
Rhiwgoch Water Treatment Works Harlech



Assessment Report

GAT Project No. 2046

Report No. 754

September 2008

RHIWGOCH WATER TREATMENT WORKS, HARLECH ARCHAEOLOGICAL ASSESSMENT

Report No. 754

Prepared for
Dwr Cymru

September 2008

By

Robert Evans

Illustrations by Tanya Berks

G2046 RHIWGOCH WATER TREATMENT WORKS

ARCHAEOLOGICAL ASSESSMENT

CONTENTS

Summary

1. Introduction
2. Project brief and specification
3. Methods and Techniques
4. Archaeological Results
5. Summary of Archaeological Potential
6. Summary of Recommendations
7. Conclusions
8. Archive
9. References

Figures

Plates

Appendix 1 List of sites around the Rhiwgoch WTW scheme recorded in the Gwynedd Sites and Monuments Record, with their public record numbers (PRNs) national grid references and site status

Appendix 2 Listed Buildings with 0.5km of Study Area

Appendix 3 Design Brief from the Snowdonia National Park Authority (SNPA)

Figures

Fig. 1 Location of Rhiwgoch Water Treatment Works Showing Sites on the Gwynedd HER (Green Dots), Listed Buildings (Purple Crosses). Scheduled Ancient Monument Areas are Shaded.

Fig. 2 Rhiwgoch Water Treatment Works Showing Location of Sites Mentioned in the Text

Fig. 3 Rhiwgoch Water Treatment Works. Overlain on Ordnance Survey 1889 1st edition Map Merionethshire XXVI.11

Fig. 4 1951 RAF Vertical Aerial Photograph showing Location of Rhwgoch WTW (Outlined in Green), with the Town of Harlech in the Foreground.

Fig. 5 1961 RAF Oblique Aerial Photograph showing Harlech and Uplands Beyond

Fig. 6 Extract from Ordnance Survey Aerial Photograph 180 71/234. (Not dated, but after Construction of WTW), Showing Area of Disturbed Ground to the North East of WTW. *Muriau Gwyddelod* (ME010) is Clearly Visible in the Foreground. The Development area is Outlined in Green. Site 1 is half within stripped area to the north west of the WTW and half beyond it.

Plates

Plate 1 Possible Medieval Long House, Facing North-East (Site 1). Scale 1m

Plate 2 Possible Burnt Mound. Most of the Visible Material Forms Part of Field Clearance Cairn (Site 2). View facing South-East (Scale 1m)

Plate 3 Evidence of Modern Disturbance to the Ground, a Capped Well (Site 3)

Plate 4 General View of Rhiwgoch WTW from the South East

RHIWGOCH WATER TREATMENT WORKS (G2046)

ARCHAEOLOGICAL ASSESSMENT

SUMMARY

An archaeological assessment was carried out on an 'L' shaped plot of land to the north and east of the Rhiwgoch Water Treatment Works. Two sites of significant archaeological importance were identified within the development area itself, a possible medieval long house with attached enclosure and a possible burnt mound. It was noted that the potential for the survival of other archaeological remains within the development area was high. The site was noted to lie within a landscape of particular importance, with evidence surviving of settlement patterns and field systems from prehistoric to medieval times. Seven Scheduled ancient monuments are noted as lying within half a kilometre of Rhiwgoch, and it lies within an area of Outstanding Historic Interest. It was considered that a programme of survey followed by full excavation would be required to fulfil the requirements for archaeological mitigation.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was asked by Egniol on behalf of their clients Dwr Cymru Welsh Water to carry out an archaeological assessment in advance of the construction of an extension to the Water Treatment Works at Rhiwgoch. The works are sited at SH 5920 3037 to the east of Llanfair and Harlech. The intention of Dwr Cymru is to purchase approximately 0.8ha additional land in an 'L' shape to the east and south of the existing works on which to site additional treatment works. An additional area to the north east is to be temporarily used as a compound and storage area. The location of the works and proposed expansion is shown on drawing 161124 dated 04/08/08 by Black and Veatch.

2 DESIGN BRIEF AND SPECIFICATION

A detailed brief had been prepared for this scheme by Snowdonia National Park (Ref: A-D/012), requiring an archaeological assessment. This brief highlighted the importance of the prehistoric and medieval settlement evidence within the proposed development area. A specification for the assessment was submitted to Snowdonia National Park Authority by GAT. This report conforms to that brief, and to the guidelines specified in *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists, 1994, rev. 2001).

A desk-based assessment is defined as 'a programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate'. (*Standard and Guidance for Archaeological Desk-based Assessment*, IFA 2001, 2).

The aims of the assessment as given in the specification are:

- to identify and record the cultural heritage within the defined study area;
- to evaluate the importance of what has been identified;
- to recommend ways in which impact upon the cultural heritage can be avoided or minimised.

To comply fully with the aims expressed above it can be necessary to undertake a programme of Field Evaluation following the Desktop study and Field Visit. This is because some sites cannot be assessed by desktop or field visit alone, and additional fieldwork is therefore required. This typically takes the form of geophysical survey or trial excavation, although measured survey is also a possible option. A full programme of assessment and evaluation may therefore consist of:

- Desktop study
- Field walkover
- Initial report
- Field evaluation
- Draft report
- Final report

The phase of the project concerns the first three phases only, and recommendations will be made for any field evaluation required.

3 METHODS AND TECHNIQUES

3.1 Desk top study

The desktop study comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Historic Environment Record (HER), located at Gwynedd Archaeological Trust (GAT), Bangor. The archives held by the Meirionnydd Record Office, Dolgellau and Bangor University were also consulted. Information about listed buildings was consulted by means of the CARN (Core Archaeological Index), which is the online index of the Royal Commission on Ancient and Historic Monuments, Wales. Relevant aerial photographs from the collection at RCAHM, Wales were examined. Two previous assessment reports examining routes of proposed pipelines in the vicinity were consulted (Gwyn 1996, Hopewell 2003, Davidson *et. al* 2005). Kelly (1982) was also consulted as it forms an in depth study of the wider area in which the development area is situated.

Sites, buildings and find spots listed in the GAT HER were identified (Fig. 1) within three zones. Those within about 1km of the route were identified in order to give background information relevant to understanding the area.

3.2 Field Search

The field search was undertaken on the 8th September 2008, when the area of the proposed development was examined. Notes were taken, sketches and measurements were taken of sites of potential archaeological interest and a photographic record was made.

3.3 Report

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment of the area is given at the end.

The criteria used for assessing the value of features was based upon those used by the Secretary of State for Wales when considering sites for protection as scheduled ancient monuments, as set out in the Welsh Office circular 60/96. The definitions of categories used for impact, field evaluation and mitigation are set out below.

3.3.1 Categories of importance

The following categories were used to define the importance of the archaeological resource.

Category A - Sites of National Importance.

Scheduled Ancient Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) 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 or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless 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.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened.

Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category.

For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - 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 evaluation. By the end of the assessment there should usually be no sites remaining in this category. In this case several areas of unknown potential have been allocated to this category. These require environmental sampling which should be carried out during the pipeline works.

3.3.2 Definition of Impact

The impact of the road development on each site was estimated. The impact is defined as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this particular site.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the feature, *e.g.* part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of a site affecting its overall integrity. Sites falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the site is unknown, but thought to be in the vicinity of the proposed road.

3.3.3 Definition of field evaluation techniques

Field evaluation is necessary to fully understand and assess most class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil. Other forms of geophysical survey, including resistivity survey and ground penetrating radar might also be of use.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

3.3.4 Definition of Mitigatory Recommendations

Below are the measures that may be recommended to mitigate the impact of the development on the archaeology.

None:

No impact so no requirement for mitigatory measures.

Detailed recording:

This requires a full photographic record and measured survey prior to commencement of works.

Archaeological excavation may also be required depending on the particular feature and the extent and effect of the impact.

Basic recording:

Requiring a photographic record and full description prior to commencement of works.

Strip, Map and Sample:

The technique of Strip, Map and Sample involves the examination of machine-stripped surfaces to identify archaeological remains. The stripping is undertaken under the supervision of an archaeologist. Stripping and removal of the overburden is undertaken in such a manner as to ensure damage does not take place to surfaces that have already been stripped, nor to archaeological surfaces that have not yet been revealed.

Stripping is undertaken in as careful a manner as possible, to allow for good identification of archaeological features. A small team of archaeologists will be responsible for subsequently further cleaning defined areas where necessary. Complex sites which cannot be avoided will need to be fully excavated.

