

PROPOSED EXTENSION  
PENRHYN QUARRY, BETHESDA

ARCHAEOLOGICAL ASSESSMENT REPORT

REPORT NO. 62

GAT 1144

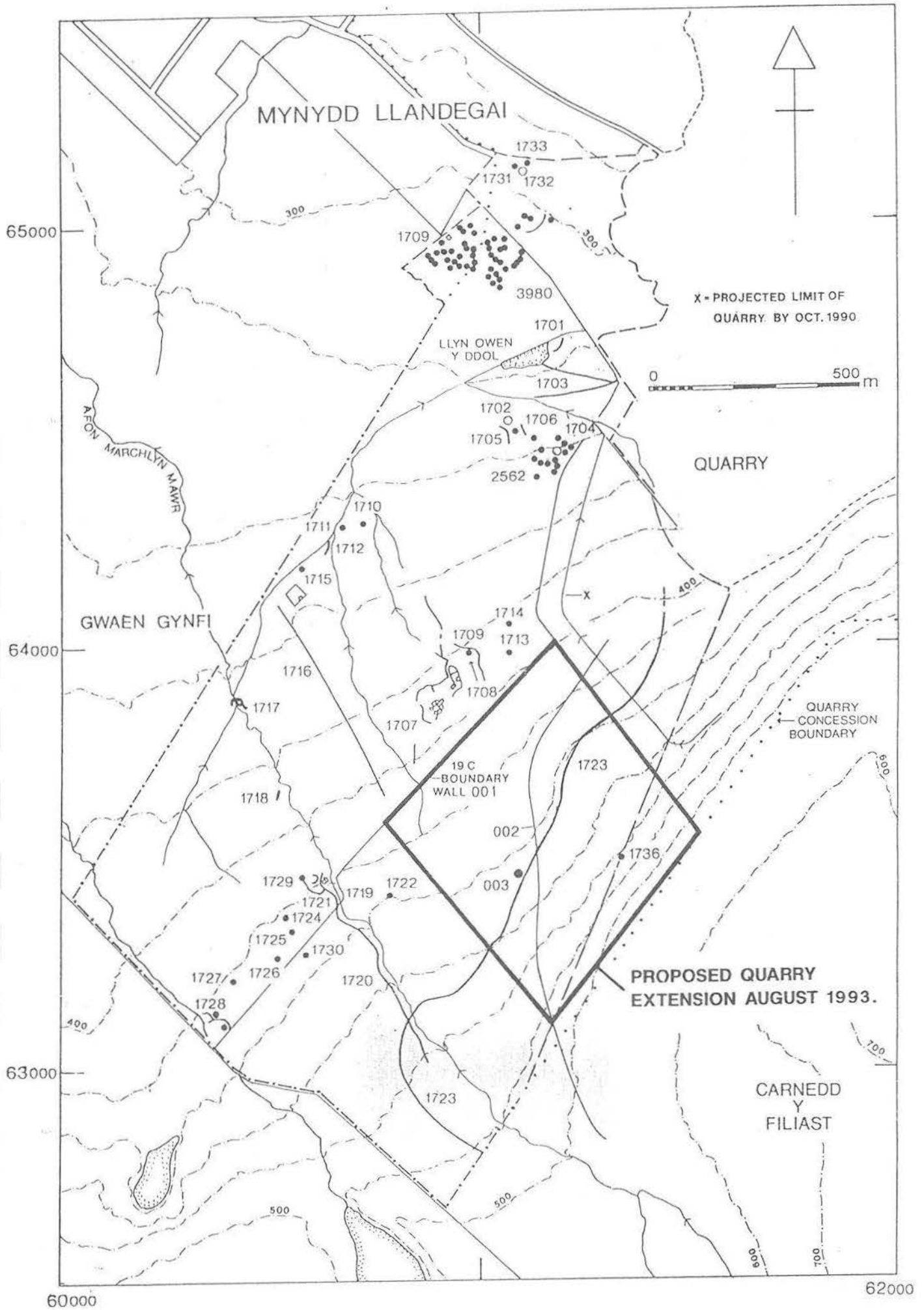
Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

Cenl PR 40170

**PROPOSED EXTENSION  
PENRHYN QUARRY, BETHESDA  
ARCHAEOLOGICAL ASSESSMENT REPORT**

by H. Flook  
illustrations by L.A.Dutton  
for Cynefin Environmental Consultants Ltd. 992

**Gwynedd Archaeological Trust Report No. 62**



## **1. INTRODUCTION**

Alfred McAlpine are proposing to expand their operations at Penrhyn Quarry, Bethesda to the southwest of the present quarry area. They have been asked by Gwynedd County Council to prepare an Environmental Statement of the impact of this proposal. Cynefin Environmental Consultants Ltd have been retained to carry out the Environmental Assessment leading to the production of the Environmental Statement.

