarry

Grid reference: SH6210065980 C

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Small discontinuous areas of slate heaps on the northern side of the quarry that appear as shown on 1914 25 inch map. Mostly the lower parts of the heaps are preserved.

Condition: Near Intact, Fair. Most of the heaps have been buried by later spoil but those that are still exposed are quite well preserved

Management recommendations: Further investigation needed

PRN 60741 Early slate heaps, Penrhyn Quarry

Grid reference: SH6258064400 C

Importance: C

Period: Modern

HER Description:

NMR Description (NPRN):

Notes for current project:

Small discontinuous areas of slate heaps on the north-eastern side of the quarry that appear as shown on 1914 25 inch map. One area is rather more extensive and includes several spoil heaps with remains of their tramways.

Condition: Near Intact, Fair. Most of the heaps have been buried by later spoil but those that are still exposed are quite well preserved

Management recommendations: Further investigation needed

PRN 60742 Water balance shaft, Red Lion Level, Penrhyn Quarry

Grid reference: SH6203265440

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Two water balance shafts are shown on this part of Red Lion Level on the 1889 to 1914 25 inch maps. PRN 59998 survives well but the other (PRN 60742) has had its headframe and other above ground structures entirely dismantled and has been filled in so that nothing can be seen on the surface. The shaft itself and the tunnel running from it presumably still exist underground.

Condition: Near Destroyed, Very Bad. Entirely buried and nothing is visible on the surface but the shaft presumably survives as a buried feature

Management recommendations: This shaft may be revealed by any groundworks in this area and an archaeological watching brief and recording should be carried out in this case.

PRN 60743 Water balance shaft, Red Lion Level, Penrhyn Quarry

Grid reference: SH6211265485

Importance: D

Period: Post Medieval

HER Description:

NMR Description (NPRN):

Notes for current project:

Two water balance shafts are shown on this part of Red Lion Level on the 1889 to 1914 25 inch maps. PRN 60000 survives as an open shaft but the other (PRN 60743) has had its headframe and other above ground structures entirely dismantled and has been filled in so that nothing can be seen on the surface. The shaft itself and the tunnel running from it presumably still exist underground.

Condition: Near Destroyed, Very Bad. Entirely buried and nothing is visible on the surface but the shaft presumably survives as a buried feature

Management recommendations: This shaft may be revealed by any groundworks in this area and an archaeological watching brief and recording should be carried out in this case.

FIGURES AND PLATES

Figures

- Figure 1.1. Location of Penrhyn Quarry
Figure 1.2. Geology underlying Penrhyn Quarry
Figure 1.3. Overview of archaeological sites within study area and sites mentioned in the text near the quarry
Figure 1.4. Archaeology in permission realignment area showing current state of preservation and loss of sites
Figure 1.5. 1768 estate map showing the early quarry on Cae Braich y Cafn (Bangor University Archives and Special Collections: Penrhyn MS 2205)
Figure 1.6. Part of 1848 tithe map of Llandegai parish, red line shows approximate limit of study area
Figure 1.7. Archaeological sites within the northern part of the quarry
Figure 1.8. Archaeological sites within the central part of the quarry
Figure 1.9. Archaeological sites within the eastern part of the quarry

Plates

- Plate 1. Penrhyn Quarry in 1947, created from the combination of 4 frames (Library No. 4712, sortie CPE/UK/1996, date 13th April 1947, frames 1327-1330; Welsh Government Copyright)
Plate 2. Penrhyn Quarry in 1986 (Library No. 8606, sortie JA Story, date 1st October 1986, frames 5286 0184; Welsh Government Copyright)
Plate 3. Penrhyn Quarry in 2009 (Google Earth 20th April 2009; © 2015 Getmapping plc)
Plate 4. Turbine in Compressor House PRN 5698/60021
Plate 5. Bryn Llwyd PRN 5699
Plate 6. Quarry hospital mortuary PRN 5701
Plate 7. Penrhyn Quarry Hospital PRN 5703
Plate 8. Graffiti of a De Winton steam engine as used in the quarry on Pont Ogwen PRN 11699
Plate 9. Multi-cellular sheepfold PRN 29989
Plate 10. New office/Reception on the site of PRN 59997
Plate 11. "Sebastopol" water-balance shaft and headframe PRN 59998
Plate 12. Slate mill on Red Lion Level PRN 60003
Plate 13. Corrugated iron building part of Fullersite plant PRN 60019
Plate 14. Fullersite plant (PRN 60019) on 1947 aerial photograph, approx location of modern buildings in red (CPE/UK/1996 frame 328, date 13th April 1947, copyright Welsh Government)
Plate 15. 'Princess May' water-balance shaft and headframe PRN 60020
Plate 16. Transformer house PRN 60022
Plate 17. One of the more intact gwaliau PRN 60026
Plate 18. Electricity sub-station PRN 60027
Plate 19. Weighbridge house PRN 60053
Plate 20. Incline PRN 60055
Plate 21. Tip quarrying PRN 60710
Plate 22. Caban PRN 60722
Plate 23. Cribbage scores written on wall of caban PRN 60722