Watching brief:

This is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

Avoidance:

Features, which may be affected directly by the scheme, or during the construction, should be avoided. Occasionally a minor change to the proposed plan is recommended, but more usually it refers to the need for care to be taken during construction to avoid accidental damage to a feature. This is often best achieved by clearly marking features prior to the start of work.

Reinstatement:

The feature should be re-instated with archaeological advice and supervision.

4 ARCHAEOLOGICAL RESULTS

4.1 Topographic description

Previous studies which have helped inform the work for this project include an assessment of a pipeline from Llanfair to Harlech lying between the study area and the coast (Davidson and Hopewell 2003; Hopewell 2003; Davidson 2006). The archaeological evidence on the rocky massif of the Harlech Dome itself, upon which the Rhiwgoch WTW stands, has been studied most notably by Bowen and Gresham (1967) and Kelly (1982). Study of this area has been carried out in conjunction with that of a proposed link main between Harlech and Llanfair (GAT unpublished report No. 753).

Harlech stands on the edge of the Precambrian rocky massif of the Harlech Dome. The upper part of the town and the castle stand on a rocky shelf and eminence that falls steeply to a former shoreline which is masked by Morfa Harlech. The Harlech Dome is bounded by the Dwyryd and the Mawddach estuaries to the north and south and by the alluvial and sandy plain of the Ardudwy coastlands to the west, and the Trawsfynydd depression on the east. The rock is formed by anticline rocks of Cambrian age. In between the massive grits with shaly partings, tough mudstones and Menevian and Lingula flags of the middle Cambrian Age give way to high, rugged, heavily glaciated mountains, the highest of which is Y Rhiniog Fawr [720m] (Bowen and Gresham 1967, 1; Smith and George 1961, 16-20). The site itself is located upon coarse grits of the Rhinog Formation and siltstone (BGS 1982). Soils consist of boulder clay and exposed undifferentiated drift, which is probably quite shallow. Isolated areas of peat exist on the northern section of the route, and significant quantities of bedrock are exposed, as well as large numbers of glacial erratic rocks.

4.2 Archaeological and historical background

The pipeline runs through an area rich in history and containing a high density of archaeological sites. A total of 38 sites are recorded in the Gwynedd Sites and Monuments Record within 1km of the site. Seven SAMs and 5 listed buildings lie within 0.5km of the site. The study area itself lies within the parish of Llanfair juxta Harlech in the commote of Ardudwy and the cantref of Uwch-Atro in the county of Meirionnydd.

4.2.1. Earlier Prehistoric

Some evidence for Neolithic activity has been found at Moel y Gerddi (Kelly 1988, 107), but these consist mainly of pits containing fire cracked rocks. More substantial evidence is found in the more low lying areas to the west such as at the complex Portal Dolmen at Dyffryn Ardudwy (Powell 1973, 1-49).

Two Bronze-Age standing stones (PRN 1059¹) stand on the banks of the Afon Artro just to the North of Llanbedr – other Bronze Age activity is reflected by a scatter of finds, some of high status, within the study area. (Bowen and Gresham 1967, 121-129). Most do not have exact findspots so their context is lost. The most spectacular is a gold torque (PRN 2896) dug up in a garden somewhere near Harlech Castle. It is now in the National Museum of Wales. Two palstaves (PRN 2908) from a group found in 1851 ‘near Harlech’ are in the British Museum. One in an untrimmed casting and could therefore have been locally manufactured. A Bronze Age rapier in the Ashmolean Museum, Oxford was also found in the Harlech area. Fragments of a Bronze Age cinerary urn (PRN 4783) were found at Pensarn (OS NAR card SH52 NE17) about 1/3 mile east of the railway station.

Excavation on Moel Goedog (SH 610324) to the north east of the area under study revealed at complex ring cairns containing a number of cremation burials and other pits of probable ritual significance (Lynch 1984, 8-50). It was suggested that they were part of a number of monuments situated away from areas of settlement and visible from the lower lands to the west (*ibid.*, 34), suggesting that the slopes of the rocky shelf above Harlech could have formed part of a ritual landscape.

4.2.2 Late Prehistoric / Romano-British

The high level of survival of settlement patterns on the Ardudwy Uplands is one of the defining characteristics of the landscape of Outstanding Historic Interest. These sites probably have their origins in the later Bronze Age and continue through to Early Medieval times, and clear period definition is often very difficult. An

¹ PRN refers to the individual primary reference number given to each recorded site on the Gwynedd HER.

extensive system of huts, enclosures and fields stands at Muriau Gwyddelod (PRN 1054-56) just to the west of the proposed development area. The system includes many Iron Age features along with signs of medieval settlement. Further settlement to the west of this (PRN 1051) at Groes Las is less well preserved but also appears to be Iron Age. Two circular enclosures, one to the south of Harlech (PRN 2903) and one at Llanfair (PRN 1164) are probably the remains of Romano-British homesteads. A very denuded hut group and faint remnants of terracing (PRN 1063) are all that survive of a round house settlement about 100m just to the south of Llanfair (Bowen and Gresham, 195). The field containing the hut group is visible on RAF aerial photographs from 1951 (540/464/4031 and 4032) as unimproved pasture containing poorly defined features. Nothing was however visible in the surrounding fields. The OS recorded that much of the system of terraces is overlaid by modern field walls and only fragments are clearly visible (NAR card SH52 NE 11 1972). Ordnance Survey aerial photographs show the ancient landscapes in more detail (OS 180/71 234), but there has been some agricultural improvement undertaken since the 1970's which has removed many of the features visible on the aerial photographs.

Excavations at Moel-y-Gerddi and Erw-Wen near Harlech revealed evidence of enclosed round house settlement dating to the first millennium BC, with further activity at Erw Wen in the Medieval period (Kelly 1988, 138-140). It is likely that many of the settlements continue in use into the early medieval period. Later medieval re-use is recorded at Erw Wen, when the roundhouse was probably reused as an animal pen and a rectangular platform house was constructed (*ibid.*, 128). During the first millennium BC the settlements are commonly enclosed but there is a tendency for more of them to become open settlements later in the period (Ghey *et al.* 2007).

There is no clear evidence of Roman military occupation along the Ardudwy coastal plain. The Roman road between Tomen-y-Mur and Pennal (Margary 196, 354-5) takes an inland route about 8 miles to the east.

4.2.3. Early Medieval

There are two early Christian inscribed stones built into the fabric of Llandanwg old church, the parish of which included Harlech, one reading IN(G?)ENUI/IARRI (/HI)C IA(CIT) and the other EQUESTRI(S) NOMIE (Nash Williams 1950, 278-9). The origin of the stones is open to debate. The RCAHM *Inventory of the county of Merioneth* (1921, 61-63) speculates that the 'Hic Iacit' stone originated in Beddau gwyr Ardudwy and was reported as missing from Ffestiniog church in 1695 by Edward Lhuyd.

4.2.3 Medieval

A church was certainly present in Llanfair in 1188, when visited by Gerald of Wales and Archbishop Baldwin. In the 15th century, a new chancel was built onto an existing church and parts of those structures have survived the restoration of the church in the 19th century (Davidson 2000, 353). An early foundation for Llandanwg church is suggested by its original circular cemetery that is now buried by sand. The present church appears to be of 13th century date with 14th and 15th century extensions. A cross slab in the west wall probably dates from the 9th to 11th century (*ibid.* 343-4).

The most visually dominating archaeological/historical site near the study area is the 13th century Harlech Castle, built by Edward I as part of a series of fortifications designed to consolidate the conquest of Wales. Tradition maintains that there was an earlier Welsh stronghold on this site. The second branch of the Mabinogi records that 'Bendigaidfran son of Llyr ... was at Harddlech in Ardudwy, at his court. And they were seated on the rock of Harddlech overlooking the sea'. There are, however no physical remains to confirm the tradition (Soulsby 1983, 138-9). It is known that Llywelyn ap Gruffydd's wooden hall from nearby Ystumgwern was set up in the castle, an act presumably both practical and symbolic.

There is considerable evidence for medieval settlement upon the upland slopes above Harlech (Gresham 1954, 18-53). The structures comprised a variety of shapes and sizes, but in most cases they comprise a rectangular structure, and sometime have an attached paddock. It is not always easy however to differentiate these from more modern sheepfolds and paddocks (Kelly 1982, 158). A possible site of this type has been identified within the development area (Site 1), which is similar in size, and with a possible attached paddock, to those identified by Kelly (1982) and Bowen and Gresham (1967) in the Ardudwy area (eg. PRN 1182). Such sites are considered by Kelly to represent a *hafod* or summer upland dwelling related to the more permanent *hendre* located on lower ground.

