
LLWYN ISAF LANDFILL SITE AND ACCESS ROAD

CLYNNOG



ARCHAEOLOGICAL WATCHING BRIEF

GAT Project No. 2038
Report No. 755
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LLWYN ISAF LANDFILL SITE AND ACCESS ROAD, CLYNNOG (G2038)

Archaeological Watching Brief

Gwynedd Archaeological Trust Report No. 755

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LLWYN ISAF LANDFILL SITE

Archaeological Watching Brief (G2038)

Summary

An archaeological watching brief was carried during the initial stages of the construction of a new landfill site at Llwyn Isaf, Clynnog, Gwynedd. The watching brief was required since a significant amount of archaeology had been discovered in the surrounding area, particularly in association with the expanding Cefn Graianog quarry to the north east. However the area where the landfill site and access track was being constructed was demonstrated to have been previously quarried and re-instated and therefore no new archaeological evidence was uncovered.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by Entec Ltd to carry out a watching brief as part of groundworks associated with the development of a new landfill site at Llwyn Isaf, Clynnog, Gwynedd (NGR SH 45024932). The area of the development was located on Entec Drawing No. 18846-S74.

2 SPECIFICATION AND PROJECT DESIGN

A project design was submitted by GAT in response to a brief prepared by Gwynedd Archaeological Planning Services (GAPS) and Entec Ltd. with a recommendation for a watching brief during initial works, specifically the construction of a c. 250m long and 5m wide access track. The importance and condition of any archaeological remains were to be assessed, and areas of archaeological potential identified. Measures to mitigate the effects of the construction work on the archaeological resource were to be suggested, if necessary.

Gwynedd Archaeological Trust's proposals for fulfilling these requirements are:

- Watching Brief
- Report

The archaeological watching brief was carried out according to the standards set out in the Institute of Field Archaeologists (IFA) *Standard and Guidance for an archaeological watching brief* (2001).

3 METHODS AND TECHNIQUES

The watching brief was undertaken between the 11th and 13th August 2008. The construction of the access track and initial stripping for the landfill site was monitored and photographed for any archaeological deposits and a written record consisting of notes and sketches was made.

The groundworks were undertaken by Jones Brothers PLC. The topsoil was stripped by a 360-degree excavator using a ditching bucket.

The photographic record was maintained using a Nikon D40 DSLR.

4 LOCATION AND TOPOGRAPHY

The access route, taken from Entec drawing 18846-S74, crosses improved grassland from the east leaving a pre existing track leading from the quarry at Cefn Graianog at SH 45424906, entering the new landfill site at SH 45234907, and is approximately 250m long and 5m wide.

The area to the south west of the low, hummocky ridge, known as Cefn Graianog, lies at the eastern end of the Llyn Peninsula within a basin about 3km across, surrounded by hills. The ridge rises to a height of 160m and forms an island in area of wetter, heavier soils and bog. The soils in the basin are derived from glacial and fluvio-glacial deposits, mostly of Snowdonian origin, which have been heavily weathered under periglacial conditions. In poorly drained areas, silty clays and peat have

formed, but the soils on the ridge are well drained, if stony, brown earths of the Arfon series, with brown podsols on the steeper slopes. Although acid, these are some of the best soils in the northern Llyn, and are excellent soils for small-scale arable agriculture (Mason 1998, xvi-xix).

A significant amount of gravel quarrying has been carried out in the area resulting in significant changes to the topography of the area.

5 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

5.1 General History

There are no recorded features of archaeological interest within the site boundary or immediate vicinity. There are, however, features of prehistoric and later origin within the wider area and this could suggest a potential for the presence of archaeological remains within the proposed development area.

Previous work in the area by the Gwynedd Archaeological Trust at Cefn Graianog (Jones 1989, Kenney 2001, Hopewell and Kenney 2003, Smith 2004, Davidson *et al.* 2004, Roberts, 2008) identified a number of prehistoric sites in the area around Llwyn Isaf. Two Bronze Age cairns and a standing stone (SAM CN098; NGR SH455491) have been identified c.100m from the proposed access route and over 200m from the site operations; a burnt mound site, has also been identified, 690.0m to the east of the trench, (PRN 3997); a Bronze Age “ring” (PRN 3446), of the type known as Bronze Age ring money, was identified 830m to the northeast, suggesting further activity near the summit of Graianog ridge. A sub circular ditch, possibly the truncated remnants of a Bronze Age barrow, was located at Cefn Graianog recently (Roberts 2008, 5). Iron Age and Roman period settlement sites, mainly hut groups, have also been identified within the area (Kenney 2001). The understanding of the archaeological background to the area draws on these reports.