Plate 24. Some of the older slate heaps on western side of quarry PRN 60739

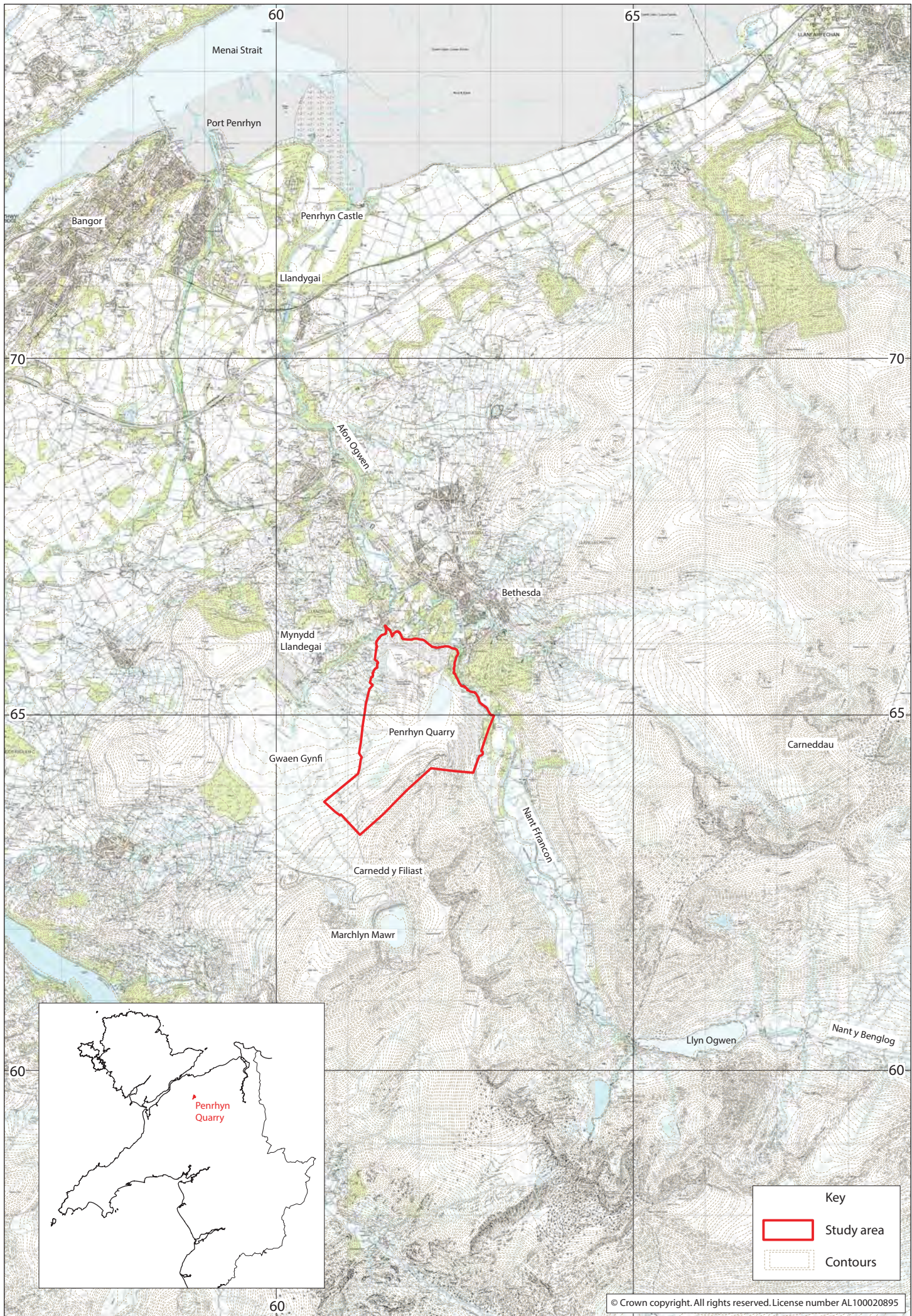


Figure 1.1. Location of Penrhyn Quarry



British
Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Geology of Britain viewer

Surface
Geology

3D
Models

Borehole
Scans

Earthquake
Timeline

Surface Geology

Key

- Llanberis Slates Formation
- Padarn Tuff Formation
- Bronllwyd Grit Formation
- Unnamed Igneous Intrusion, Ordovician
- Fachwen Formation