4.2.4 Post-Medieval

The borough of Harlech failed to recover from Glyndŵr's occupation and Speed's Map of Harlech of 1610 shows 32 houses located west of the castle, and no evidence for any town defences (Fig. 3). He records a medieval chapel that was 'decayed and without use' just to the east of the castle and a mill at the north of the borough (Speed 1610, 117-8). The Merioneth gentry were staunchly royalist in the civil war and the castle was again garrisoned. It was attacked unsuccessfully in 1646 but fell after a brief siege on 10 March 1647 and orders were given for its demolition. The walls may have been breached but the orders were not carried out to any large extent. The castle was allowed to decay until the 18th century when it became a tourist attraction. The town, however, remained poor. Fenton visited it in 1808 during his *Tours in Wales* and described it as the 'most forlorn, beggarly place imaginable' (Fenton 1917, 105).

Two farmhouses Argoed (PRN 4786) and Llanfair Isaf (PRN 4787) retain 16th and 17th century elements. Smith (1988, 166-168) classifies these as sub-medieval houses built to a pattern using 'the unit system' where ranges of rooms are duplicated but not directly linked as in cross-winged houses. At Argoed the two units of the house are linked by a vestibule but at Llanfair Isaf the units are built corner to corner with no direct link. This pattern of construction suggests that the units may have held independent households or perhaps provided separate guest accommodation. RCAHM also notes that buildings at both houses were thought to have housed tanneries (RCAHM CARN ref 41221 and NPRN 12398).

4.2.5 Early-Modern/Modern

An estate map of the Mostyn family, but previously belonging to the Vaughans of Cors y Gedol, and dated to 1771 shows some development along the high Street, but probably reflects the 'beggarly' place seen by Fenton (Bangor Archives, Mostyn MSS 8679). The area to the east is shown as semi-improved pasture; however some arable agriculture appears to be taking place.

The town finally began to flourish in the mid 19th century with better communication via the creation of local turnpike trusts and latterly the creation of a rail link. The Llandanwg and Llanfair tithe maps of 1839/40 show a pattern of small fields that remain largely unchanged to the present day apart from a certain amount of urban expansion around Harlech itself (Fig. 4). This state of affairs is also shown on the Sale Catalogue of the Cors y Gedol lands when much of the town and a significant amount of land to the east was purchased by Lord Mostyn in 1849 and 1856 (NLW Sale Catalogues 177 and 236), making him the major landowner in the area.

The tithe schedules for the parish of Llanfair juxta Harlech record a mixture of pasture and arable land with marsh allotments. During the latter part of the 19th century, new houses were built to accommodate several well to do English families (Lloyd 1986, 81) and Harlech became a popular summer destination. The newcomers patronised local music festivals and some sponsored the creation of the Harlech Golf Links.

The economy, away from Harlech itself, remained primarily agricultural throughout the 19th and 20th centuries although small-scale industrial activity is demonstrated by the presence of trial quarry workings along Harlech Cliff shown on the OS 1:2500 map of 1901 and a slate quarry to the east of Llanfair (Fig. 5).

The twentieth century saw a degree of depopulation in the post-war depression although tourism continued to be an important source of income. The growth in the ownership of motor cars led to further expansion of the tourist trade and the spectacular castle remains the chief attraction (Lloyd 1986, 91-93)

4.3 Statutory and non-statutory designations

The development area lies within the Snowdonia National Park and the Ardudwy Landscape of Outstanding Historic Interest (HLW (Gw) 2), where it is described as 'a large, exceptionally rich and well-studied landscape, situated on the western flanks of the Rhiniog Mountains, containing extensive relict evidence of recurrent land use and settlement from prehistoric to recent times' (Cadw 1998, 76). Seven Scheduled Ancient Monument areas lie within 0.5km of the pipeline route. These are Muriau'r Gwyddelod (ME010) Harlech Castle (ME044), Groes Las Prehistoric Settlement (ME095), Cefn Filltir Enclosed Homestead (ME 098), the Enclosure and Early Field System north of Fronhill (ME158), an enclosed settlement at Tyddyn Ddu (ME120) and a hut circle south of Tyddyn Ddu (ME161). These are shown as shaded areas on Fig.1. There are five listed buildings within 0.5km of the route, which are listed in Appendix 2

4.4 The Archaeological Survey (Fig. 2)

Three features were identified directly within or contiguous with the study area, defined as the outline shown on Fig. 2 (Taken from Drawing No. 161124-00-3700) and within 30m of it. These are initially described listed below with recommendations for further assessment and mitigatory measures, where appropriate.

Feature 1 Possible Medieval Long House and Enclosure (Plate 1) PRN 20612

SH 59243042

Period: Medieval

Category: E Impact: Considerable

The remains of a possible medieval long house were identified north east of the current Water Treatment Works within the proposed area of expansion. These consist of low earthworks, up to 0.6m high, and enclose an area of approximately 12m by 5m, orientated north-east south-west. It is likely that they represent the remains of a *hafod summer* dwelling, and are potentially of high archaeological significance.

A possible paddock or enclosure associated with the house was noted running south-east of the long house from approximately 20m and returning south westwards towards the Water Treatment Works. It is not particularly visible on the RAF aerial photographs (RAF 540/464 3007, 1951). It is however clearer on the Ordnance Survey APs (OS 180 71 234). The south western edge of the site appears to have been truncated, perhaps at the time the WTW was constructed. The side appears to cross the stripped and undamaged areas at the right of the photograph, with about two-thirds of the house surviving (Fig. 6).

The site is located on neither the tithe Map of Llanfair Parish of 1839, nor the 1st edition 25 inch Ordnance Survey Map of 1889 (Fig. 3).

Recommendations for further assessment: Topographic Survey and Trial Excavation

Recommendations for mitigatory measures: Await results of evaluation

Feature 2 Possible Burnt Mound PRN 20613 (Plate 2)

SH59253031

Period: Prehistoric

Category: E Impact: Considerable

A mound of stones is located to the south-east of the current Treatment Works, and within the proposed development area. This may represent field clearance and later agricultural activity, or even construction activity from the first phase of works. However, some burnt stones are present, and therefore it may be, at least in part, a prehistoric burnt mound.

Recommendations for further assessment: Topographic Survey and Trial Excavation

Recommendations for mitigatory measures: Await results of evaluation

Feature 3 Modern Well Cappings PRN 20614 (Plate 3)

SH 59263036 and 59253033

Period: Post medieval

Category: D Impact: Unknown

Two concrete caps with small inspection chambers were noted. These were marked with a wooden post nearby with 'well' marked upon them. Further information about these is not available, but probably indicate disturbed ground in these areas.

Recommendations for further assessment: None

Recommendations for mitigatory measures: Basic Record

5 SUMMARY OF ARCHAEOLOGICAL POTENTIAL

5.1 Location Summary

The site comprises an L-shaped extension to the existing Rhiwgoch water treatment works (WTW) compound covering an area of approximately 0.8ha (Fig. 2). The land is enclosed semi-improved pasture forming part of a broad upland plateau, the Harlech Dome, about 0.9km to the east of Harlech. A significant quantity of protruding bedrock and glacial erratics are scattered across the area, which appear to have been subject to periodic clearance. There are no historical references to development within the study area with the exception of a footpath running along the south side to the farm of Drws yr Ymlidd (marked on OS maps from 1889 to the present). The rectangular foundations within the area are therefore interpreted as part of an earlier, medieval or 17th century, landscape. The development area lies within an exceptionally rich archaeological landscape, with seven scheduled ancient monuments within 0.5km of it, and much further evidence of prehistoric and medieval relict field systems and settlement patterns. Sites noted on the Gwynedd HER within 1km of the site are listed in Appendix 1.

5.2 Aerial Photographs

Ten aerial photographs dating from 1946 and 1951 were examined at the NMR in Aberystwyth. These were found to show clearly the known archaeological sites to the west of Harlech, many of which appear to have been better preserved in those times, however no archaeological sites were visible within the proposed development area. A later (not dated, but c. 1970) Ordnance Survey large scale aerial photograph OS 180/71 234 however shows Site 1 clearly, as well as the newly constructed treatment works. It appears from the photograph that the site was partly truncated by the construction of the treatment works (Fig. 6).

5.3 Environmental Remains and Soil Morphology

The topsoils on the agricultural land next to the water treatment works are likely to be quite shallow in places, as there is a significant amount of bedrock protruding. There will however be deeper areas, and the significance for the preservation of environmental remains is unknown at Rhiwgoch itself. However significant survival of late prehistoric plant macrofossils and pollen was uncovered in 1981 at Moel y Gerddi near Harlech that enabled a study of the deterioration of soil conditions and the increasing importance of heath land over time to take place (Chambers and Price 1988, 93-100).