5.2 Prehistoric and Roman activity

The early prehistory of the area around Llwyn Isaf is far from clear. No Mesolithic artefacts have been discovered, suggesting that the area was avoided during that period, when occupation was mainly concentrated near the coast. However, there are some slight hints from the pollen record that forest clearance may have occurred before 4000 BC (Chambers 1998, 57), and a patch of burnt stone under a later burnt mound was dated to 5955-5500 cal BC (CAR-721) (Kelly 1992, 85). Kelly (*ibid.*, 86) dismisses the date as a result of dating inadequate quantities of charcoal, but a recent excavation about 1km south-west of the ridge also produced Mesolithic dates. The dates, ranging from 5310-6625 cal BC at 2 sigma, were from a deposit of charcoal within what may be a natural, periglacial formation (Kenney 2000). The evidence raises the possibility of deliberate burning of the vegetation in the Mesolithic period.

The Neolithic period is almost as invisible, although the pollen evidence is clear that there was anthropogenic forest clearance during this period (Chambers 1998, 57). The long history of farming on the ridge at Cefn Graianog began during this period, although no trace of the settlements of these early farmers have yet been found. The nearest Neolithic monument is the chambered tomb at Penarth (PRN 199), situated 3.25km north-west of the ridge (Kelly 1998, 161).

The earliest monument on the ridge itself is a standing stone (PRN 124) of presumed Bronze Age date. While the numerous cairns on the ridge are generally undated, the two located close to the standing stone are presumably also Bronze Age, and appear to be funerary monuments rather than clearance cairns (PRN 224, 225). These three monuments are collectively scheduled as Cn 98 (Mason 1998, xix). The pollen evidence shows phases of clearance and regeneration throughout the Bronze Age, and the presence of burnt mounds may indicate Bronze Age settlement in the area (Kelly 1998, 161). One of these mounds (PRN 129) was excavated (Kelly 1992), producing dates demonstrating its use between the mid third and early second millennium BC, and later in the late second to early first millennium (Kelly 1998, 161). There is another burnt mound site, 175m south of the excavated one, which appears to be a complex site with three conjoined mounds (PRN 3997).

Major and sustained forest clearance started on the ridge in the mid first millennium BC, and the earliest settlement sites discovered so far date from the mid 2nd century BC. The Iron Age is represented in the area by a small hillfort (PRN 203) on Y Foel, the rounded hill to the north of the area (Mason 1998, xix). Three hut groups have also been excavated on the ridge (Mason 1998). The Graeanog site and Cefn Graeanog II were founded in the 2nd century BC and continued through the end of the Roman period. The third hut group, Cefn Graeanog I, was established in the 2nd century AD, and again continued to the end of the Roman period. There may have been a 4th hut group (PRN 118) 300m to the west of Graeanog (Kelly 1998, 162) and there are similar sites about 1km away to the south-west around Caerau (PRN 108, 109).

5.3 Medieval and later periods

Although the hut groups went out of use at the end of the Roman period the pollen record shows that the ridge continued to be farmed, and the settlements had probably not moved very far away (Kelly 1998, 162). Resettlement of the ridge occurred from the 8th century AD. The Graeanog hut group site was reoccupied between the 8th and 11th centuries, and a medieval homestead (PRN 120), excavated by Kelly (Kelly 1982), was in use between the 11th and 13th centuries. A further group of medieval platform houses (PRN 123) were located on the bog margin to the south, but they were destroyed without excavation (Kelly 1998, 162). A possible medieval farmstead (PRN 3999) and an isolated platform house (PRN 4360) were located on the north-eastern slope of the ridge, also evaluation in 2007 found no trace of these (Roberts 2008).

