

# Penrhyn Castle Renewable Heating Scheme

## Archaeological Evaluation



Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust



# Penrhyn Castle Renewable Heating Scheme

## Archaeological Evaluation

Prosiect Rhif / Project No. G2447

Adroddiad Rhif / Report No.1299

Prepared for: The National Trust

March 2016

Written by: Rob Evans

**\*front cover image: view from the south of the evaluation trench within the estate landscape (archive image G2447\_Penrhyn\_051)**

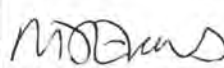


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Published by Gwynedd Archaeological Trust  
Gwynedd Archaeological Trust  
Craig Beuno, Garth Road,  
Bangor, Gwynedd, LL57 2RT

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Mae Ymddiriedolaeth Archaeolegol Gwynedd yn Gwmni Cyfyngedig (Ref Cof. 1180515) ac yn Elusen (Rhif Cof. 508849)  
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Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author	ROBERT EVANS		18/3/16
Reviewed by	Document Reviewer	JOHN ROBERTS		18/03/16
Approved by	Principal Archaeologist	JOHN ROBERTS		18/03/16

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue



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## ***NON- TECHNICAL SUMMARY***

*Gwynedd Archaeological Trust was asked by the National Trust to undertake an archaeological evaluation involving trial trenching, in advance of proposals for a renewable heating scheme, at Penrhyn Castle, Llandygai, Gwynedd.*

*The evaluation consisted of a single trench 20m long and 0.5m wide located in the south-east portion of Penrhyn Park (centred on NGR SH60337172), positioned along a short section of the proposed heat main. The trench targeted a possible building that was identified on an estate map of 1803, further to recommendations made in an archaeological assessment report.*

*The evaluation trench was noted to contain a consistent glacial clay layer at a depth of between 0.4m and 0.8m below rich organic topsoil. The interface between the topsoil and the glacial clay was very distinct, with no evidence for the presence of subsoil. This suggests that the glacial clay has been truncated in historic times, with topsoil subsequently being added upon it. It is tentatively suggested that this may be related to activity at the time that the former agricultural landscape was converted into estate parkland.*

*The landscaping may well have happened in the area of the trench after 1803, as the building noted on the 1803 estate plan appears to have been removed and left no archaeological trace. Although the landscaping appears to be extensive, it is also possible that the building is not accurately surveyed on the historic map, but in this case the heat main is likely to avoid it.*

# 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was asked by *National Trust* to carry out an archaeological evaluation (trial trenching) in advance of proposals for a renewable heating scheme at Penrhyn Castle, Llandygai, Gwynedd (NGR SH60277193; Figure 1). The evaluation was completed prior to determination of application C16/0107/16/LL.

According to the submitted Design and Access Statement (National Trust, February 2016), the applicaiton is for the erection of a biomass energy building and associated works and landscaping. The biomass energy building is proposed at a location adjoining the visitor car parking area at Penrhyn Castle. A heat main will be installed underground from the energy centre up to the castle keep in its own trench. The heat main would then link up with existing boiler rooms and services within the property after entering the keep, utilising existing services ducts and voids. The proposed fuel for the biomass scheme is wood chip with HGV vehicle access provided to the fuel store.

GAT has previously completed an archaeological assessment for the proposed scheme (Evans, R. 2015: GAT Assessment Report 1286), which included recommendations for evaluation during groundworks and targeted evaluation for specific features (cf. para. 2).

The evaluation was monitored by the Gwynedd Archaeological Planning Service (GAPS) on behalf of the Local Planning Authority (LPA). GAPS have stated in correspondence to the Planning Officer for the LPA (letter ref: 0403je01/D2090; [Appendix I](#)) that the bulk of the scheme can be addressed through a watching brief, with the exception of a former building recorded on historic mapping (GAT Report 1286 Feature 6) as the date and nature of this feature are unknown, with the possibility that the structure may relate to the earlier medieval phase of Penrhyn.

The aim of the archaeological evaluation was to identify if there is any activity associated with this feature and determine whether the route could be adjusted so as to preserve the remains in situ.

The archaeological works conformed to the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Archaeological Evaluation* (Chartered Institute for Archaeologists, 2014).

## **2 PROJECT BACKGROUND**

### **2.1 Historical Background**

The current Penrhyn Castle was, built in 1822-38 for George Hay Dawkins Pennant and designed by Thomas Hopper. The castle was constructed in a neo-Norman style with a keep, courtyards, barbican and towers, built using stone from Ynys Mon. The castle remains very little changed since construction and has been in the hands of the National Trust since 1951, open to the public since 1952. The present house replaces a late eighteenth-century Gothic 'castle' of yellow brick, on the same site, designed by Samuel Wyatt, which probably retained the plan and part of the chapel of the previous medieval house. The medieval house is thought to have been built in the fifteenth century. The Wyatt-designed house was subsumed by the later Penrhyn Castle but the great hall survives in the present drawing-room.

Penrhyn Castle is reputed to occupy the site of Roderic Malwynog's palace who is considered to have been an 8<sup>th</sup> century King of Gwynedd, grandson of Cadwalader the last king of the Britons. The land became the property of the Gruffydd family who after advantageous marriage alliances had established a substantial estate in the area by the 14<sup>th</sup> century. In the early 15<sup>th</sup> century a Hall House with two end wings was built for Gwilym ap Gruffydd, a house that was to stand until the late 18<sup>th</sup> century. In 1684 when Sir Gruffydd William died without an heir the estate passed through various hands, until between 1765 and 1785 it was acquired by Richard Pennant. The medieval house, with additional buildings of possibly later date, is shown on an estate map of 1768 surveyed by G. Leigh (GAT Report 1286 Figure 4). This shows the medieval house set in a landscape of small enclosures, some clearly agricultural, some planted with trees. The approach to the house is shown striking off at right angles to the drive across an outer courtyard, through the stable block and up to the front door of the house (National Trust 1991, 76). Aerial photographs from the National Monuments Record show extensive parching of the land in the vicinity of the former medieval house, and this may reflect the survival of buried remains below the ground relating to the pre 1781 occupation of the area (Gee and Laws 2015, 24-25).