5.4 Artefactual Potential

The likely presence of artefacts is unknown; however they could survive in association with any prehistoric sites uncovered. The likelihood of medieval finds associated with the possible long house is probably quite limited, however there remains some potential. Artefacts were recovered from the excavations at Moel Y Gerddi (Kelly 1988) and Moel Goedog (Lynch 1984).

6. SUMMARY OF RECOMMENDATIONS

- The 'L' shaped area surrounding the existing WTW at Rhiwgoch appears to have high potential for the survival of archaeological remains from the prehistoric and medieval periods, as some survives as earthwork features. The likelihood of additional buried sites, not visible from a surface examination alone, is high. The presence of a large quantity of glacial erratic boulders, some of which have been cleared into piles, makes a full interpretation of the site difficult. It is therefore recommended that a topographic survey be carried out to provide a terrain model of the potential archaeological features within the development area.
- The possibility of carrying out a geophysical survey of the area was considered during the assessment process. However, given the shallow depths of undifferentiated drift soils above exposed and weathered bedrock, it was thought the results would be too inconclusive, and this technique is not recommended here.

- A programme of trial trenching is recommended to allow a better assessment of the importance of the archaeology, and to allow appropriate mitigation recommendations to be made. The exact location of these trenches would be best made following the completion of the topographic survey, however it is anticipated that a single trench across feature one measuring approximately 30m x 2m, a single trench across feature 2 measuring 30m x 2m and a longer trench parallel to the north-east side of the development area measuring some 60m x 2m would be an appropriate method of evaluating the archaeology within the development area.

7. CONCLUSIONS

The extension to the Water Treatment Works will have no permanent impact on the setting of Harlech Castle, a World Heritage site, which cannot be seen from the development site. However the exposed location of the proposed development site, and the fact that it is visible from quite a wide surrounding area, means that any extension will have some permanent visual impact upon the Ardudwy Landscape of Outstanding Historic Interest, and the Scheduled Ancient Monuments overlooking Harlech to the west of the development. Consideration needs to be given to minimize the impact of this by careful design.

There is potential for direct impact upon archaeology within the development area. The full nature and extent of the archaeology cannot be assessed without further evaluation, and therefore a phased programme of survey and trial trenching is recommended.

8. ARCHIVE

The archive consists of historic maps, plans and aerial photographs, along with notes and 46 digital images taken on the field visit.

Three copies of the bound report will be sent to the SNPA archaeologist, and a further copy sent to the HER Archaeologist at the curatorial division of Gwynedd Archaeological Trust, Bangor, for deposition in the Regional HER. A copy of the report will be provided to the National Monument Record, Royal Commission on the Ancient and Historic Monuments of Wales, Aberystwyth.

9. REFERENCES AND OTHER SOURCES CONSULTED

Beverley Smith J. and Beverley Smith, L. *History of Merioneth Vol. II*

British Geological Survey 1982 *Harlech-Sheet 135*

Bowen, E.G. and Gresham, C. 1967, *History of Merioneth Vol. I.*

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

Chambers, F.M. and Price, S.M. 1988 'The Environmental Setting of Erw-wen and Moel y Gerddi: Prehistoric Enclosures in Upland Ardudwy, North Wales', *Proc. Prehistoric Soc.* 54, 93-100

Davidson A 2001, Parish Churches in *History of Merioneth Vol II* eds J Beverly Smith and L Beverly Smith

Davidson A 2006 The medieval castle and borough of Harlech (Unpublished GAT Report 641 which assessed the medieval harbour location)

Davidson, A. and Hopewell, D. 2003 *Waste Water Treatment Works, Llanbedr, Gwynedd (G1795)* (Unpublished GAT Report No. 510)

Davidson, J., Hopewell, D. and Roberts, J. 2005 *Harlech to Llanbedr and Llanbedr to Llandanwg Rising Mains* (Unpublished GAT Report No. 594)

Evans, R. 2008 *Harlech to Llanbedr Link Main (G2049)* (Unpublished GAT Report No. 753)

Fenton, R.A. 1917, *Tours in Wales (1807-1813)*

Ghey, E., Edwards, N., Johnston, R. and Pope, R. 2007 'Characterising the Welsh Roundhouse: Chronology, Inhabitation and Landscape', *Internet Archaeology* 23.

Gresham, C. 1954 'Platform Houses in North-West Wales', *Arch. Camb. CII*, 18-53

Gwyn D. Rh. 1996. *Llanbedr to Harlech Link Main, Archaeological Assessment*. (Unpublished GAT Report 208)

Hopewell, D. 2003 *Harlech to Llanbedr and Llanbedr to Llandanwg Rising Mains, Archaeological Assessment (G1795)* (Unpublished GAT Report No. 490)

IFA 2001. *Standard and Guidance for Archaeological Desk-based Assessment* (1994, rev. 2001).

Kelly, R. 1982 *The Ardudwy Survey: Fieldwork in Western Merioneth 1971-81. J. Merioneth Historical Record Soc.* IX II, 121-162.

Kelly, R. 1988 'Two Late Prehistoric Circular Enclosures near Harlech, Gwynedd', *Proc. Prehistoric Soc.* 54, 151

Lewis E A 1912 *The Medieval Boroughs of Snowdonia*

Lloyd, L.W. 1986 *The Book of Harlech*

Lynch, F.M. 1969 'The Megalithic Tombs of North Wales' in T.E.G. Powell *Megalithic Enquiries in the West of Britain*, 107-174

Lynch, F.M. 1984 'Moel Goedog Circle: a Complex Ring Cairn near Harlech, *Arch. Camb. CXXXIII*, 8-50

Lynch, F.M., Aldhouse-Green, S. and Davies, J.L. 2000 *Prehistoric Wales*

Nash Williams V E 1950, *Early Christian Monuments of Wales*

Powell, T.G.E. 1973 'Excavation of the Megalithic Chambered Cairn at Dyffryn Ardudwy, Merioneth, Wales, *Archaeologia* 104, 1-49

RCAHM 1921 *Inventory of the County of Merioneth*

Smith, P. 1988 *Houses of the Welsh Countryside*

Soulsby, I. 1983 *The Towns of Medieval Wales*

Speed 1610 *Atlas of Wales*

GAT Sites and Monuments Record

John Speed Map of Merioneth 1610.
OS 1:2500 Merionethshire sheets XXVI.11 1889
OS 1:10000 SH53SE and SH57NE 1976

Bangor University Archives

Map of Lands in the Parish of Llandanwg and Harlech Town 1771 (Mostyn MSS 8679)
Map and Survey of Harlech Marsh in the Parish of Llandanwg and Llanfihangel y Traethau in the County of Merioneth 1810 (Mostyn MSS 8605)

Gwynedd Archives, Dolgellau

Tithe Apportionment Schedules for Llandanwg 1840 and Llanfair yn Harlech 1839 parishes.
Tithe maps for Llandanwg and Llanfair yn Harlech parishes.

RCAHM Wales Aberystwyth

Aerial Photographs

Verticals

RAF 540/546/3004 10 July 1951
RAF 540/546/3005 10 July 1951
RAF 540/546/3006 10 July 1951
RAF 540/464/3006 20 April 1951
RAF 540/464/3007 20 April 1951
RAF 540/464/3008 20 April 1951
RAF 540/464/3009 20 April 1951

OS Aerial Photograph 180 71 234

Obliques

RAF 58/4512 frame 0029 5 July 1961
RAF 58/4512 frame 0030 5 July 1961
RAF 58/4512 frame 0031 5 July 1961
RAF 58/4512 frame 0032 5 July 1961