In the medieval period Graeanog first appears in written history. The confirmation of the grant of 'Grayanawt' to the *clas* of Clynnog Fawr, in the 1209 charter of Llywelyn ap Iorweth, probably refers to the excavated medieval homestead (PRN 120) (Kelly 1998, 162).

Modern Graeanog was probably founded in the 15th century, when the pollen record shows intensified clearance activity. The present settlement was certainly established by the early 17th century, when a farmhouse was built. This is now a grade II listed building (RCAHMW 1960, site 800, p44). The modern farm of Cefn Graeanog was founded in the mid 19th century, and was demolished in 1990 in advance of quarrying (Kelly 1998, 160, 162). The existing field system probably dates to the early 19th century, when fields were enlarged to open up areas for progressive farming techniques (Flook 1994, 4). Gravel extraction has taken place on the ridge for at least 100 years, with large scale extraction started after the Second World War (Mason 1998, xvi). The quarrying activity has been the impetus for much of the archaeological work on the ridge, as sites have been excavated in advance of the gravel extraction.

By the nineteenth century the landfill site and haul route was within a series of enclosed agricultural fields in use as a mixture of arable and pasture, as shown on the Tithe map of Clynnog parish, 1843 (Gwynedd Archives, Caernarfon). The 1st edition Ordnance Survey map (Fig. 2) shows a significantly different field pattern to that existing currently; suggesting that a significant reorganisation of the landscape has taken place in the 20th century, probably after quarrying had taken place.

6 RESULTS OF THE WATCHING BRIEF

Topsoil stripping was carried out on the area of the new landfill site at Llwyn Isaf (Fig. 1) to a depth of 0.85m. The full extent of topsoil was not being removed in this area over much of the area. However a pipe trench 1.6m wide was re-excavated along the south western edge of the landfill area to a depth of 1.8m. This revealed only disturbed ground above a subsoil of clay and gravel at a depth of 0.88m (Plate 2). This appeared much levelled, and may indicate that gravel had been extracted with a box scraper. Another service trench 1.8m wide was observed running southeast-northwest across the new landfill site, 24m from the road edge along the south eastern edge of the site and 11.2m from the road at the north western (Fig. 1, Plate 3), which was not re-excavated.

The haul road heads in an easterly direction from the landfill site for approximately 250m, about 5m wide, crossing the Afon Desach and joining an existing Haul Road from the Cefn Grainiog quarry. The topsoil was very shallow, less than 20cm, overlying a gravel and clay subsoil, in a matrix of small to medium rounded and subangular stones. The topsoil contained evidence of burning and decaying organic material. The subsoil was somewhat patchy, with patches of gravel and sand with mid orange

brown clay and patches of light grey clay. The interface between the topsoil and clay and gravel was very even, suggesting deliberate backfilling and levelling.

According to information supplied by the client, “much of the site has been subject to mineral extraction in the past, and has subsequently been infilled with mixed sand, silt and clay material. Site investigation has established the depth of this made ground within the site at between 1.0m and 6.0m below ground level”. This information would appear to have been verified by the watching brief, suggesting that gravel and clay extraction in this area has completely removed any potential surviving archaeological deposits. The only evidence uncovered was two recent service trenches.

7 CONCLUSIONS

A watching brief was required owing to the presence of a large number of archaeological sites within the landscape surrounding Llwyn Isaf and Cefn Graianog. However no archaeological deposits were observed during the watching brief, as it appears that any potential evidence has been removed by gravel extraction and reinstatement in the area.

8 ARCHIVE CONTENTS

The archive consists of daily record sheets and 76 digital photographs, and is currently held at the Gwynedd Archaeological Trust, Bangor.

9 SOURCES CONSULTED

Secondary Sources

Chambers, F M, 1998 The palynological investigations, In Mason (ed.), 52-63

Davidson, A., Roberts, J. and Berks, T. 2004 *Cefn Graianog Quarry Extension. Archaeological Evaluation* (Unpublished GAT Report No. 549)

Flook, H, 1994 Graianog Quarry, Clynnog – proposed extension. Archaeological assessment (G1260), GAT report no. 124

Hopewell, D. and Kenney, J. 2003 *Cefn Graianog Quarry Extension. Archaeological Watching Brief* (Unpublished GAT Report No. 505)