In 1781 a new house began to be constructed at Penrhyn that was designed by Benjamin Wyatt and built in a form of castellated gothic of yellow brick on the same site of and incorporating some elements of the previous house. The estate map of 1803 (GAT Report 1286 Figure 5) shows parkland, woodland and a garden demonstrating that development of the parkland was well underway. The Wyatt designed house was short lived, as the considerable profits that were being returned by the Pennant's slate quarries by the early 19<sup>th</sup> century enabled the current Penrhyn Castle to be constructed.

## **2.2 Gwynedd Archaeological Trust Assessment Report**

The Gwynedd Archaeological Trust completed an archaeological assessment of the proposed scheme in December 2015 (Evans, R. 2015: GAT Report 1286). The assessment examined two possible options, to the north and to the south of Penrhyn Castle, respectively.

The report identified eighteen post-medieval sites relating to the Penrhyn Estate and included former buildings and field boundaries. These sites were mainly identified on historic mapping, specifically the estate maps from 1768, 1803 and 1828 and the Llandegai Parish Tithe Map of 1841. Fourteen sites were identified on the northern route, and four on the southern route. GAT recommended that in the event of the northern option being chosen, that five of these sites, representing former buildings, were evaluated by archaeological trenching in order to assess their potential survival and to inform a mitigation strategy, with the remaining possible sites, consisting of field boundaries, recorded as part of the evaluation during groundworks. For the southern option, archaeological trenching was recommended for a former building extant on the 1803 estate map (GAT Report 1286 Feature 6) that appeared to be on the route of the proposed heat main, with the rest of the route mitigated via a watching brief.

The National Trust subsequently proposed the southern option as the chosen route in their application. As a result, the GAT recommendations for the northern route are no longer relevant, with the recommendations limited to the southern route; with Feature 6 the only site targeted pre-determination. Feature 6 was assigned Historic Environment Record Primary Reference Number (PRN) 61232 as part of the assessment process.

The GAT assessment report also concluded that the surrounding area is rich in prehistoric and medieval archaeology and although none has been identified in this part of the park at Penrhyn, its presence has to be considered a strong possibility.

### 3 METHODOLOGY

Feature 6 comprises a small rectangular building noted on the 1803 Penrhyn Estate map, orientated northeast-southwest and measuring c.19m in length and 6m in width and located at NGR SH60347174 (Figures 1-2). The evaluation trench targeted the portion of the proposed heat main route that crossed the suspected location of Feature 6.

The trench dimensions are:

- Length: 20.0m; and
- Width: 0.50m;

The trench was centred on NGR SH60337172 (Figures 1 and 2) and orientated northwest to southeast to match the footprint of the heat main. Please note that the trench targeted the heat main route used in application C16/0107/16/LL rather than that used for GAT assessment report 1286 (cf. Figure 2). The revised route is further south than the assessed route; however, it still crossed the suspected location of Feature 6.

The trench coordinates were:

Location	X coordinate	Y coordinate
northwest corner	260329.911	371732.193
northeast corner	260330.479	371733.576
southwest corner	260348.395	371724.257
southeast corner	260348.963	371725.918

#### 3.1 Table 1: trench coordinates

The trench was located using a survey grade GPS with <10cm accuracy (model: *Trimble GNSS/R6/5800*).

The trench was excavated using a 3 tonne client supplied excavator fitted with a toothless bucket.

## 3.2 Evaluation Methodology

- The trench and identified contexts were recorded using GAT pro-formas;
- Photographic images were taken using a digital SLR (Nikon D40X) camera set to maximum resolution (3,872 × 2,592 10.2 effective megapixels) in RAW format and were converted to TIFF and JPEG format for archiving using Adobe Photoshop; a photographic record was maintained on site using GAT pro-formas and digitised in *Microsoft Access* as part of the fieldwork archive and dissemination process (archive images G2447\_Penrhyn\_043 to G2447\_Penrhyn\_051, cf. [Appendix III](#));

## **4 EVALUATION RESULTS**

### **4.1 Introduction**

The evaluation trench was located to the south east of Penrhyn Castle within Penrhyn Park, just to the east northeast of the track way that runs northwards towards the castle on its eastern side (Figure 1, Plate 1). The trench was orientated northwest-southeast and located over a possible building noted on an 1803 estate map (Figure 2) originally identified in GAT Report 1286 (Evans 2015) as Feature 6 (PRN 61232).

The trench crossed moderately sloping ground, falling about 0.7m from north-west to south-east, and terminated close to the north south trackway. The trench was located within grass parkland and clumps of mature trees, with a significant quantity of daffodils in bloom within the grassland (Plate 5).

The trench was 20m in length and 0.5m wide, and was excavated using a 3 tonne tracked excavator with a 0.5m wide ditching bucket on 17<sup>th</sup> March 2016. The soil was placed on protective sheeting during the excavation, and was reinstated on the same day.

### **4.2 Trench Description**

A turf layer up to 0.1m thick was noted to overlie a top soil, which was about 0.4m deep at the higher north-western end and up to 0.8m deep at the south-eastern end of the trench. The topsoil was deeper downslope as it approached the north-south trackway beyond the end of the trench (Plate 2). It consisted of a dark orangey brown silty clay loam with much organic material within it, and contained small rounded and sub-angular stones. The topsoil sealed a light yellowish brown clay, which contained small to large angular stones (up to 0.4m by 0.3m in size). The interface between the topsoil and the clay was noted to be very clear and distinct (Plates 3 to 4).

The clay deposit was interpreted as a glacial deposit. No other deposits or archaeological features or structures were encountered in the excavation.

## 5 CONCLUSIONS

The Penrhyn Castle evaluation trench was noted to contain a glacial clay layer at a depth of between 0.4m and 0.8m below a rich organic topsoil. The interface between the topsoil and the glacial clay was very distinct, with no evidence for the presence of a subsoil. This suggests that the glacial clay has been truncated in historic times, with topsoil subsequently being added upon it. It is tentatively suggested that this may originally be related to activity at the time that the former agricultural landscape was converted into estate parkland (Evans 2015). The depth and organic rich nature of the topsoil suggests that it has been heavily landscaped, probably undergoing a number of changes over time, and to have been part of changing horticultural regimes since the development of the parkland.

The landscaping well have happened in the area of the trench after 1803, as the building noted on the 1803 plan (PRN 61232; Figure 2) appears to have left no trace on the ground. It is likely that any trace of the building was removed as part of the changes from an agricultural landscape to parkland, which appears to have involved substantial landscaping. It is just possible however that the building is not accurately located on the historic map, and is situated elsewhere. In this latter case however the heat main will probably avoid the former building.