Contains British Geological Survey materials © NERC 2015

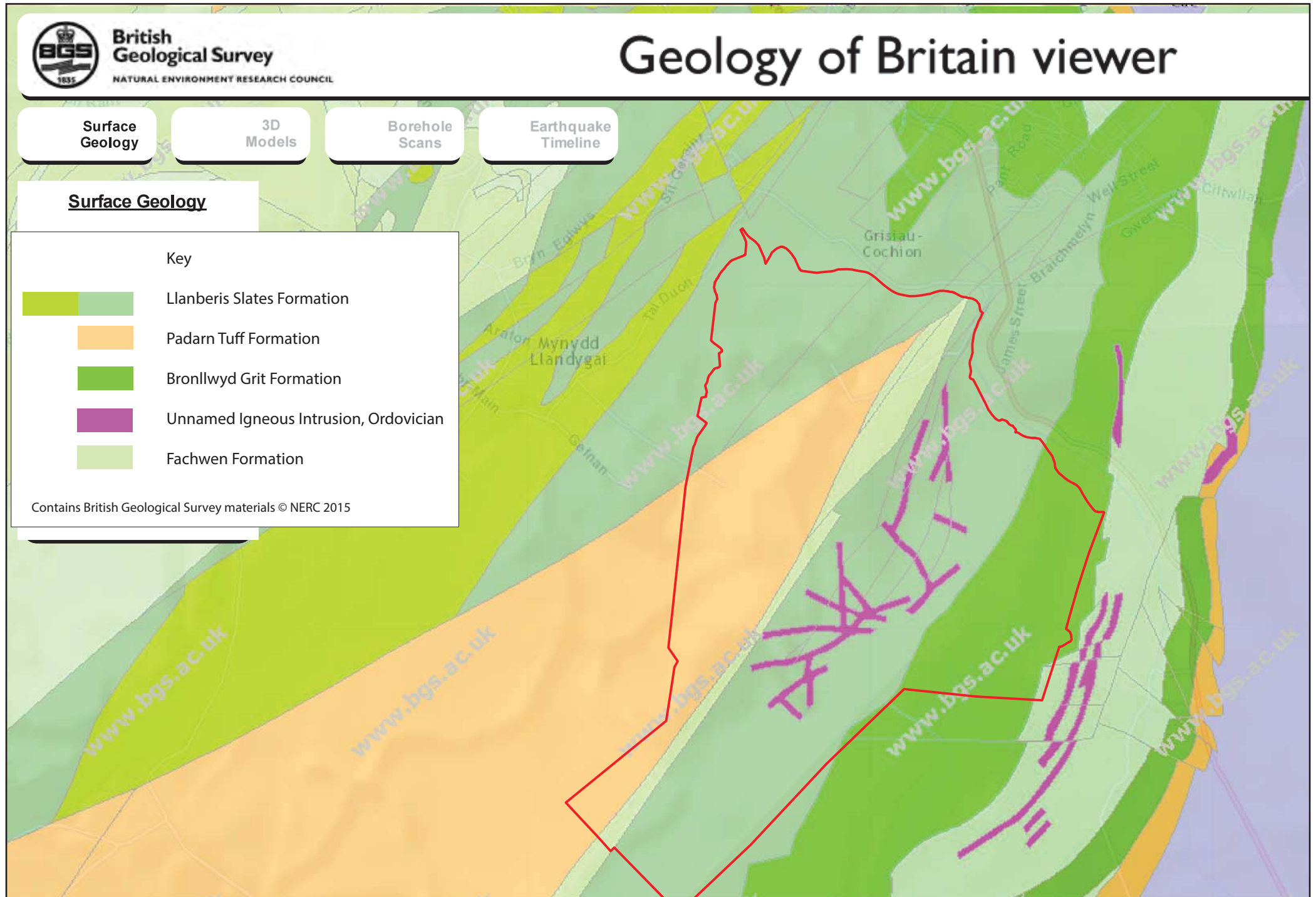


Figure 1.2. Geology underlying Penrhyn Quarry