Institute of Field Archaeologists 2001 *Standard and Guidance for an archaeological Watching Brief* (1994 rev. 2001)

Jones, S, 1999 Cefn Graianog Quarry Extension: archaeological watching brief (G1598), GAT report no. 344

Kelly, R S, 1982 ‘The excavation of a medieval farmstead at Cefn Graeanog, Clynnog, Gwynedd’, *Bul. Board Celtic Studies* **29**, 859-908

Kelly, R S, 1992 The excavation of a burnt mound at Graeanog, Clynnog, Gwynedd, in 1983, *Archaeol Cambrensis*

Kelly, RS, 1998b The wider setting, In Mason (ed.), 160-168

Kenney, J, 2000 A487 Llanwnda to south of Llanllyfni improvement: excavations north of Caerau (G1639), GAT report no. 388

Kenney, J, 2001 Cefn Graianog Quarry Extension, Archaeological Watching Brief (G1598), GAT report no. 424

Mason, M A (ed.), 1998 *The Graeanog Ridge: the evolution of a farming landscape and its settlements in North-West Wales*, Cambrian Archaeological Association, Monograph No. **6**, Cardiff

Mason, M A, 1998 General introduction, In Mason (ed.), xvi-xix

Mason, M A, and Fasham, P J, 1998 The report on RB White's excavations at Cefn Graeanog II, 1977-79. In Mason (ed.), 2-113

Roberts, J. 2008 *Cefn Graianog Quarry Extension. Archaeological Evaluation* (Unpublished GAT Report No. 724)

Royal Commission on Ancient and Historic Monuments in Wales and Monmouthshire (RCAHMS), 1960 *The inventory of the ancient monuments in Caernarvonshire*, Vol **II**

Smith, G. 2004 *Cefn Graianog Quarry Extension. Archaeological Watching Brief* (Unpublished GAT Report No. 530)

Cartographic Sources

Ordnance Survey 25 inch 1st Edition Map 1889 Carnarvonshire Sheet XXVI.