## 6 SOURCES CONSULTED

Chartered Institute for Archaeologists 2014 *Standards and Guidance for Archaeological Evaluation*;

English Heritage 1991 Management of Archaeological Projects.

Evans, R. 2015. *Penrhyn Castle Renewable Heating Scheme Archaeological Assessment*. GAT Report 1286.

Gwynedd Archaeological Planning Service correspondence to the Planning Officer for the LPA (letter ref: 0403je01/D2090)

National Trust Design and Access Statement, February 2016 - *Installation of biomass energy centre building, fuel storage building, heat main connection, landscaping and associated works*.

Royal Commission on Ancient and Historic Monuments of Wales 2015 *Guidelines for digital archives*





# Penrhyn Castle Biomass Heating System 1:2500



## Legend

□ NT Ownership (GB)

1: 2,500



0.1 0 0.06 0.1 Kilometers

British\_National\_Grid

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This map is a user generated static output from an Intranet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

## Notes

This map was automatically generated using the National Trust GIS Browser





Figure 02: Location of evaluation trench, positioned over GAT Report 1286 Feature 6 (PRN 61232).  
Scale: 1:500@A4; trench size: 20m long & 0.50m wide, centred on NGR SH60337172.







Plate 01: View of the evaluation trench from the south during initial excavation (archive image G2447\_Penrhyn\_044). Scale: 1 x 1m.



Plate 02: View of the evaluation trench from the southeast during initial excavation (archive image G2447\_Penrhyn\_046). Scale: 1 x 1m.







Plate 03: View of the west-southwest facing section within the evaluation trench detailing the topsoil overlying the glacial horizon (archive image G2447\_Penrhyn\_049). Scale: 1 x 1m.



Plate 04: View of the evaluation trench from the east detailing the topsoil overlying the glacial horizon (archive image G2447\_Penrhyn\_047). Scale: 1 x 1m.







Plate 05: View from the south of the evaluation trench within the estate landscape (archive image G2447\_Penrhyn\_051). Scale: 1 x 1m.



## **APPENDIX I**

**Reproduction of Gwynedd Archaeological Planning Service (GAPS)  
correspondence to the Local Planning Authority (ref: 0403je01/D2090;  
4th March 2016)**





4<sup>th</sup> March 2016

Our Ref: 0403je01/D2090

Eryl Williams  
Gwasanaeth Cynllunio  
Swyddfa'r Cyngor  
Ffordd y Cob  
Pwllheli  
Gwynedd  
LL53 5AA

Dear Eryl,

**Planning application: C16/0107/16/LL**  
**Penrhyn Castle, Llandygai**

I have checked the details of the above application against the regional Historic Environment Record (HER) and found that the proposed development may have archaeological implications.

I have read the archaeological assessment which accompanies the application (Gwynedd Archaeological Trust report 1286, December 2015) and confirm that it meets planning and professional requirements. The report sets out the potential for historic structural and boundary features depicted on 18<sup>th</sup> and 19<sup>th</sup> century mapping, as well as possible remains relating to earlier high status occupation of the site, and an unrelated potential for prehistoric archaeology suggested by recorded sites in the Llandygai and Penrhyn area.

I am generally in agreement with the assessment of potential for impact on known and potential archaeological remains, and the limited impact on the historic fabric and designed landscape of Penrhyn Castle, and the recommendations for further work are considered to be appropriate. The bulk of the scheme can be addressed through implementation of a watching brief on construction work, but there is an exception in respect of the site of a former building recorded on historic mapping (Feature 6 in the report). The date and nature of this feature are unknown, and will be difficult to establish under watching brief conditions. Should surviving structural evidence be encountered during work, this could potentially pose an obstacle to construction that would necessitate a robust, more archaeologically harmful working method. In addition, should the structure relate to the earlier (medieval) phase of Penrhyn, this would be an important element of the site desirable to preserve not only for its archaeological value, but for its educational value to visitors.

In light of this, it is recommended that this part of the route be subject to excavation of a trial trench, to establish whether any remains of this structure survive and to inform on its nature and significance. This should be carried out prior to determination of the planning application in order that the route could be adjusted so as to preserve the remains *in situ*, if this is warranted.

In view of the potential for unmapped and earlier archaeological deposits, the remainder of the scheme should be subject to an archaeological watching brief, should planning consent

*Archaeolegydd Rheoli Datblygiad JENNY EMMETT Development Control Archaeologist*

subsequently be granted. This could be secured through a standard condition, in accordance with national planning policy (*Planning Policy Wales 2016*) and Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*), such as the following:

**No development (including any groundworks or site clearance) shall take place until a specification for a programme of archaeological work has been submitted to and approved in writing by the Local Planning Authority. The development shall subsequently be carried out and all archaeological work completed in strict accordance with the approved specification.**

**Reasons: 1)** To ensure the implementation of an appropriate programme of archaeological mitigation in accordance with the requirements of Planning Policy Wales 2016 and Welsh Office Circular 60/96 *Planning and the Historic Environment: Archaeology*.

**2)** To ensure that the work will comply with *Management of Archaeological Projects* (MAP2) and the Standards and Guidance of the Chartered Institute for Archaeologists (CIfA).

Please contact me with any queries regarding the above.

Yours sincerely

Jenny Emmett  
Development Control Archaeologist



## **APPENDIX II**

**Reproduction of Gwynedd Archaeological Trust specification for an evaluation trench (March 2016)**

PENRHYN CASTLE RENEWABLE HEATING  
SCHEME, GWYNEDD

PROJECT SPECIFICATION FOR AN  
ARCHAEOLOGICAL EVALUATION  
(G2447)

***Prepared for***

***National Trust***

***March 2016***

Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

## NATIONAL TRUST, LLANGEFNI, GWYNEDD

### PROJECT SPECIFICATION FOR AN ARCHAEOLOGICAL EVALUATION (G2447)

Prepared for *National Trust*, March 2016

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Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author			
Reviewed by	Document Reviewer			
Approved by	Principal Archaeologist			

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name

Signature

Date

# 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by *National Trust* to provide a project specification for undertaking an archaeological evaluation (trial trenching) in advance of proposals for a renewable heating scheme at Penrhyn Castle, Llandygai, Gwynedd (NGR SH60277193; Figure 1). The evaluation will be completed prior to determination of application C16/0107/16/LL.