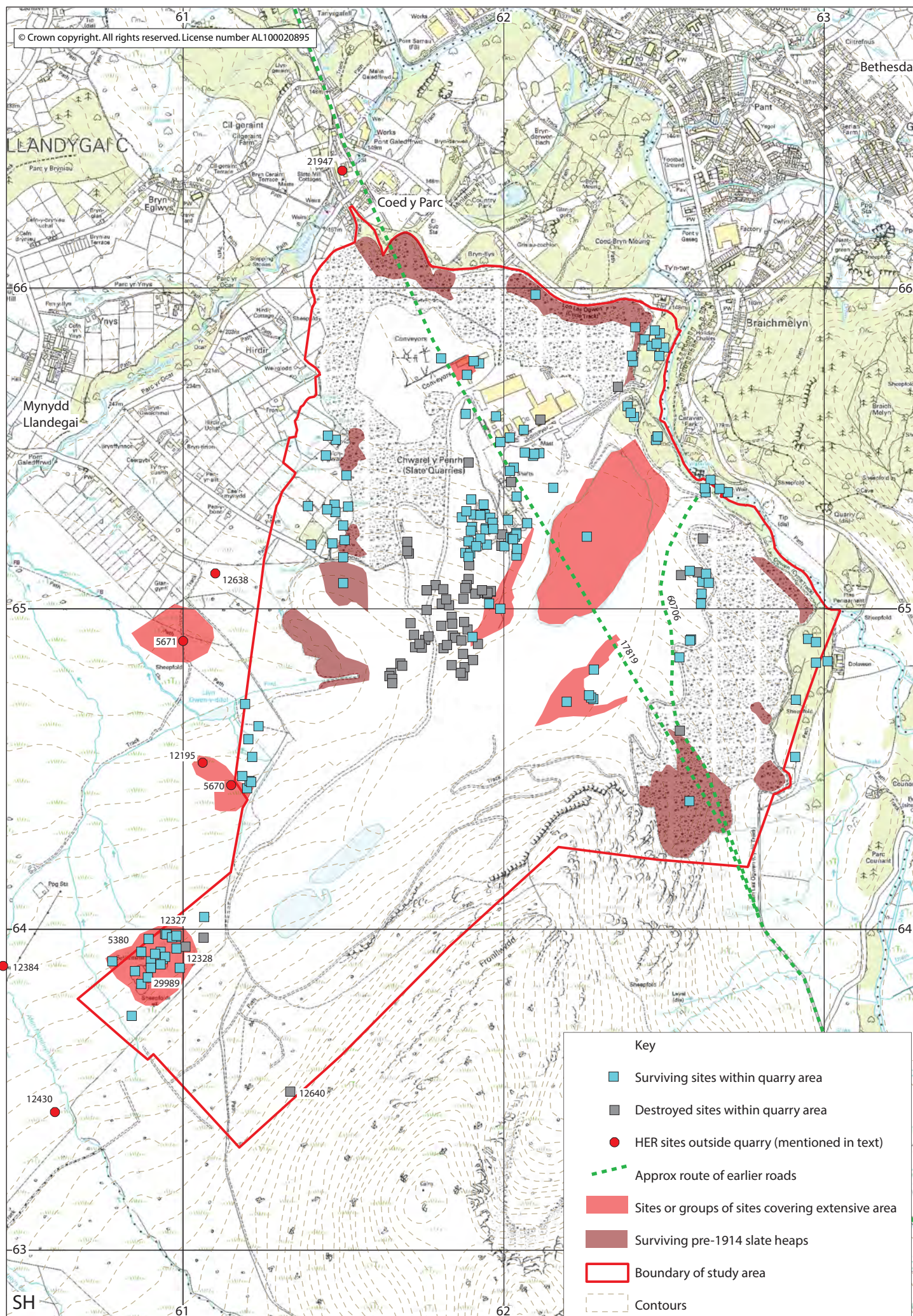


Figure 1.3. Overview of archaeological sites within study area and sites mentioned in the text near the quarry