The Gwynedd Archaeological Trust (GAT) were commissioned by the consultants to produce a project design and costings to carry out an archaeological assessment of the development proposal and to prepare a report of the results with recommendations to be incorporated into the eventual Environmental Statement.

## **2. ARCHAEOLOGICAL BACKGROUND**

Gwaen Gynfi is a large expanse of peat bog to the south of Mynydd Llandegai, rising from c. 275m OD in the north to c. 350m in the south. Part of the Penrhyn Estate, the bog formerly provided a source of fuel, but is now used solely for rough grazing. To the south-east are the lower slopes of Carnedd y Filiast, gentle at first, becoming increasingly steep from c. 450m. These lower slopes are broken by a series of periglacial boulder fields, forming scarps up to 5 metres high, immediately above and below which are areas of fairly flat, well-drained ground.

The area proposed for the quarry extension is on the immediate southwestern edge of the existing Penrhyn Quarry, centred on SH610634, and covers approximately one half of a square kilometre.

Much of the area was surveyed by GAT as part of the Uplands Initiative in 1989. One hundred and seven sites of archaeological and historical interest were identified by that project located within the general area of the present proposal. These included various site types and ranged through different periods from probable prehistoric settlements to 19th century field walls. It is also possible that the peat bog conceals prehistoric remains which have become engulfed by the growth of the bog over time.

## **3. THE ASSESSMENT BRIEF**

The Gwynedd Sites and Monuments Record produced a brief for an archaeological assessment of the affected area to a standard normally considered necessary as part of an Environmental Statement. A project design and costings were then produced by GAT Contracts Section to fulfil that brief.

This project design was rejected as being too comprehensive considering the resources which had been allocated by the consultants towards the archaeological assessment. As a result it was mutually agreed that a reduced project design would be produced based upon the available resources.

Subsequently it was also decided by McAlpine Quarries to halve the area that had initially been proposed for the extension because of geological considerations.

Because of the limited resources available the present archaeological assessment was to be restricted solely to the area of the application, it would not be possible to fully assess the archaeology of the surrounding area in order to put the proposal area in its wider landscape.

### **The Assessment Aims:**

- 1) to identify and record the cultural heritage of the area to be affected by the proposals
- 2) to evaluate the importance of what has been identified
- 3) to propose ways in which damage to the cultural heritage can be avoided or minimised.

The archaeological assessment would comprises four stages :

#### **1 Desk Based Assessment**

#### **2 Field Walking**

#### **3 Geophysical Survey (if necessary and where appropriate)**

#### **4 Trial Trenching (if necessary)**

Stages 1 and 2 were to be carried out as a single exercise to be followed by an initial report. The report was to summarise the results of these stages and make recommendations for what further stages of assessment work (for example geophysical survey, trial trenching or other investigative techniques) might be required to complete the assessment. In addition, it was to detail mitigation measures which would need to be taken to deal with any archaeology which was identified.

## **4. METHODS AND TECHNIQUES**

### **STAGE 1 - Desk Based Assessment**

A brief desk based survey was undertaken to inspect the most easily available and pertinent records. The Gwynedd County Sites and Monuments Record was consulted, as was the Gwynedd Archives, Caernarfon, the University College of North Wales Archives (Bangor), and the Countryside Council for Wales (CCW).

#### **Maps Consulted:**

- 1768 Penrhyn Estate Map (Llandegai parish, 1" to 4 chains)
- 1840's tithe map and schedule (Llandegai parish)
- 1841 Penrhyn Estate Map (lower Llandegai parish, 1" to 4 chains)
- 1914 O.S. 1:2500 (25")
- 1919 O.S. 6"
- 1975 O.S. 1:10000

#### **Other Documents:**

- Uplands Survey 1989 Gwaen Gynfi/Marchlyn Llandegai (GAT Report)
- CCW aerial photographic collection - 1986 colour verticals

### **STAGE 2 - Field Survey**

This stage of the work consisted of field walking the northeast corner of the development proposal area which was not surveyed in 1989. All of the features identified by the 1989 work which lie within the development proposal area were revisited to assess any change in their condition and status relative to the present development proposal. The area was also checked for any possible features which may not have been identified in the 1989 survey. In addition, a cursory inspection was made of the immediate area just beyond the proposal perimeter on the NE side. Any change to the 1989 features, or any newly identified possible sites were recorded photographically and with a brief written description.