According to the submitted Design and Access Statement (National Trust, February 2016), the application is for the erection of a biomass energy building with a building to store fuel, and associated works and landscaping. The biomass energy building is proposed at a location adjoining the visitor car parking area at Penrhyn Castle. A heat main will be installed underground from the energy centre up to the castle keep in its own trench. The heat main would then link up with existing boiler rooms and services within the property after entering the keep, utilising existing services ducts and voids. The proposed fuel for the biomass scheme is wood chip with HGV vehicle access provided to the fuel store.

GAT has completed an archaeological assessment for the proposed scheme (Evans, R. 2015: GAT Assessment Report 1286), which included recommendations for evaluation during groundworks and targeted evaluation for specific features (cf. para. 2).

The evaluation will be monitored by the Gwynedd Archaeological Planning Service (GAPS) on behalf of the Local Planning Authority (LPA). GAPS have stated in correspondence to the Planning Officer for the LPA (letter ref: 0403je01/D2090; [Appendix I](#)) that the bulk of the scheme can be addressed through a watching brief, with the exception of a former building recorded on historic mapping (GAT Report 1286 Feature 6) as the date and nature of this feature are unknown, with the possibility that the structure may relate to the earlier (medieval) phase of Penrhyn.

The aim of the archaeological evaluation will be to identify if there is any activity associated with this feature and determine whether the route could be adjusted so as to preserve the remains in situ.

This specification sets out the Gwynedd Archaeology Trust methodology for completing the archaeological evaluation. This specification must be approved by GAPS in advance of any work on site; all subsequent reporting must also be approved by GAPS and the National Trust Archaeologist prior to final issue.

The archaeological works will conform to the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Archaeological Evaluation* (Chartered Institute for Archaeologists, 2014). Gwynedd Archaeological Trust is a Chartered Institute for Archaeologists *Registered Archaeological Organisation*. The format of this design corresponds to the requirements of section 2.3 of MoRPHE (English Heritage 2015) and to MAP2 (English Heritage, 1991, *Management of Archaeological Projects*).

## **2 PROJECT BACKGROUND**

### **2.1 Historical Background**

The current Penrhyn Castle was, built in 1822-38 for George Hay Dawkins Pennant and designed by Thomas Hopper. The castle was constructed in a neo-Norman style with a keep, courtyards, barbican and towers, built using stone from Ynys Mon. The castle remains very little changed since construction and has been in the hands of the National Trust since 1951, open to the public since 1952. The present house replaces a late eighteenth-century Gothic 'castle' of yellow brick, on the same site, designed by Samuel Wyatt, which probably retained the plan and part of the chapel of the previous medieval house. The medieval house is thought to have been built in the fifteenth century. The Wyatt-designed house was subsumed by the later Penrhyn Castle but the great hall survives in the present drawing-room.

Penrhyn Castle is reputed to occupy the site of Roderic Malwynog's palace who is considered to have been an 8<sup>th</sup> century King of Gwynedd, grandson of Cadwalader the last king of the Britons. The land became the property of the Gruffydd family who after advantageous marriage alliances had established a substantial estate in the area by the 14<sup>th</sup> century. In the early 15<sup>th</sup> century a Hall House with two end wings was built for Gwilym ap Gruffydd, a house that was to stand until the late 18<sup>th</sup> century. In 1684 when Sir Gruffydd William died without an heir the estate passed through various hands, until between 1765 and 1785 it was acquired by Richard Pennant. The medieval house, with additional buildings of possibly later date, is shown on an estate map of 1768 surveyed by G. Leigh (GAT Report 1286 Figure 4). This shows the medieval house set in a landscape of small enclosures, some clearly agricultural, some planted with trees. The approach to the house is shown striking off at right angles to the drive across an outer courtyard, through the stable block and up to the front door of the house (National Trust 1991, 76). Aerial photographs from the National Monuments Record show extensive parching of the land in the vicinity of the former medieval house, and this may reflect the survival of buried remains below the ground relating to the pre 1781 occupation of the area (Gee and Laws 2015, 24-25).

In 1781 a new house began to be constructed at Penrhyn that was designed by Benjamin Wyatt and built in a form of castellated gothic of yellow brick on the same site of and incorporating some elements of the previous house. The estate map of 1803 (GAT Report 1286 Figure 5) shows parkland, woodland and a garden demonstrating that development of the parkland was well underway. The Wyatt designed house was short lived, as the considerable profits that were being returned by the Pennant's slate quarries by the early 19<sup>th</sup> century enabled the current Penrhyn Castle to be constructed.

## **2.2 Gwynedd Archaeological Trust Assessment Report**

The Gwynedd Archaeological Trust completed an archaeological assessment of the proposed scheme in December 2015 (Evans, R. 2015: GAT Report 1286). The assessment examined two possible options, to the north and to the south of Penrhyn Castle, respectively.

The report identified eighteen post-medieval sites relating to the Penrhyn Estate and included former buildings and field boundaries. These sites were mainly identified on historic mapping, specifically the estate maps from 1768, 1803 and 1828 and the Llandegai Parish Tithe Map of 1841. Fourteen sites were identified on the northern route, and four on the southern route. GAT recommended that in the event of the northern option being chosen, that five of these sites, representing former buildings, were evaluated by archaeological trenching in order to assess their potential survival and to inform a mitigation strategy, with the remaining possible sites, consisting of field boundaries, recorded as part of the evaluation during groundworks. For the southern option, archaeological trenching was recommended for a former building extant on the 1803 estate map (GAT Report 1286 Feature 6) that appeared to be on the route of the proposed heat main, with the rest of the route mitigated via a watching brief.

The National Trust subsequently proposed the southern option as the chosen route in their application. As a result, the GAT recommendations for the northern route are no longer relevant, with the recommendations limited to the southern route; with Feature 6 the only site targeted pre-determination. Feature 6 was assigned Historic Environment Record Primary Reference Number 61232 as part of the assessment process.

The GAT assessment report also concluded that the surrounding area is rich in prehistoric and medieval archaeology and although none has been identified in this part of the park at Penrhyn, its presence has to be considered a strong possibility.



### 3 METHODOLOGY

Feature 6 comprises a small rectangular building noted on the 1803 Penrhyn Estate map, orientated northeast-southwest and measuring c.19m in length and 6m in width and located at NGR SH60347174 (Figure 2). The evaluation trench will target the portion of the proposed heat main route that will cross the suspected location of Feature 6.