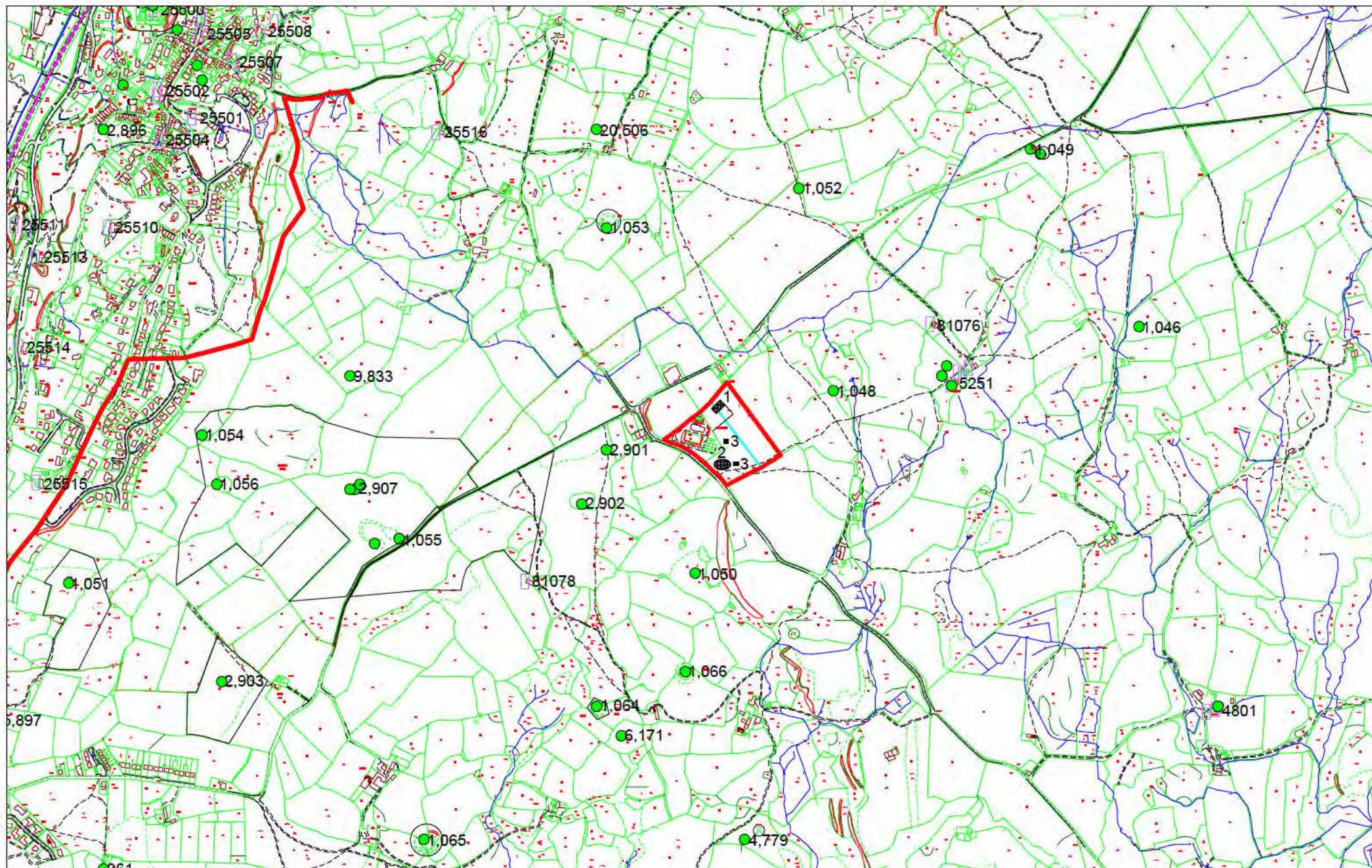


Fig.1 Location of Rhiwgoch Water Treatment Works Showing Site on the Gwynedd HER (Green Dots), Listed Buildings (Purple Crosses). Scheduled Ancient Monument Areas are Shaded. Scale 1:10,000

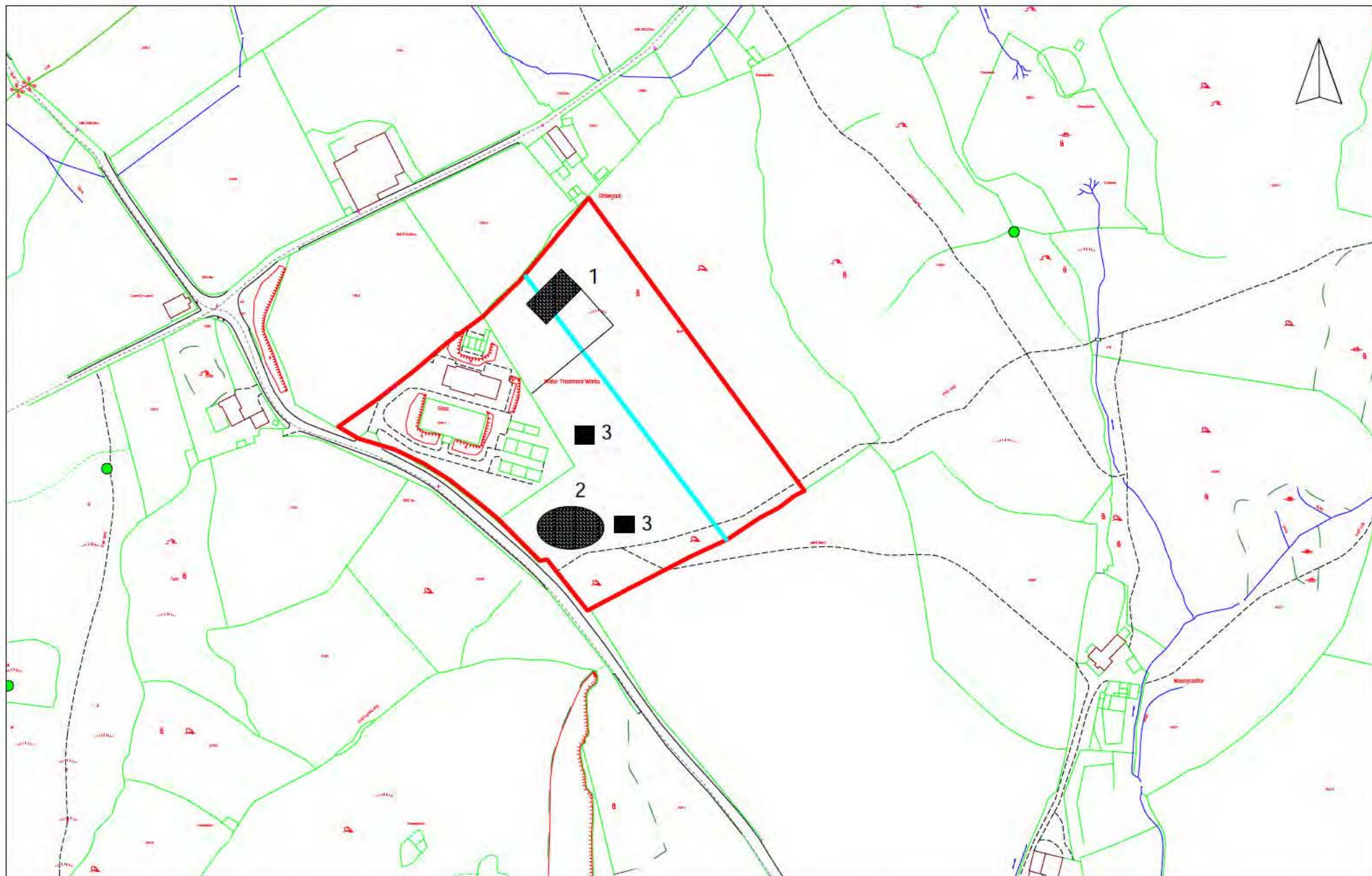


Fig. 2 Rhiwgoch Water Treatment Works showing Location of Sites Mentioned in the Text. Scale 1:250