Figure 1.6. Part of 1848 tithe map of Llandegai parish, red line shows approximate limit of study area

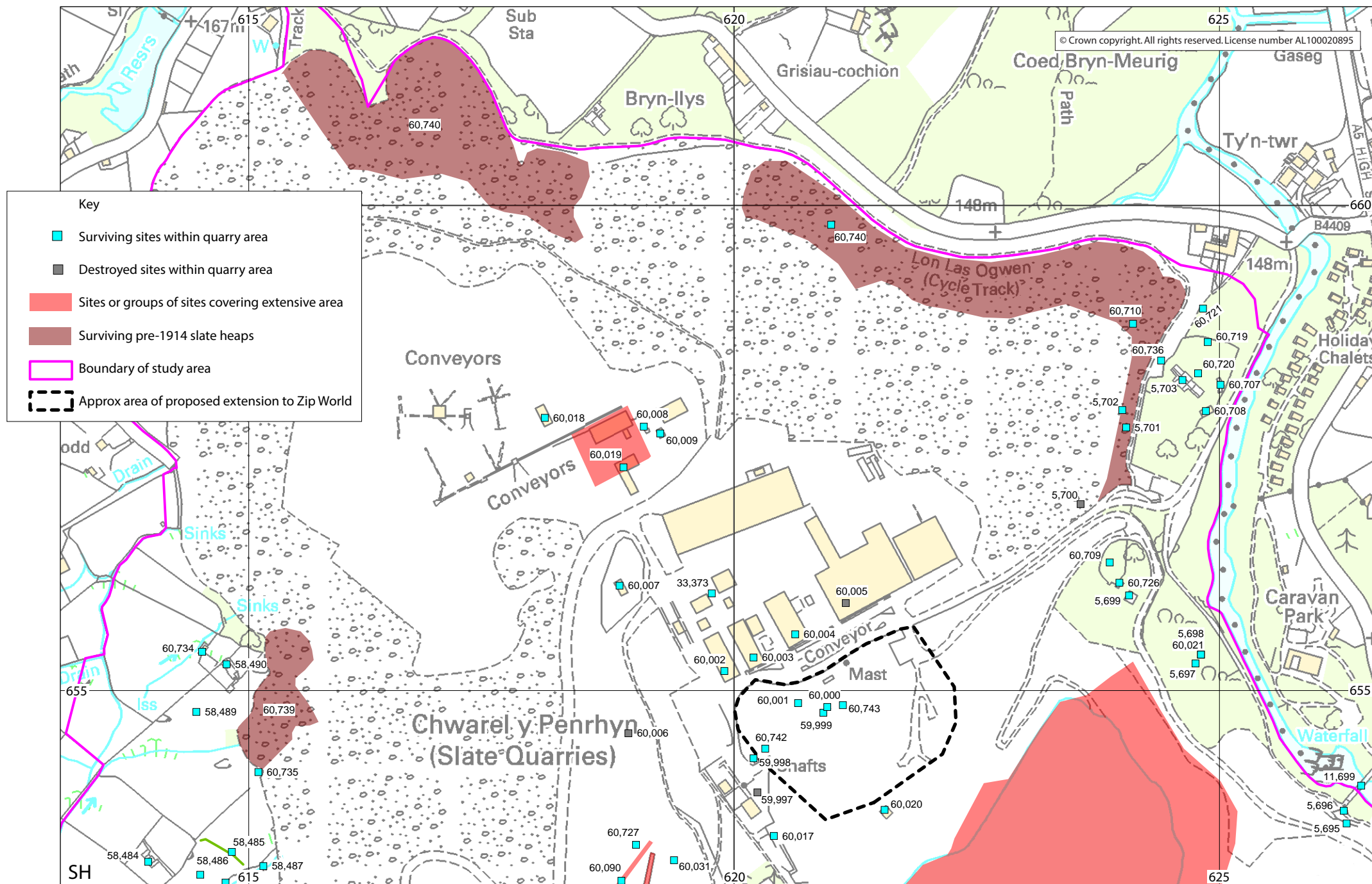


Figure 1.7. Archaeological sites within the northern part of the quarry

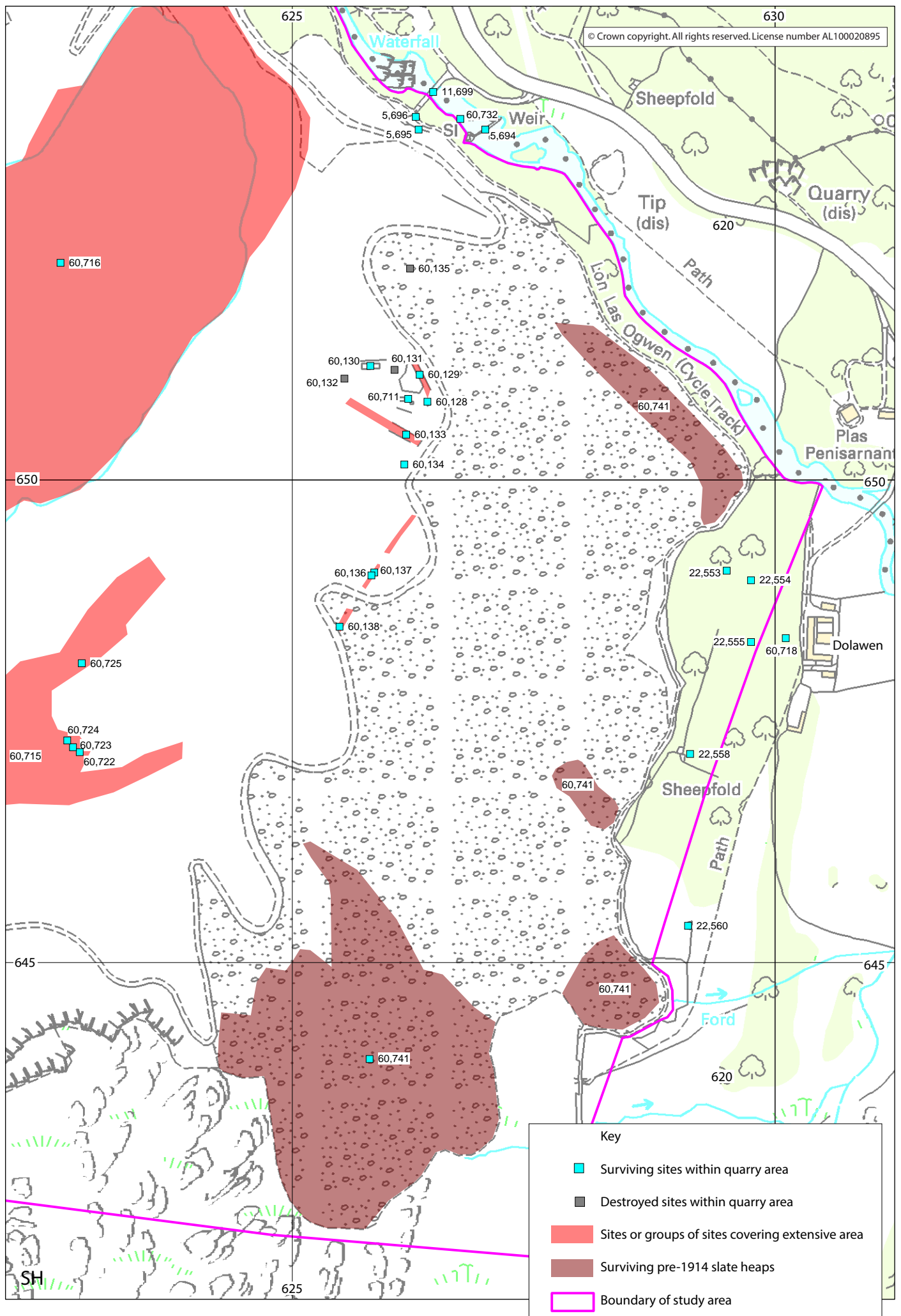


Figure 1.9. Archaeological sites within the eastern part of the quarry



Plate 1. Penrhyn Quarry in 1947, created from the combination of 4 frames
(Library No. 4712, sortie CPE/UK/1996, date 13th April 1947, frames 1327-1330; Welsh Government Copyright)