The trench dimensions are;

- Length: 20.0m; and
- Width: 0.50m;

The trench will be centred on NGR SH60337172 (Figure 2) and orientated northwest to southeast to match the footprint of the heat main. Please note that the trench will be targeting the heat main route used in application C16/0107/16/LL rather than that used for GAT assessment report 1286 (cf. Figure 2). The revised route is further south than the assessed route; however, it still crosses Feature 6. The trench coordinates are:

Location	X coordinate	Y coordinate
northwest corner	260329.911	371732.193
northeast corner	260330.479	371733.576
southwest corner	260348.395	371724.257
southeast corner	260348.963	371725.918

#### 3.1 Table 1: trench coordinates

The trench will be located using a survey grade GPS with <10cm accuracy (model: *Trimble GNSS/R6/5800*).

The trench will examine the width of the structure. If the structure is identified, GAPS have requested (Jenny Emmett pers. comm. 8<sup>th</sup> March 2016) that arrangements are made to expand the trench width or open a perpendicular trench to confirm the length of the building, so that the shape and construction of the building can be understood and the extent of impact of the pipe on the building ascertained.

The trench will be excavated using client supplied plant fitted with a toothless bucket.

The evaluation will be completed on the 17<sup>th</sup> or 18<sup>th</sup> March 2016, with a duration expected of 1 day on site and 1 day for a report. The report is scheduled for delivery on 22<sup>nd</sup> March 2016. *If the trench is extended, then an additional day may be required on site.*

## 3.2 Evaluation Methodology

- The trench and identified features/contexts will be recorded using GAT pro-formas ([Appendix II](#)).
- Photographic images will be taken using a digital SLR (Nikon D40) camera set to maximum resolution (3008 × 2000 6.1 effective megapixels) in RAW format and will be converted to TIFF and JPEG format for archiving using Adobe Photoshop; a photographic record will maintained on site using GAT pro-formas ([Appendix III](#)) and digitised in *Microsoft Access* as part of the fieldwork archive and dissemination process;
- Any subsurface remains will be recorded photographically, with detailed notations and a measured plan.
- The trench has been targeted to examine a pre-1803 structural feature and it is possible structural foundations as well as structural phasing will be encountered. All archaeological features/deposits encountered will be manually cleaned and examined to determine extent, function, date and relationship to adjacent features. If any other features, e.g., pits, postholes or ditches, are encountered, the following will strategy will apply: 50% sample of sub-circular features, 10% sample of linear features.
- All sections to be drawn at a minimum 1:10 scale. Sections will be drawn on GAT pro-forma permatrace.
- All plans to be at a minimum 1:20 scale. Plans will be drawn on GAT pro-forma permatrace.
- Should dateable artefacts and ecofacts be recovered, an interim report will be submitted summarising the results, along with an assessment of potential for analysis specification (in line with the MAP2 process).

### **3.3 Environmental Sampling (Ecofacts)**

The evaluation trench will target a possible building location and it is not currently expected that suitable environmental samples will be encountered; however, if applicable, any deposits deemed suitable for dating will be taken from sealed contexts, with bulk samples from ditches and pit fills proposed as not less than 10 litres from each context. The sampling strategy will be undertaken in accordance with the principles set out in Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (English Heritage, 2011). Recourse will be made to relevant specialists for palaeoenvironmental analysis and dating. Any required specialists will be consulted during the evaluation to advise GAT on a sampling strategy.

*Note: if ecofacts are recovered during the evaluation an interim report that will be submitted in the first instance, along with an assessment of potential summary. The interim report will summarise the results of the fieldwork and the assessment of potential summary will discuss the scope and costs for analysing and assessing any ecofacts recovered from site, and for producing a final report and a publication document*

### 3.4 Human Remains

The evaluation trench will target a possible building location and it is not currently expected that human remains will be encountered; however, if applicable, should any finds of human remains be encountered, they will be left *in-situ*, covered and protected, and both the coroner and the GAPS Archaeologist informed. If removal is necessary it will take place under appropriate regulations and with due regard for health and safety issues. In order to excavate human remains, a Ministry of Justice licence is required under Section 25 of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial. This will be applied for should human remains need to be investigated or moved.

*Note: if human remains are recovered during the evaluation an interim report that will be submitted in the first instance, along with an assessment of potential summary. The interim report will summarise the results of the fieldwork and the assessment of potential summary will discuss the scope and costs for analysing and assessing any human remains recovered from site, and for producing a final report and a publication document*

### 3.5 Small Finds

Diagnostic artefacts will be treated according to guidelines issued by the UK Institute of Conservation (Watkinson and Neal 2001) in particular the advice provided within *First Aid for Finds* (Rescue 1999) and Historic England. Pottery sherds of 19<sup>th</sup> and 20<sup>th</sup> century date will be examined on site and the context from which they were retrieved noted but the sherds will not be retained.

*Note: if diagnostic artefacts are recovered during the evaluation an interim report that will be submitted in the first instance, along with an assessment of potential summary. The interim report will summarise the results of the fieldwork and the assessment of potential summary will discuss the scope and costs for analysing and assessing any artefacts recovered from site, and for producing a final report and a publication document*

All finds are the property of the landowner; however, it is Trust policy to recommend that all finds are donated to an appropriate museum, in this case *Bangor Museum*. Access to finds must be granted to the Trust for a reasonable period to allow for analysis and for study and publication as necessary. Trust staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants used by the Trust, including National Museums and Galleries of Wales at Cardiff.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown, on whose behalf the National Museums and Galleries of Wales acts as advisor on technical matters, and may be the recipient body for the objects.

The National Museums and Galleries of Wales will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it. When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled.

*Note: the landowner is the client. GAT will contact the landowner for agreement regarding the transfer of any artefacts, initially to GAT and subsequently to the relevant museum (Bangor Museum). A GAT produced pro-forma will be issued to the landowner where they are given the option to donate the finds or to record that they want them returning to them once analysis and assessment has been completed. If artefacts are transferred to Bangor Museum, this must be in accordance with the Bangor Museum guidelines.*

### **3.6 Monitoring Arrangements**

The GAPS Archaeologist will need to be informed of the project start date and of the subsequent progress and findings. This will allow the GAPS Archaeologist time to arrange monitoring visits and attend site meetings (if required).