Archive Sources

Gwynedd Archives *Tithe Map of Clynnog Parish 1843*

Gwynedd HER Records, held at Gwynedd Archaeological Trust, Bangor

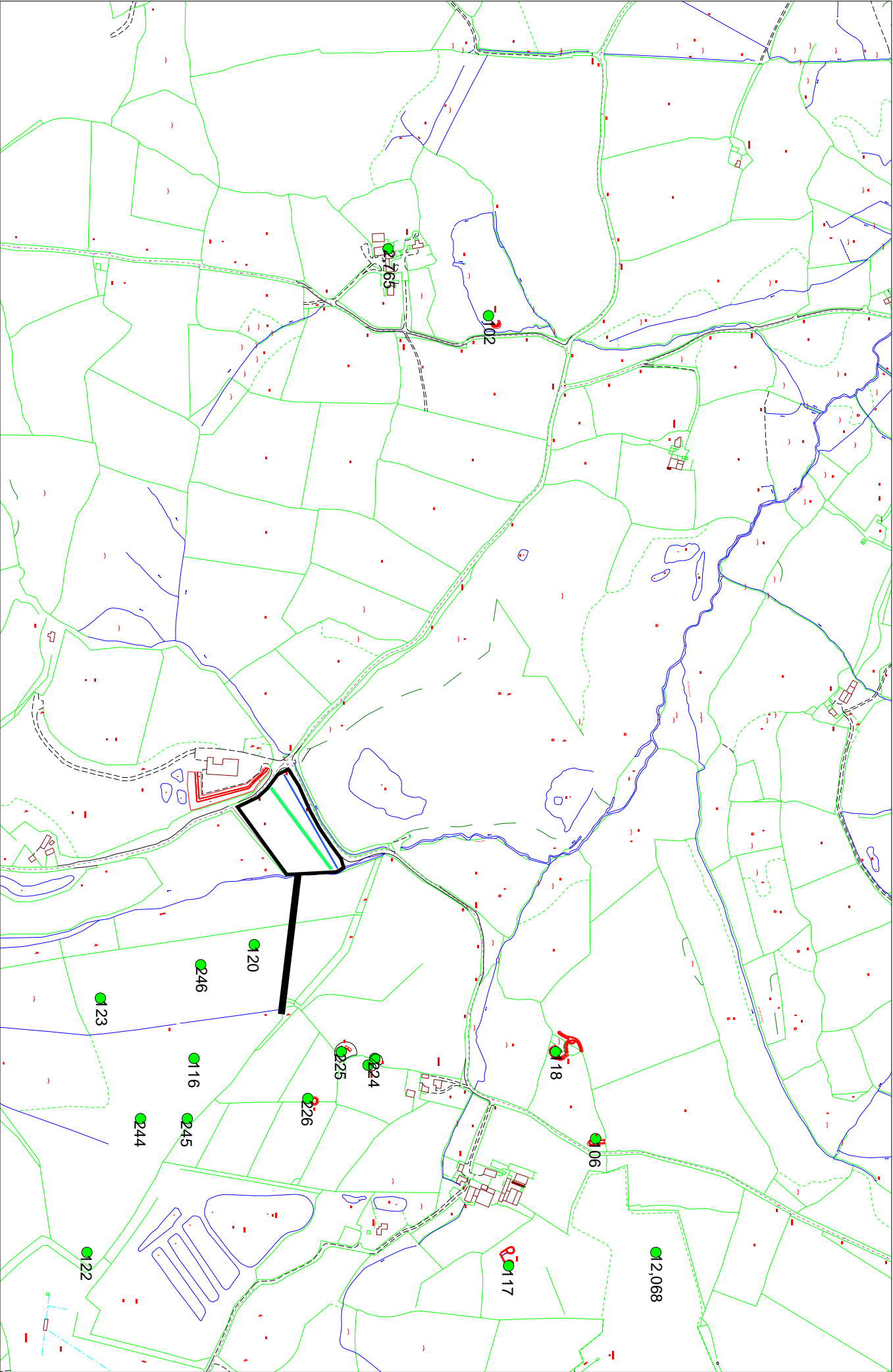


Fig. 1 Location of Llwyn Isaf Landfill and Access Track. Green Dots Represent Sites on the Gwynedd HER and their Individual Reference Numbers are Given. Scale 1:20 000 Cable Trench Marked in Blue, Unknown Service Trench in Green