## **5. RESULTS**

### **STAGE 1 - Desk Top Survey**

The earliest consulted maps showed that the land around Mynydd Llandegai was common land or 'turbary' ie used for peat cutting, and unfortunately there were no recorded fieldnames. Other than stone boundary walls and a number of sheep folds, nothing else came to light from this brief documentary search.

The CCW's aerial photographic collection was inspected for sites which might not be apparent on the ground. Again, this revealed no new sites.

The majority of documentary information arises from GAT's Uplands Survey 1989: Gwaen Gynfi/Marchlyn, Llandegai which assessed a large part of the present proposal and most of the area surrounding it except on the southeast side. The 1989 survey revealed a complex multi-period archaeological landscape in the immediate area of the present proposal. This comprised at least seven prehistoric sites including large integrated prehistoric settlements, individual hut circles, and cairnfields; three medieval sites, including a probable hafod, trackway and an enclosure; many post medieval and industrial features, and at least 18 other features which could not be dated. (see gazetteer)

### **STAGE 2 - Field Survey**

The northeast corner of the proposed extension which was not surveyed in the 1989 work was inspected for features. Other than the sheep fold (PRN 1736) which is already on the Sites and Monuments Record no other new sites were identified.

## **GAZETTEER OF SITES (A) - Within the Proposal Area**

### **1723 - Leat SH60836294c**

This feature emerges from beneath the recent landscaping below the Marchlyn Mawr Dam, at SH61006280, runs NW for c. 300m, turns to the northeast, crosses the Afon Marchlyn Mawr, and continues towards the quarry for 1.1km. It has been constructed to maintain a constant gradual slope, surviving as a grassed over cutting through ridges of higher ground, or as a line of low slate and stone built piers across lower ground. The mortared stone piers of a bridge survive where it crosses the stream. The section to the NE of the Afon Marchlyn Mawr appears on a map of the Penrhyn Estate dated 1840, leading as far as Llyn Owen y Ddol. It cuts the trackway 1720.

### **1736 - Sheep Fold SH61336349**

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.

### **001 - 19th C Boundary Wall SH61006370**

Well constructed dry stone wall standing to approximately 2m high. Survives in very good condition.

### **002 - 19th C (?) Boundary Wall SH61206340**

Dry stone wall collapsed in several stretches, standing to 1.5m in places.

### **003 - Large Hollow SH61106330**

Very large roughly circular hollow some 20m in diameter, and at least 6m deep (estimate). Appeared to be well drained at the base. This appears to be a man-made feature, and may be associated with quarrying; possibly a test hole.

## **GAZETTEER OF SITES (B) - in the immediate area of the proposal or adjacent to the present quarry working**

### **1702 HUT CIRCLE - SH 61066452**

Located 140m to NW of hut 2562.1, on the edge of marshy ground below boulder field. External diameter 6.2m. Walls 0.7m thick, now mostly grassed over, although traces survive of a double facing of large stones. Any one of three gaps on the west side may be an original entrance

### **1703.1 LEAT - SH 6120 6458C**

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.

### **1703.2 LEAT - SH 6122 6463C**

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.

#### **1704.1 BUTT - SH 6120 6447**

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.

#### **1704.2 BUTT - SH 6121 6446**

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.

#### **1704.3 BUTT - SH 6118 6448**

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.

#### **1705 TRACKWAY - SH 61066450c**

Overgrown holloway 1.8m wide on crest of boulder field, to west of site 2562. Traceable for c. 80m, fading out at each end.

#### **1706 POSSIBLE STRUCTURE - SH 61086449**

'L' shaped, 2.0m by 1.4m of rough walling 0.7m high. Possibly the remains of a structure associated with either 2562 or 1704.

#### **1707 HUT CIRCLE, ENCLOSURES & TRACKWAYS - SH 6090 6388C**

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.

##### **1707.1 FIVE LARGE ENCLOSURES OR PADDOCKS - SH 6090 6388C**

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.

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.

##### **1707.2 TRACKWAY - SH 6091 6395C**

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).

##### **1707.3 WALLING - SH 6089 6397**

60m north of the paddocks, immediately west of the track, is a 10m 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.

#### **1707.4 TRACKWAY - SH 6084 6373C**

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.