### 3.7 Fieldwork Archiving

Following the completion of the fieldwork, a programme of field work archiving will be completed based on following task list;

1. Pro-formas: all cross referenced and complete;
2. Photographic Metadata: completed in *Microsoft Access* and cross-referenced with all pro-formas;
3. Sections: all cross referenced and complete;
4. Plans: all cross referenced and complete;
5. Survey data: downloaded using a Computer Aided Design package imported into a GIS shapfile;
6. Artefacts (if relevant): quantified and identified; register completed;
7. Ecofacts (if relevant): quantified and register completed;
8. Context register (if relevant): quantified and register completed;

All data will be processed, final illustrations will be compiled and a report will be produced which will detail and synthesise the results. Location drawings and a sample of relevant photographs will be used to illustrate the reports.

## 4 REPORT

Following completion of the stages outlined above, a draft report will be produced within one month incorporating the following:

1. Non-technical summary
2. Introduction
3. Background
4. Methods and techniques, including details and location of project archive
5. Evaluation Results
6. Summary and conclusions
7. List of sources consulted.
8. Appendix I – approved project design

Illustrations will include plans of the location of the study area and archaeological sites. Historical maps, when appropriate and if copyright permissions allow, will be included. Photographs of relevant sites and of the study area where appropriate will be included. A draft copy of the report will be sent to the regional curatorial archaeologist (GAPS) and to the client for review. Once approved, a final report will be submitted.

*Note: if diagnostic artefacts or ecofacts are recovered during the evaluation an interim report that will be submitted in the first instance, along with an assessment of potential summary. The interim report will summarise the results of the fieldwork and the assessment of potential summary will discuss the scope and costs for analysing and assessing any artefacts and ecofacts recovered from site, and for producing a final report and a publication document*



## 5 DISSEMINATION AND ARCHIVING

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. The archaeological evaluation outlined in this project specification will be completed in March 2016. A draft report or interim report (if relevant) will be submitted within March 2016; a final report will be submitted to the Historic Environment within six months of submitting the draft report (September 2016).

The following dissemination will apply:

1. A digital report will be provided to GAPS (draft report then final report).
2. A paper report plus a digital report will be provided to the regional Historic Environment Record, Gwynedd Archaeological Trust; this will be submitted within six months of report completion (final report only).
3. A digital report and archive (including photographic and drawn) data will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only). Submission of digital information to the Royal Commission on the Ancient and Historical Monuments of Wales shall be undertaken in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata. Note: due to the current relocation of the RCAHMW premises, the RCAHMW Archive and Library Team Leader has requested that any new accessions are deferred until June 2016 (email correspondence: 01/03/2016).
4. A digital report(s) plus paper report(s) (if requested) will be provided to the client (draft report then final report).
5. Artefacts recovered from the site during the evaluation will be transferred in accordance with the protocols and guideline defined in [para. 3.5](#).
6. Dependent on the results of the evaluation a summary note or a specific article will be included in the Council for British Archaeology Wales publication *Archaeology in Wales*. This shall be agreed with GAPS, and client in advance of publication along with all publication content. GAPS involvement in the project will be acknowledged therein.

## **5.1 Historic Environment Record**

In line with the regional Historic Environment Record (HER) requirements, the HER must be contacted at the onset of the project to ensure that any data arising is formatted in a manner suitable for accession to the HER. At the onset, the HER Enquiry Form provided by the HER, will be completed and submitted.

## 6 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section and attended by a Project Archaeologist. The project archaeologist will be responsible for completing the evaluation and all field management duties, e.g. liaison with GAPS and client. The project archaeologist will be responsible for completing all on site pro-formas ([Appendix II](#)) as well as and the fieldwork archive itemised in [para. 3.9](#). The project archaeologist will also be responsible for submitting a draft final report (or interim report/assessment of potential document, if relevant) for project manager review and approval. The report will then be submitted as per the arrangements defined in [para. 5](#).

## **7 HEALTH AND SAFETY**

The GAT Project Archaeologist will be CSCS certified. Copies of the site specific risk assessment will be supplied to the client and site contractor prior to the start of fieldwork. Any risks and hazards will be indicated prior to the start of work via a submitted risk assessment. All staff will be issued with required personal safety equipment, including high visibility jacket, steel toe-capped boots and hard hat.

All plant and welfare will be supplied by client. Archaeological evaluation is CDM exempt and does not require HSE notification.

## **8 INSURANCE**

### **Public Liability**

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability

INSURER Aviva Insurance Limited

POLICY TYPE Public Liability

POLICY NUMBER 24765101CHC/000405

EXPIRY DATE 22/06/2016

### **Employers Liability**

Limit of Indemnity- £10,000,000 any one occurrence.

The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.