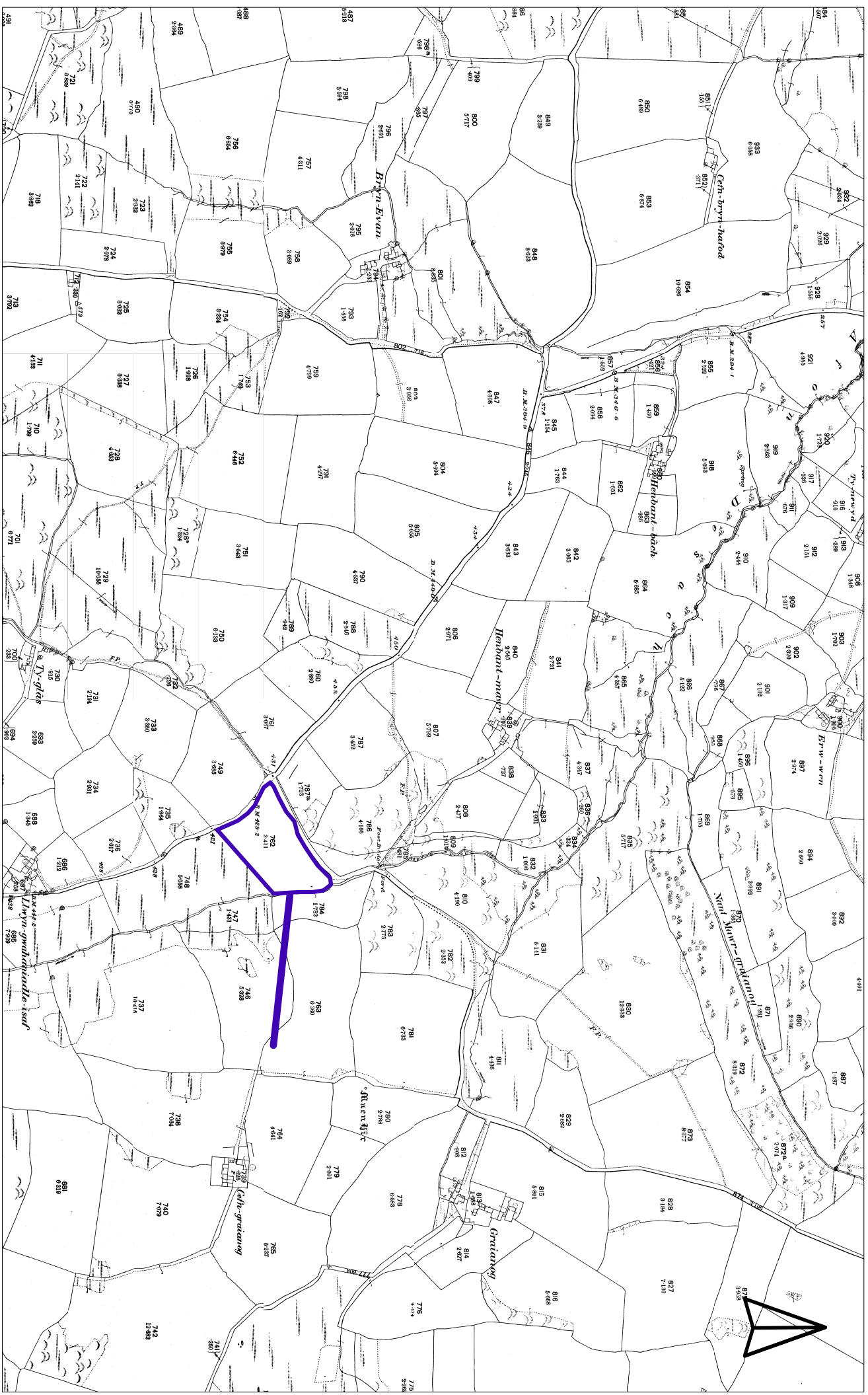


Fig. 2 Llwyn Isaf Landfill Site and Access Track Overlain on Ordnance Survey 25 inch 1st Edition 1889 Map of Caernarvonshire Sheet XXVI.3

Scale 1: 20 000



Plate 1 Haul Road facing East (Scale 2m)



Plate 2 North-west facing Section of re-excavated pipe trench (Scale 2m)



Plate 3 Service Trench in new landfill site area (Scale 2m)

Llwyn Isaf Landfill: Scheme for an Archaeological Watching Brief

Introduction

Background

A cultural heritage desk-based assessment, undertaken as part of an Environmental Impact Assessment for the proposed landfill, identified some potential for the presence of archaeological remains though much of the site has been disturbed by previous mineral developments.

The following condition relating to archaeology is attached to the planning permission:

***Condition 56.** Unless otherwise agreed in writing, the operator/developer shall secure an archaeological watching brief for the construction of the western section of the haulage route in accordance with the scheme of mitigation set out in 'Para 8.5.5' and 'Table 8.3' of the Environmental Statement and by reference to a scale plan submitted for the approval of the Waste Planning Authority within 6 months of the date of this permission. Thereafter, the operator/developer shall afford access at all reasonable times during soil stripping operations to allow the observation of the excavations/demolition and the recording items of interest and finds.*

This specification has been prepared in order to set out how the watching brief will be implemented.

Site Description

The proposed landfill and access route are currently occupied by improved grassland with areas of marshy grassland, woodland and scrub. The access route crosses the Afon Desach.

Archaeological Background

There are no recorded features of archaeological interest within the site boundary or immediate vicinity. There are features of Prehistoric and later origin within the wider area and this could suggest a potential for the presence of archaeological remains within the proposed development area. However, much of the site has been subject to mineral extraction in the past, and has subsequently been infilled with mixed sand, silt and clay material. Site investigation has established the depth of this made ground within the site at between 1 m and 6 m below ground level.

A number of archaeological features are recorded within the wider area, and some of these are also located near to the proposed access road. Three of these are designated as a scheduled monument, comprising a standing stone and two round cairns and are known as Graianog Standing Stone & Round Cairns (SM CN098, NGR SH455491). These are approximately 100m from the proposed access route and over 200m from the site operations as shown on Figure 1.