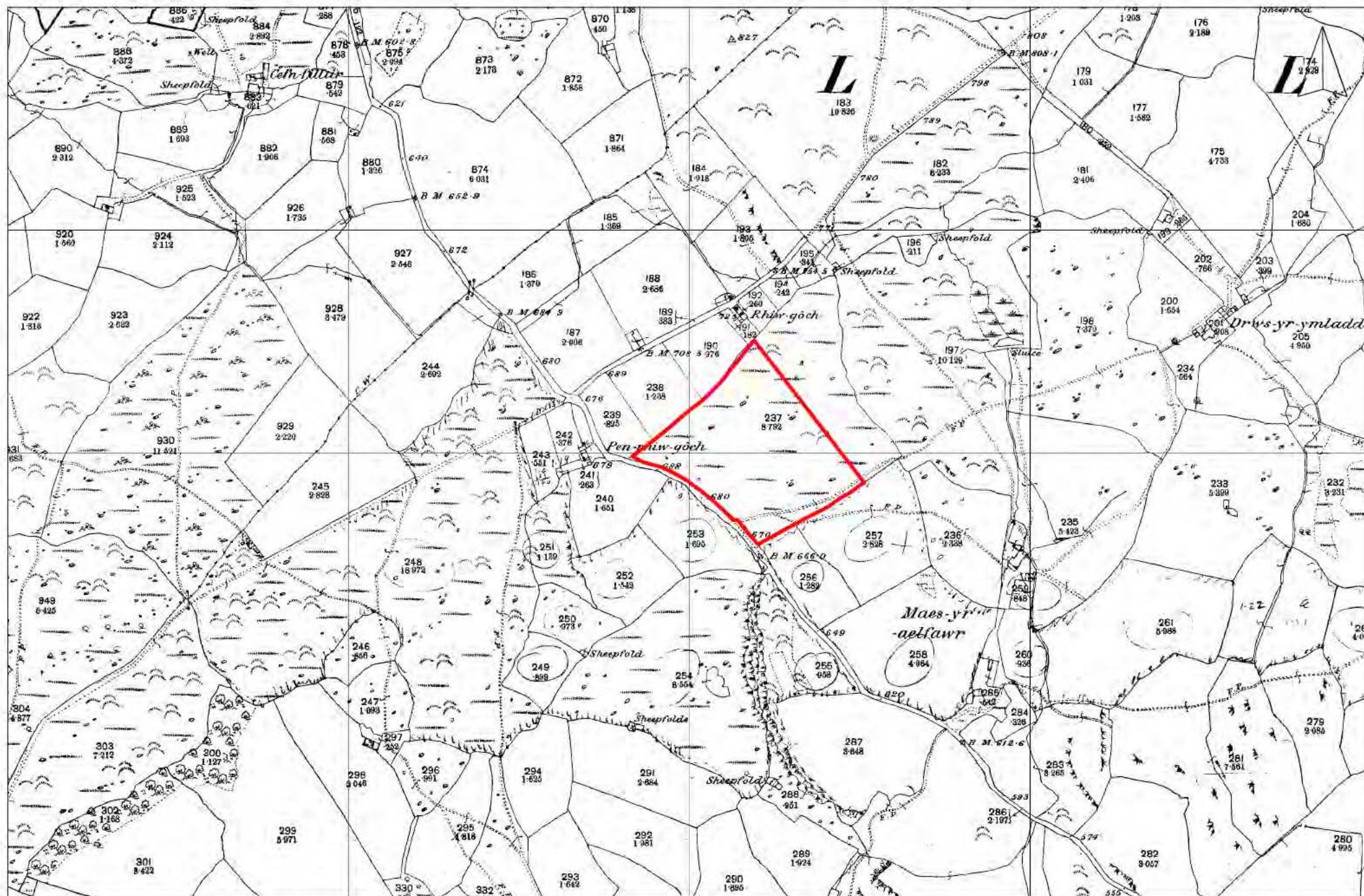


Fig. 3 Rhiwgoch Water Treatment Works. Overlain on Ordnance Survey 1889 1st Edition 25 inch map Merionethshire XXVI.11. Scale 1:10,000



Fig. 4 1951 RAF Vertical Aerial Photograph showing Location of Rhiwgoch WTW (Outlined in Green), with the Town of Harlech in the Foreground.



Fig. 5 1961 RAF Oblique Aerial Photograph showing Harlech and Uplands Beyond



Fig. 6 Extract from Ordnance Survey Aerial Photograph 180 71/234. (Not dated, but after Construction of WTW), Showing Area of Disturbed Ground to the North East of WTW. *Muriau Gwyddelod* (ME010) is Clearly Visible in the Foreground. The Development area is Outlined in Green. Site 1 is half within stripped area to the north west of the WTW and half beyond it.



Plate 1 Possible Medieval Long House, Facing North-East (Site 1). Scale 1m



Plate 2 Possible Burnt Mound. Most of the Visible Material Forms Part of Field Clearance Cairn (Site 2). View facing South-East (Scale 1m)



Plate 3 Evidence of Modern Disturbance to the Ground, a Capped Well (Site 3)



Plate 4 General View of Rhiwgoch WTW from the South East

Appendix 1 Sites on the Gwynedd HER within 1km of the Rhiwgoch WTW

PRN	SITENAME	NGR	SAM NO. OR LB	PERIOD
1048	STANDING STONE (SITE OF) NR TYDDYN Y FELIN	SH59483047		Prehistoric
1049	FONLLECH HIR STANDING STONE	SH59883096	M057b	Prehistoric
1050	HUT GROUP + FIELD SYSTEM, W OF CLOGWYN CASEG-WEN	SH59203010		Unknown
1051	GROES LAS SETTLEMENT + FIELD SYSTEM	SH57933008	M095	Unknown
1052	HUT CIRCLE + FIELD SYSTEM, NR TYDDYN Y FELIN	SH59413088		Early-Medieval
1053	CEFNFILLTIR HUT GROUP (ENCLOSED)	SH59023080	M098	Roman
1054	MURIAU'R GWYDDELOD SETTLEMENT & FIELD SYSTEMS	SH58203038	M010	Prehistoric
1055	MURIAU GWYDDELOD : HUT CIRCLE & ENCLOSURE	SH58603017	M010	Prehistoric
1056	MURIAU GWYDDELOD : HUT AND FIELD SYSTEM	SH58233028	M010	Prehistoric
1153	GARREG ROUND CAIRN	SH59903095	M107	Prehistoric
2896	B.A.GOLD TORC - FINDSPOT, NEAR HARLECH CASTLE	SH58003100A		Prehistoric
2899	MURIA GWYDDELOD, ENCLOSED HOMESTEAD, HARLECH	SH58553016	M010	Early-Medieval
2900	MURIAU GWYDDELOD FIELD SYSTEM, HARLECH	SH58603017	M010	Unknown
2901	Y FFORDD WYDDELIG (NEAR MURIAU GWYDDELOD), HARLECH	SH59023035		Early-Medieval
2902	SUB - RECTANGULAR ENCLOSURE NEAR MURIAU GWYDDELOD	SH58973024		Unknown
2903	CIRCULAR ENCLOSURE, S OF HARLECH	SH58242988	M158	Roman
2906	HOARD OF BRONZE AGE PALSTAVES, HARLECH	SH58003100A		Prehistoric
2907	MURIAU'R GWYDDELOD - TWO LONG HUTS, HARLECH	SH58513027	M010	Unknown
4779	HUT CIRCLE SOUTH OF TYDDYN DU	SH59302956	M161	Roman
1046	FIELD SYSTEM, NR TYDDYN Y GWYNT	SH60103060C		Unknown
1064	ENCLOSED SETTLEMENT, TYDDYN DU	SH59002983	M120	Roman
1065	CIRCULAR ENCLOSURE SETTLEMENT, BRYN LLYNAU	SH58652956	M097	Roman
1066	CIRCULAR ENCLOSURE, NR HAFOD Y LLYN	SH59182990		Roman
5599	OVEN - GARDEN OF GLYNDWR, HIGH STREET, HARLECH	SH58193113		Post-Medieval
3897	CHAPEL -SITE OF, HARLECH	SH58153120		Medieval
3911	BRONZE SWORD - FINDSPOT, NR. HARLECH	SH58003100A		Prehistoric
3193	HARLECH MEDIEVAL TOWN	SH58203110		Medieval
20506	MANGANESE MINE, CAPEL ENGEDI	SH59003100		Post-Medieval
6171	HUT CIRCLE, TYDDYN DU	SH59052977		Prehistoric

PRN	SITENAME	NGR	SAM NO. OR LB	PERIOD
11846	DRWS YR YMLID - BARN	SH59713052	GII	Post-Medieval
11847	DRWS YR YMLID - FOWL HOUSE	SH59703050	GII	Post-Medieval
11848	DRWS YR YMLID - PIGSTY/BREWHSE	SH59703050	GII	Post-Medieval
12352	DRWS YR YMLID	SH59723048	GII	Post-Medieval
12485	TYDDYN Y FELIN	SH60262983	GII	Post-Medieval
15641	DRS, MURIAU GWYDDELOD	SH58503027		Medieval
15642	DRS, MURIAU GWYDDELOD	SH58523028		Medieval
9833	HARLECH MEDIEVAL TOWNSHIP	SH58503050		Medieval
18257	HARLECH - LANDSCAPE	SH58043109		Multi-period

Appendix 2 Listed Buildings within 0.5km of the Development Area

NUMBER	NAME	LOCALITY	NGR	GRADE
25516	Field Barn S of Cae Du	Harlech	SH58683099	II
4801	Tyddyn-y-Felin	Llanfair	SH60264298	II
5251	Drws yr Ymlid Farmhouse	Llanfair	SH59726304	II
5253	Fowl House at Drws yr Ymlid Farm (including rubble-walled yard)	Llanfair	SH59743050	II
5254	Barn at Drws yr Ymlid Farm	Llanfair	SH59763051	II
81076	Field Barn at Drws yr Ymlid	Llanfair	SH59683060	II
81078	Field Barn	Llanfair	SH58863008	II
81087	Cwt Gwyddau	Llanfair	SH60242981	II

Appendix 3 Snowdonia National Park Design Brief

DESIGN BRIEF FOR AN ARCHAEOLOGICAL EVALUATION

Archaeologist, Snowdonia National Park Authority



Site: Rhiwgoch water treatment works, near Harlech - installation of new treatment process plant.