INSURER Aviva Insurance Limited

POLICY TYPE Employers Liability

POLICY NUMBER 24765101CHC/000405

EXPIRY DATE 22/06/2016

### **Professional Indemnity**

Limit of Indemnity- £5,000,000 in respect of each and every claim

INSURER Hiscox Insurance Company Limited

POLICY TYPE Professional Indemnity

POLICY NUMBER

HU PI 9129989/1208

EXPIRY DATE 23/07/2016

## 9 REFERENCES

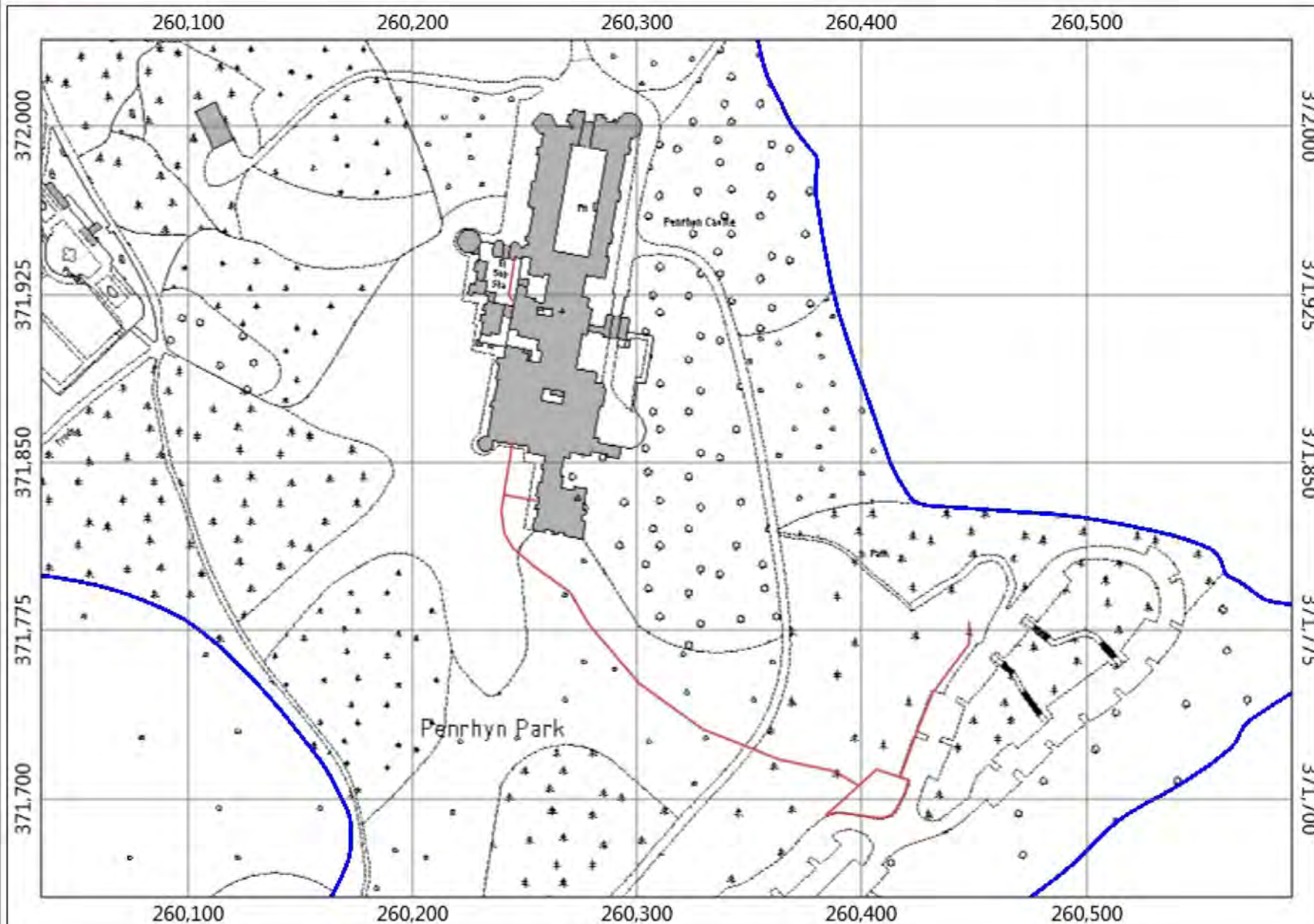
1. Chartered Institute for Archaeologists 2014 *Standards and Guidance for for Archaeological Evaluation*;
2. English Heritage 1991 Management of Archaeological Projects.
3. English Heritage, 2011. Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation, 2nd Edition;
4. Evans, R. 2015. *Penrhyn Castle Renewable Heating Scheme Archaeological Assessment*. GAT Report 1286.
5. Gwynedd Archaeological Planning Service correspondence to the Planning Officer for the LPA (letter ref: 0403je01/D2090)
6. Leigh D & D. Watkinson. 1998. First Aid for Finds: Practical Guide for Archaeologists.
7. Leigh D & D. Watkinson. 2001. UK Institute for Conservation: Excavated Artefacts and Conservation.
8. National Trust Design and Access Statement, February 2016 - Installation of biomass energy centre building, fuel storage building, heat main connection, landscaping and associated works.
9. Royal Commission on Ancient and Historic Monuments of Wales 2015 Guidelines for digital archives

## **FIGURE 01**

### **Reproduction of National Trust Location Plan**



# Penrhyn Castle Biomass Heating System 1:2500



## Legend

☐ NT Ownership (GB)

1: 2,500



0.1 0 0.06 0.1 Kilometers

British\_National\_Grid

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This map is a user generated static output from an Intranet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

## Notes

This map was automatically generated using the National Trust GIS Browser



## **FIGURE 02**

**Proposed location of evaluation trench, positioned over GAT Report 1286 Feature 6/heat main route. Note: the revised heat main route is in black (cf. Figure 1); the route assessed in GAT Report 1286 is in pink. Scale: 1:500@A4; trench size: 20m long & 0.50m wide, centred on NGR SH60337172.**



Figure 02: Proposed location of evaluation trench, positioned over GAT Report 1286 Feature 6/heat main route.  
Note: the revised heat main route is in black (cf. Figure 1); the route assessed in GAT Report 1286 is in pink.  
Scale: 1:500@A4; trench size: 20m long & 0.50m wide, centred on NGR SH60337172.

## **APPENDIX I**

**Reproduction of Gwynedd Archaeological Planning Service (GAPS)  
correspondence to the Local Planning Authority (ref: 0403je01/D2090;  
4th March 2016)**



4<sup>th</sup> March 2016

Our Ref: 0403je01/D2090

Eryl Williams  
Gwasanaeth Cynllunio  
Swyddfa'r Cyngor  
Ffordd y Cob  
Pwllheli  
Gwynedd  
LL53 5AA

Dear Eryl,

**Planning application: C16/0107/16/LL**  
**Penrhyn Castle, Llandygai**

I have checked the details of the above application against the regional Historic Environment Record (HER) and found that the proposed development may have archaeological implications.

I have read the archaeological assessment which accompanies the application (Gwynedd Archaeological Trust report 1286, December 2015) and confirm that it meets planning and professional requirements. The report sets out the potential for historic structural and boundary features depicted on 18<sup>th</sup> and 19<sup>th</sup> century mapping, as well as possible remains relating to earlier high status occupation of the site, and an unrelated potential for prehistoric archaeology suggested by recorded sites in the Llandygai and Penrhyn area.

I am generally in agreement with the assessment of potential for impact on known and potential archaeological remains, and the limited impact on the historic fabric and designed landscape of Penrhyn Castle, and the recommendations for further work are considered to be appropriate. The bulk of the scheme can be addressed through implementation of a watching brief on construction work, but there is an exception in respect of the site of a former building recorded on historic mapping (Feature 6 in the report). The date and nature of this feature are unknown, and will be difficult to establish under watching brief conditions. Should surviving structural evidence be encountered during work, this could potentially pose an obstacle to construction that would necessitate a robust, more archaeologically harmful working method. In addition, should the structure relate to the earlier (medieval) phase of Penrhyn, this would be an important element of the site desirable to preserve not only for its archaeological value, but for its educational value to visitors.