Plate 2. Penrhyn Quarry in 1986
(Library No. 8606, sortie JA Story, date 1st October 1986, frames 5286 0184; Welsh Government Copyright)



Plate 3. Penrhyn Quarry in 2009
(Google Earth 20th April 2009; © 2015 Getmapping plc)



Plate 4. Turbine in Compressor House PRN 5698/60021



Plate 5. Bryn Llwyd PRN 5699



Plate 6. Quarry hospital mortuary
PRN 5701



Plate 7. Penrhyn Quarry Hospital PRN 5703



Plate 8. Graffiti of a De Winton steam engine as used in the quarry on Pont Ogwen PRN 11699



Plate 9. Multi-cellular sheepfold PRN 29989



Plate 10. New office/Reception
on the site of PRN 59997



Plate 11. "Sebastopol" water-balance
shaft and headframe PRN 59998



Plate 12. Slate mill on
Red Lion Level PRN 60003



Plate 13. Corrugated iron building part of Fullersite plant PRN 60019

Plate 14. Fullersite plant (PRN 60019) on 1947 aerial photograph approx location of modern buildings in red (CPE/UK/1996 frame 328, date 13th April 1947, copyright Welsh Government)



Plate 15. 'Princess May' water-balance shaft and headframe PRN 60020



Plate 16. Transformer house PRN 60022



Plate 17. One of the more intact gwaliau PRN 60026



Plate 18. Electricity sub-station PRN 60027



Plate 19. Weighbridge house PRN 60053



Plate 20. Incline PRN 60055



Plate 21. Tip quarrying PRN 60710



Plate 22. Caban PRN 60722

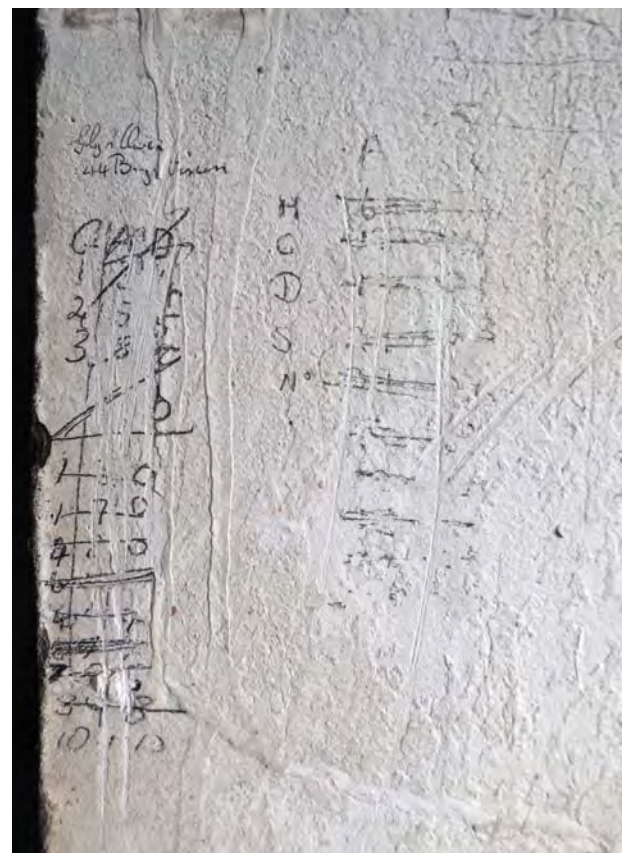


Plate 23. Cribbage scores written on wall of caban PRN 60722



Plate 24. Some of the older slate heaps on western side of quarry PRN 60739



Gwynedd Archaeological Trust
Ymddiriedolaeth Archaeolegol Gwynedd

Craig Beuno, Ffordd y Garth, Bangor, Gwynedd. LL57 2RT
Ffon: 01248 352535. Ffacs: 01248 370925. email: gat@heneb.co.uk