Agent: Black & Veatch Ltd on behalf of Dŵr Cymru

Date: 28 August 2008

National Grid Reference: 259203, 330369

This design brief is only valid for six months after the above date. After this period the Archaeologist, Snowdonia National Park Authority, should be contacted.

It is recommended that the contractor appointed to carry out the archaeological assessment visits the site of the proposed development and consults the Regional Historic Environment Record (HER) for north-west Wales before completing their specification. The Archaeologist, Snowdonia National Park Authority (SNPA) cannot guarantee the inclusion of all relevant information in the design brief.

1.0 Site Description

- 1.1 The site comprises an L-shaped extension to the existing Rhiwgoch water treatment works (WTW) compound covering an area of approximately 0.8ha. The land is enclosed semi-improved pasture forming part of a broad upland plateau to the east of Harlech. This is an area rich in archaeological settlement and agricultural remains from later prehistory (the first millennium BC) onwards. Concentrations of round house and rectangular 'longhut' settlements (the former prehistoric or early historic period in date, the later probably medieval) are known through out the plateau. Many of these settlements are associated with relict field systems and enclosures in the form of low stone walls, terrace and earth banks, sometimes covering large areas. Gaps in the pattern of settlement and field remains are the product of differential survival rather than reflective of the original pattern as can be seen where the lines of well preserved field boundaries disappear in parcels of improved land but are to be seen continuing beyond.
- 1.2 A significant proportion of land in the environs of the WTW (although not the proposed development site itself) is afforded statutory protection as a scheduled ancient monument on account of its nationally important archaeology.
- 1.3 Judging from a 2006 large scale aerial photographs held by the SNPA, the land to the SE and NE of the WTW has been subject to some improvement work. However, this may have been fairly limited in extent as the ground here appears quite stony on

the aerial photograph. Even where clearance has been carried out, buried archaeological remains may survive. The ground to the SE corner of the current WTW in particular looks as if it might have some archaeological potential, although the scale of the aerial photograph is such that it is not possible to predict this with any degree of certainty. It is therefore considered necessary that an assessment of the archaeological potential of the proposal area should be conducted.

2.0 The nature of the development and archaeological requirements

- 2.1 In order to comply with the Water Supply (Water Quality) Regulations 2001 (Wales), Dŵr Cymru Welsh Water (DCWW) are improving the treatment process at Rhiwgoch WTW. The proposed new works will address all water compliance problems associated with the works.
- 2.2 Black & Veatch are acting as designers on behalf of DCWW and propose to install a new treatment process plant at the sites. An initial environmental assessment of the area is being undertaken. This assessment is being carried out as part of the environmental assessment, in order to minimise the potential impact of the scheme on archaeological remains.
- 2.3 This is a design brief for an **archaeological assessment** to be undertaken according to guidelines set out in Welsh national planning guidance (*Planning Policy Guidance Wales 2002*), Welsh Office Circular 60/96 (*Planning and the Historic Environment: Archaeology*) and The Institute of Field Archaeologists 1994 (revised 2001) *Standard and Guidance for Archaeological Desk-Based Assessment*. The assessment will comprise a **desk-based study** and **field visit**.
- 2.4 The object of this programme of archaeological works is to make full and effective use of existing information in establishing the archaeological significance of the proposal area to assess the impact of the development proposals on surviving monuments or remains.
- 2.5 Following desk-based assessments field evaluation work may also be required in order to establish the presence or absence of remains, their extent, nature, quality and character before determining any necessary mitigation strategy. Where required, mitigation may entail preservation *in situ*, or archaeological excavation, or a combination of the two. The need for a field evaluation will be determined by the Archaeologist, SNPA, on the basis of the information and recommendations arising from this assessment.
- 2.6 This *design brief* should be used by the archaeological contractor as the basis for the preparation of a detailed written archaeological *specification*. **The specification must be submitted to the Archaeologist, SNPA, for approval before the work commences.**

3.0 Desk-based assessment detail

- 3.1 The assessment must consider the following:
 - a) The nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area through the development of an **archaeological deposit model**. This deposit model should reflect accurately the state of current knowledge and provide a research framework for further work if necessary. [See 4.2 below for further details]
 - b) The **history of the site**. [See section 4.4 below for further details]
 - c) The potential **impact of the development** on archaeological remains.

- d) The potential impact of any proposed development on the **setting of known sites of archaeological importance**. [See section 4.5 below for further details]
- e) A **methodology for non-intrusive survey and intrusive evaluation** to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development. [See section 4.6-4.8 below for further details]

3.2 The archaeological deposit model will involve the following areas of research:

- a) Collation and assessment of all relevant information held in the HER, including listed building records.
- b) Assessment of all available excavation report and archives including unpublished and unprocessed material effecting the site and its setting.
- c) Assessment of all applicable extant aerial photographic (AP) evidence and, where relevant, a re-plotting of archaeological and topographic information by a suitably qualified specialist at an appropriate scale. Many of the main archaeological aerial photographic records can be consulted at the Royal Commission on Ancient and Historical Monuments in Wales (RCAHMW), Aberystwyth. However, the Countryside Council for Wales (CCW), Bangor, also holds AP collections including 1940s Luftwaffe photographs, and these may be equally suited to the requirements of the desk-based study.
- d) Assessment of records held at the RCAHMW and University of Bangor, if appropriate.
- e) Assessment of the environmental potential of the archaeological deposits through existing data or by inference.
- f) Assessment of the faunal potential of the archaeological deposits through existing data or by inference.
- g) Assessment of the artefactual potential of the archaeological deposits through existing data or by inference.
- h) Assessment of all available geotechnical information for the area including the results of test pits and boreholes.
- i) Assessment of the present topography and landuse of the area through maps and site visits.

3.3 The **field visit** will be conducted to assess possible factors, such as existing or previous land use, which may affect the survival or condition of known or potential archaeological sites and to assess the potential for the presence of hitherto unrecorded archaeological remains. A written and photographic record (together with drawings if necessary) will be made of the form, dimensions, condition and significance of all archaeological sites present within the proposal area.

3.4 **Historical research** will involve the following:

- a) Analysis of relevant maps and plans. Copies of the relevant section of all historic maps and plans must be included in the final report to allow full map regression for the site. Cartographic evidence is held at the County Record Offices, including Tithe Maps, Enclosure Act Plans, Estate Maps and all editions of the Ordnance Survey (place and field-name evidence from these sources should be considered).
- b) An analysis of relevant historical documents (e.g. county histories, local and national journals and antiquarian sources) held in museums, libraries or other archives, in particular local history and archives libraries.

- 3.5 When considering the **issue of setting** for scheduled ancient monuments, listed buildings (or sites immediately adjacent to them) and other sites of national and/or regional significance, the HER should be consulted to determine if the development falls within any designated landscape areas, such as World Heritage Sites and landscape character areas. Of particular importance are the *Register of Landscapes of Outstanding Historic Interest in Wales*, the *Register of Landscapes of Special Historic Interest in Wales*, published by Cadw: Welsh Historic Monuments in 1998 and 2001 respectively.
- 3.6 The proposed **evaluation methodology** must consider the use of the following techniques as appropriate (**given the potential for presence of sub-surface archaeological remains in the area, particular consideration should be given to points 4.6c & d and 4.8**):
- a) Building recording.
 - b) Ground survey within the core area.
 - c) Geophysical survey - the use of common geophysical survey techniques should be considered, particularly magnetometry and resistivity, **and a justification given of the preferred technique or combination of techniques proposed.**
 - d) A programme of intrusive work to investigate the deposit model in more detail. Intrusive methods of field evaluation include the following techniques: augering, hand-excavated test pits, hand-excavated trenches, machine-stripped and manually excavated test pits, machine-stripped and manually excavated trenches.
- 3.7 The evaluation methodology should aim to determine the location, extent, date, character, condition, significance and quality of any surviving archaeological remains liable to be threatened by the proposed development. **Investigation of an adequate representative sample of all areas where archaeological remains are potentially threatened should be proposed.**
- 3.8 The evaluation should carefully consider the potential for artefactual and environmental information and provide an assessment of the viability (for further study) of such information.