In light of this, it is recommended that this part of the route be subject to excavation of a trial trench, to establish whether any remains of this structure survive and to inform on its nature and significance. This should be carried out prior to determination of the planning application in order that the route could be adjusted so as to preserve the remains *in situ*, if this is warranted.

In view of the potential for unmapped and earlier archaeological deposits, the remainder of the scheme should be subject to an archaeological watching brief, should planning consent

*Archaeolegydd Rheoli Datblygiad JENNY EMMETT Development Control Archaeologist*



subsequently be granted. This could be secured through a standard condition, in accordance with national planning policy (*Planning Policy Wales 2016*) and Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*), such as the following:

**No development (including any groundworks or site clearance) shall take place until a specification for a programme of archaeological work has been submitted to and approved in writing by the Local Planning Authority. The development shall subsequently be carried out and all archaeological work completed in strict accordance with the approved specification.**

**Reasons:** 1) To ensure the implementation of an appropriate programme of archaeological mitigation in accordance with the requirements of Planning Policy Wales 2016 and Welsh Office Circular 60/96 *Planning and the Historic Environment: Archaeology*.

2) To ensure that the work will comply with *Management of Archaeological Projects* (MAP2) and the Standards and Guidance of the Chartered Institute for Archaeologists (CIfA).

Please contact me with any queries regarding the above.

Yours sincerely

Jenny Emmett  
Development Control Archaeologist

## **APPENDIX II**

**Reproduction of Gwynedd Archaeological Trust evaluation trench pro-  
forma and context sheet**

# TRENCH SHEET

Project Name and Number		Trench number	
-------------------------	--	---------------	--

Trench size		Plans	
Max. trench depth		Sections	
Orientation		Photos	
Date/Initials		Area/chainage	

List of layers and/or features in trench (continue on back of sheet if necessary)

[illegible]

General summary

[illegible]



## GWYNEDD ARCHAEOLOGICAL TRUST

## CONTEXT RECORD FORM

SITE CODE	GRID SQUARE	SITE SUB-DIV	CONTEXT NUMBER
CATEGORY/TYPE	PROVISIONAL DATE/PERIOD/PHASE		
LENGTH	BREADTH	DIAMETER	DEPTH/HEIGHT
DEPOSIT			CUT
1. Compaction			1. Shape in plan
2. Colour			2. Corners
3. Matrix Composition			3. Break of slope top
4. Inclusions			4. Sides
5. Clarity of Interface			5. Break of slope base
6. Other comments			6. Base
7. Methods & conditions			7. Orientation
			8. Truncated (if known)
			9. Other comments
			<b>Draw sketches overleaf</b>
FILLED BY	<div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> This <div></div> context </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>		
FILL OF	Stratigraphic matrix		
PLANS		SECTIONS	
Sheet No.		Sheet No.	
Drawing No.		Drawing No.	
PHOTOGRAPHS - Film No./ Frame No.			
SAMPLE Nos.		FIND Nos.	
FEATURE No		GROUP No	CONSISTS OF
INTERPRETATION/DISCUSSION		SAME AS	
		CHECKED BY (initials/date)	INITIALS/DATE

**SKETCH**

**DESCRIPTION/INTERPRETATION CONTINUED**

## **APPENDIX III**

**Reproduction of Gwynedd Archaeological Trust photographic record  
pro-forma**



## Digital Photographic Record

Include main context numbers for each shot, drawing numbers for sections and any other relevant numbers for cross referencing.  
Delete any unwanted photos **immediately** from the camera. Regularly upload photographs to computer.

[illegible]



**Digital Photographic Record      Project code and name:**

Include main context numbers for each shot, drawing numbers for sections and any other relevant numbers for cross referencing.

Delete any unwanted photos **immediately** from the camera.

Regularly upload photographs to computer.

[illegible]

## **APPENDIX III**

**Reproduction of Gwynedd Archaeological Trust photographic metadata**

File reference	Project name	Project phase	Site sub-division	PRN	Contexts	Description	View from	Scale (s)	Date	Originating person	Originating organisation	Plates
G2447_Penrhyn_043	G2447 Penrhyn Castle	Evaluation	Trench	61232		General pre-excavation shot of evaluation trench	WNW	-	17/03/16	RE	GAT	
G2447_Penrhyn_044	G2447 Penrhyn Castle	Evaluation	Trench	61232		General pre-excavation shot of evaluation trench	SSE	1x1m	17/03/16	RE	GAT	Plate 1
G2447_Penrhyn_045	G2447 Penrhyn Castle	Evaluation	Trench	61232	101, 102	WSW facing section showing topsoil over natural at 800mm	ENE	1x1m	17/03/16	RE	GAT	
G2447_Penrhyn_046	G2447 Penrhyn Castle	Evaluation	Trench	61232		General shot of evaluation trench excavation	SSE	1x1m	17/03/16	RE	GAT	Plate 2
G2447_Penrhyn_047	G2447 Penrhyn Castle	Evaluation	Trench	61232		Shot of trench excavation	S	1x1m	17/03/16	RE	GAT	Plate 4
G2447_Penrhyn_048	G2447 Penrhyn Castle	Evaluation	Trench	61232		General view of trench excavation	S	1x1m	17/03/16	RE	GAT	
G2447_Penrhyn_049	G2447 Penrhyn Castle	Evaluation	Trench	61232		Detail showing trench section	ESE	1x1m	17/03/16	RE	GAT	Plate 3
G2447_Penrhyn_050	G2447 Penrhyn Castle	Evaluation	Trench	61232		Post-ex shot of trench	ENE	1x1m	17/03/16	RE	GAT	
G2447_Penrhyn_051	G2447 Penrhyn Castle	Evaluation	Trench	61232		General shot showing excavation trench and castle	SE	-	17/03/16	RE	GAT	Plate 5



Gwynedd Archaeological Trust  
Ymddiriedolaeth Archaeolegol Gwynedd

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Ffon: 01248 352535. Ffacs: 01248 370925. email: [gat@heneb.co.uk](mailto:gat@heneb.co.uk)