#### **1708 POSS. HAFOD - SH 6097 6398**

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.

#### **1709 TRACKWAY - SH 6098 6398C**

Winds through rocky ground for c. 90m, from SH60936400 to SH61006391. 2.0m wide, with cleared stones piled to either side.

#### **1713 STONE PILE - SH 6106 6397**

Oval, grassed over, pile of stones, 6.0m x 5.0m, with apparently more recently dumped stones on top. 0.3m high.

#### **1714 ENCLOSURE - SH 6106 6404**

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.

#### **1719 SHEEPFOLD - SH 6063 6345**

Ruined sheepfold built against north face of enormous boulder. Main enclosure 8.5m x 6.0m within walls 0.6m thick and up to 1.4m high. Smaller enclosure on south-west side 4.0m x 3.0m.

#### **1722 STRUCTURE - SH 6078 6340**

Rough stone shelter in a hollow on north-facing slope. Stones have been piled onto natural boulders to create an oval 'cell' 3.0m x 1.6m.

#### **2562 HUT CIRCLE, CAIRNS & ENCLOSURES - SH 6118 6445**

On gently sloping ground immediately above a boulder field at 325m OD. One well defined hut circle within a scatter of poorly preserved features, some or all of which may be contemporary with the hut.

##### **2562.1 HUT CIRCLE - SH 6118 6445**

10.0m overall. Walls 1.8m thick, rubble built with inner and outer facing stones surviving on north and east, and also occasionally on south-west. Possible entrance on north-west.

##### **2562.2 STONE PILE - SH 6114 6445**

Roughly circular pile of large stones. Partly grassed over. Diameter 5.0m. 0.5m high. 35m west of hut 2562.1.

##### **2562.3 POSS. ENCLOSURE - SH 6120 6444**

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.

#### **2562.4 STONE PILE - SH 6115 6442**

Roughly circular pile of large stones, heaped onto natural boulders. Diameter 3.7m. 0.2m high.

#### **2562.5 STRUCTURE - 6117 6440**

Horseshoe-shaped structure built against large boulder. 2.9m x 2.4m within roughly built grassed over walls of large stones. Open to the north.

#### **2562.6 STRUCTURE - SH 6114 6442**

Ruined rectangular structure 4.2m x 3.1m overall. SW and SE walls, c. 0.5m thick, survive to height of 0.4m. NW and NE walls have collapsed outwards.

#### **2562.7 STONE PILE - SH 6112 6443**

Partly overgrown pile of stones c. 4.0m diameter.

#### **2562.8 POSSIBLE ENCLOSURE - SH 6112 6448**

Roughly rectangular, 11.25m x 8.5m. Walls robbed and spread, now very indistinct. There is a faint suggestion of a second enclosure adjoining this on the south.

#### **2562.9 STONE PILE - SH 6118 6441**

Grassed over pile of stones. 4.0m x 3.5m.

#### **2562.10 STRUCTURE - SH 6117 6443**

Oval. 4.0m x 3.0m overall. Walls almost completely grassed over.

#### **2562.11 STRUCTURE - SH 6113 6439**

Horseshoe-shaped. 2.8m x 2.6m within arc of large stones. Open to the south-west.

#### **2562.12 TRACKWAY - SH 6110 6450**

Short length of track 2.4m wide leading through the rocks to north west of sites 2562.1-11, with which it is presumably associated. Stones have been dumped to either side forming rough revetments c. 11m long.

### **6. DISCUSSION.**

#### **i) Prehistoric Sites.**

The 1989 survey identified seven monuments of probable prehistoric date: four ruined settlements (PRNs 2562, 1707, 1721 and 1728), two isolated hut circles (PRNs 1702 and 1732) and one cairnfield (PRN 3980).

The visible remains of the settlements comprise enclosures or paddocks defined by low walls of small stones linking occasional large boulders, hut circles, small rectangular structures, trackways and miscellaneous stone piles. Most features have been robbed of much of their stone, and in some cases only the barest outline survives.

Upland settlements of this type are usually thought to reflect a largely pastoral economy (e.g. Kelly 1982), the paddocks being stock enclosures, and this interpretation would seem to be confirmed at site 1707, where a narrow passage linking two of the enclosures is best explained as an aid to stock control. However the stone piles at site 2562 suggest clearance for cereal cultivation, and while the soils in the area are now either too thin or too wet for arable farming, it may well be that conditions in prehistory would have permitted a mixed economy.

1707 and 2562, both ruined prehistoric settlements, are located very near to the proposal area or the present limit of quarry workings just to the north.