4.0 Results

- 5.0 The results must be presented in a report and should be detailed and laid out in such a way that data and supporting text are readily cross-referenced. **The Regional HER Officer (based at Gwynedd Archaeological Trust) should be contacted to ensure that any sites or monuments not previously recorded in the HER are given a Primary Recognition Number (PRN) and that data structure is compatible with the HER.** The historical development of the site must be presented in phased maps and plans comprising clearly, the outline of the site.
- 5.1 The deposit model should be presented graphically in plan and, where appropriate, in profile and at a scale that is commensurate with subsequent use as a working document.
- 5.2 Within the report an attempt should be made to indicate areas of greater or lesser archaeological significance and the sites should be ranked in level of overall archaeological importance (locally, regionally and nationally).
- 5.3 All relevant aerial photographs, re-plots and historic maps must be included and be fully referenced.
- 5.4 The report should specifically include the following as a minimum (see IFA 2001 paragraph 3.4.3 and Appendix 2 for further information):

- a) non-technical summary;
- b) introductory statements;
- c) a location plan;
- d) aims and purpose of assessment;
- e) methodology;
- f) an objective summary statement of results;
- g) all located sites plotted on an appropriately scaled plan of the development;
- h) statement of potential development impact;
- i) an evaluation methodology and/or mitigation recommendations as appropriate;
- j) a gazetteer of all located sites with full dimensional and descriptive detail including grid reference and period conclusion, including a confidence rating;
- k) supporting illustrations at appropriate scales;
- l) supporting data, tabulated or in appendices;
- m) index to and location of archive;
- n) a copy of the design brief;
- o) references;
- p) other (such as contents list, acknowledgements, disclaimers).

5.5 The Archaeologist, SNPA, should be sent a draft version of the report prior to preparation of the final report as this will enable any comments to be addressed before finalized versions are produced for the various archive destinations [see 6.0 below].

5.0 Dissemination and archiving

- 5.1 A full archive including plans, photographs, written material and any other material resulting from the project should be prepared in accordance with standard guidance. All plans, photographs and descriptions should be labelled, cross-referenced and lodged in an appropriate place (to be agreed with the Archaeologist, SNPA) within six months of the completion of the project.
- 5.2 Three copies of the bound report must be sent to the **Archaeologist, SNPA** (address as below), and a further one or two copies (as required – the contractor should liaise with the HER Archaeologist to determine requirements) sent to the **HER Archaeologist**, at the curatorial division of Gwynedd Archaeological Trust, Bangor (contact details below), for deposition in the Regional HER.
- 5.3 Copies of the **digital archive** arising out of the project (such as photographs, plans, text/word processor files, databases and spreadsheets, ideally together with a copy of the complete final report including illustrations in PDF format) on optical media should be provided to the Archaeologist, SNPA and to the regional HER.
- 5.4 A copy of the report and/or digital files on optical media should be provided to the National Monument Record, **Royal Commission on the Ancient and Historic Monuments of Wales**, Aberystwyth (as required – the contractor should liaise with the NMR to determine requirements; contact details below).
- 5.5 The results of the assessment should be published in a suitable journal (such as Archaeology in Wales) if they prove to be of sufficient interest.

6.0 General requirements

- 6.1 The archaeological assessment must be undertaken by an appropriately qualified individual or organisation, fully experienced in work of this character.
- 6.2 Details, including the name, qualifications and experience of the project director and all other key project personnel (including specialist staff) should be communicated to the Archaeologist, SNPA.
- 6.3 All written work should be attributed to an author(s).
- 6.4 Contractors and subcontractors are expected to conform to standard professional guidelines. The following are of particular relevance in this instance:-
- English Heritage's 1991 Management of Archaeological Projects (MAP2).
 - The Institute of Field Archaeologists 1985 (revised 2006) Code of Conduct.
 - The Institute of Field Archaeologists 1990 (revised 2002) Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology.
 - The Institute of Field Archaeologists 1994 (revised 2001) Standard and Guidance for Archaeological Desk-Based Assessment.
 - The Institute of Field Archaeologists 1994 (revised 2001) Standard and Guidance for Archaeological Field Evaluation.
 - The Institute of Field Archaeologists 1995 (revised 2001) Standard and Guidance for Archaeological Excavation.
 - The Institute of Field Archaeologists 1996 (revised 2001) Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures.
 - The Institute of Field Archaeologists 2001 Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.
 - Museum and Galleries Commission 1994 Standards in the Museum Care of Archaeological Collections.
 - Richards, J. & Robinson, D. 2000. Digital Archives from Excavation and Fieldwork: *Guide to Good Practice*. Second Edition. The Archaeology Data Service Guide to Good Practice. Oxbow Books.
<http://ads.ahds.ac.uk/project/goodguides/excavation/>
 - United Kingdom Institute for Conservation 1990 Guidelines for the Preparation of Excavation Archives for long-term storage.
- 6.5 Many people in North Wales speak Welsh as their first language, and many of the archive and documentary references are in Welsh. Contractors should therefore give due consideration to their ability to understand and converse in Welsh.
- 6.6 Any changes to the specifications that the archaeological contractor may wish to make after approval should be communicated to the Archaeologist, SNPA and approved.
- 6.7 The involvement of the Archaeologist, SNPA should be acknowledged in any report or publication generated by this project.

7.0 Glossary of terms

- 7.1 *Archaeological Contractor*
A professionally qualified individual or an organisation containing professionally qualified archaeological staff, able to offer an appropriate and satisfactory treatment of the archaeological resource, retained by the developer to carry out archaeological work either prior to the submission of a planning application or as a requirement of the planning process.
- 7.2 *Archaeological Curator*
A person, or organisation, responsible for the conservation and management of archaeological evidence by virtue of official or statutory duties. In the Snowdonia National Park, the archaeological advisor to the Planning Authority is the SNPA's Archaeologist. The Archaeologist works to the Welsh Archaeological Trust's Curators' Code of Practice.
- 7.3 *Archive*
An ordered collection of all documents and artefacts from an archaeological project, which at the conclusion of the work should be deposited at a public repository, such as the local museum.
- 7.4 *Assessment*
A desk-based archaeological assessment (also known as a *desk-top assessment*) is a detailed consideration of the known or potential archaeological resource within a specified area or site (land-based, intertidal or underwater). It comprises the collation of existing written and graphic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional or national context as appropriate.
- 7.5 *Brief*
The Association of County Archaeological Officers (1993) defines a *brief* as an outline framework of the planning and archaeological situation which has to be addressed, together with an indication of the scope of works that will be required.
- 7.6 *Evaluation*
A limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site; and, if present, defines their character and extent, relative quality and preservation. It enables an assessment of their worth in a local, regional, national or international context, as appropriate. The programme of work will result in the preparation of a report and archive.
- 7.7 *Regional Historic Environment Record (HER)*
A documentary record of known sites in a given area. In north-west Wales the Regional HER is maintained by the curatorial division of the Gwynedd Archaeological Trust.
- 7.8 *Specification*
The Association of County Archaeological Officers (1993) defines a *specification* as a schedule of works outlined in sufficient detail to be quantifiable, implemented and monitored.
- 7.9 *Watching brief*
A formal programme of observation during non-archaeological excavation works in order to identify, investigate and record any archaeological remains which may be present, in accordance with the Archaeological Standards.
- 8.0 **Further information**

- 8.1 This document outlines best practice expected of an archaeological assessment but cannot fully anticipate the conditions that will be encountered as work progresses. If requirements of the brief cannot be met they should only be excluded or altered after gaining written approval of the Archaeologist, SNPA.
- 8.2 Further details or clarification of any aspects of the brief may be obtained from the Archaeologist, SNPA.
- 8.3 Contact details for regional Historic Environment Record: Ms Nina Steele, HER Archaeologist, Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT / nsteele@heneb.co.uk / 01248 352535.
- 8.4 Contact details for RCAHMW: Library and Reader Services, National Monuments Record of Wales, Plas Crug, Aberystwyth, Ceredigion SY23 1NJ / nmr.wales@rcahmw.gov.uk / 01970 621200.

John Griffith Roberts
Archaeologist

Snowdonia National Park Authority
National Park Office
Penrhyndeudraeth
Gwynedd
LL48 6LF

Email. john.roberts@eryri-npa.gov.uk
Tel. 01766 722518
Mob. 07909 267501
Fax. 01766 771211



YMDDIRIEDOLAETH
ARCHAEOLEGOL
GWYNEDD



GWYNEDD
ARCHAEOLOGICAL
TRUST

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