## **ii) Medieval Sites.**

Three sites may date from this period. Site 1708, a rectangular building with an internal partition, is probably the remains of a 'hafod', perhaps contemporary with a trackway, 1709, which passes close by, while sheep fold 1717 has been built over an earlier enclosure, which may be of this date. Only 1708 is near to the proposal area.

## **iii) Post-medieval and Industrial Sites.**

There are four ruined sheepfolds within the 1989 survey area (1707, 1717, 1719 and 1736) all probably of eighteenth or nineteenth century date. Three of these are built over or adjacent to earlier monuments, emphasising that the criteria used in selecting sites for stock control (availability of water, ease of access to and from the lowlands etc.) have remained constant. This is a common phenomenon in upland Gwynedd, as Kelly (1982) has pointed out. A fourth enclosure, 1714, can also be dated to this period, on the basis of its build quality and good state of preservation. 1736 is located within the extension proposal area and is therefore directly threatened.

An entirely different use of the uplands is exemplified by site 1704, a group of three roughly built shelters amongst the rocks above Llyn Owen y Ddol. These were probably constructed by troops on training exercises during the last war.

Several relict features associated with early years of the quarry survive. Llyn Owen y Ddol was constructed in the early nineteenth century to provide water for the quarry, a function which it still performs. A bank to the east of the lake (1701) may mark its original edge. To the south of the lake are two disused leats (1703), which would have diverted streams into the lake.

The most remarkable monument of this period is PRN 1723, the remains of a watercourse running across the hillside for over a kilometre, and presumably connecting Marchlyn Mawr with Llyn Owen y Ddol. A large part of this feature is located within the proposal area and will therefore be destroyed.

## **iv) Undated sites.**

There are other enclosures, structures, stretches of walling and piles of stones whose date and function is not known. Some of these were probably simple shelters or animal pens: others, like site 1704, may have been constructed by soldiers on manoeuvres or they may be civilian shooting butts. It is doubtful whether even excavation would provide an explanation for many of these.

## **7. RECOMMENDATIONS**

### **Documentary**

It should be noted that little documentary work was undertaken as part of the Uplands Initiative project in this area in 1989. Therefore, there may be important records or photographs available which identify now obscured sites which will not have been inspected by either the 1989 or the present project. It is recommended that further documentary work be undertaken to ensure a comprehensive survey of all available relevant records have been inspected.

### **Sites Within the Proposal Area**

Although there does not appear to be a dense survival of archaeology within the proposal area, in comparison to the area immediately surrounding it, several sites have been identified both by the 1989 survey and the present work which will be destroyed by the proposed quarry extension. None of these sites is sufficiently important to warrant preservation in situ, nonetheless, each will require a certain level of recording before it is destroyed.

The leat 1723 is an impressive relic of industrial history and survives in a reasonable condition. It is a complex feature comprising several different structural components. It should be subjected to EDM survey to record its extent and location. The feature should be cleared and trial trenches excavated to investigate different elements of its construction. In addition, a detailed photographic record should be undertaken.

The sheep fold 1736 is of less interest and should be subjected to EDM survey to locate it and to record its extent and form. A photographic survey should be undertaken.

The two existing boundary walls (001 and 002) should be photographically recorded.

The large circular hollow (003) was not identified by the 1989 survey, and it is not clear what its function or origin is. No evidence of quarrying here was uncovered by the limited documentary survey. A photographic record of this feature will be sufficient.

### **Sites Outside the Proposal Area**

As noted above, other sites (some of considerable interest) fall close to the edge of the proposed extension area and the present quarry. This may render them susceptible to subsidiary disturbance associated with the quarry working eg the movement of heavy machinery in the area (vibration or access), or the effects of blasting. In addition, taking into account the tendency for quarries to exceed the limits of their existing permissions, there must be some concern that these features too may be under threat. It is recommended that strict monitoring and liaison between the quarry and the Gwynedd Sites and Monuments Record be maintained in order to guarantee the preservation of these sites.

## **CONCLUSION**

This report outlines the main evidence which was easily accessible and should not be taken as a comprehensive or rigorous survey of the actual or potential state of the archaeological environment in the area of interest. As it is understood that there will be no disturbance beyond the limits of the proposal area, fieldwork has been focused on the identification of archaeological sites and features from solely within the area of interest. The report relies on the results of the 1989 Uplands survey for an assessment of sites outside of the proposal area and this area has not been revisited to reassess these sites or to look for other sites which may now have come to light.