The proposed access route is within an area for which there is evidence of occupation during the Prehistoric, Medieval and post-Medieval periods. This is demonstrated by the presence of a number of settlement sites to the south that have been excavated in advance of quarrying. By the nineteenth century the route was within a series of

enclosed agricultural fields in use as a mixture of arable and pasture, as shown on the Tithe map of Clynnog parish, 1843.

All but the western part of the proposed route is shown on aerial photographs in use as a quarry haul road in the 1980s, and no features of archaeological interest can be expected to be present within this part. It is not clear from aerial photographs to what extent the western part of the proposed route may have been disturbed, though given the close proximity of former quarry workings, some disturbance is likely. These operations in effect, mean it is very unlikely that the non-designated features shown on Figure 1 can or would be affected.

Historic mapping from the nineteenth and early twentieth centuries (Tithe map and OS mapping) show no features of potential archaeological interest within this section of the route. Similarly, aerial photographs from 1946 onwards show no features of potential interest.

During the site visit, this area was identified as an area of level ground, and no features of potential archaeological interest were noted.

Scope of Investigations

The watching brief will be conducted during topsoil stripping operations within the area identified on Figure 1. It is not anticipated that any further information will be obtained from monitoring soil stripping elsewhere as information collected during the desk-based assessment demonstrates that these areas have been heavily disturbed and no archaeological remains will survive.

Methodology

Watching Brief

A suitably qualified archaeologist will be present during soil stripping operations within the area indicated on Figure 1. Topsoil stripping will be undertaken in an archaeologically sensitive manner (i.e. through the use of a toothless ditching bucket) in order to allow this watching brief to be maintained on stripped surfaces and to monitor the extent of undisturbed ground and any archaeology that may be present. Should any archaeology be identified in this way, this will be excavated and recorded.

This approach is considered an appropriate level of mitigation in order to allow the preservation by record of any archaeology encountered and the retrieval of artefactual material.

Excavation

A sample of all identified features and deposits are to be excavated by hand in order to provide an adequate record of their extent and structure, and to recover datable material.

Sufficient time will be allowed in advance of any subsequent construction works to allow for any exposed archaeological remains to be excavated and recorded. It will be taken as imperative that any archaeological deposits or features identified by the attending archaeologist will be left undisturbed and uncompacted until archaeological investigation is complete.

Recording

A written, drawn and photographic record of the findings of the investigation will be made even in the event that no archaeological remains are encountered, to include the following:

- Individual contexts will be numbered and recorded on separate context sheets referenced to a context register;
- Plans will be drawn to scales of between 1:20 and 1:50 and section drawings at 1:10 or 1:20 as appropriate;
- Elevation drawings of any structural remains encountered will be drawn to a scale of 1:20.
- Drawn records will be related to OS datum and published boundaries where appropriate;
- The photographic record is to include black and white prints and colour transparencies (on 35mm film), to illustrate the identified features in detail and context, as well as general working shots

Treatment of finds and samples

All archaeological objects, artefacts, industrial waste and faunal remains will be recovered and where possible related to the contexts from which they derive. They will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in the United Kingdom Institute of Conservation's *Conservation Guidelines No 2*.

Provision will be made to take samples from any appropriate deposits, where there is a potential for the presence of palaeoenvironmental or archaeometallurgical remains and this may require advice from a suitable specialist.

It is anticipated that bulk samples may be collected from those archaeological deposits with a potential for the preservation of palaeoenvironmental remains. This may be done in advance of consulting the specialist.

During and after the excavation, all recovered artefacts are to be stored in the appropriate materials and storage conditions to ensure minimal deterioration and loss of information.

All finds processing, conservation work and storage of finds are to be carried out in compliance with the IFA Guidelines for Finds Work and those set by UKIC.

The owners of any finds will be recommended to donate them to an appropriate recipient museum.

Report production

On completion of the fieldwork a report will be prepared for submission to the local authority. This will include consideration of:

- The aims and methods adopted in the course of the fieldwork;
- The nature, location, extent, date, significance and quality of the archaeological and environmental material uncovered;

- The degree of survival of archaeological deposits and structures across the site, as deduced from its present state and recent past (extent of disturbance by twentieth century construction);
- Appropriate illustrative material including maps, plans, sections, drawings, and photographs;
- The location and size of the archive.

Archiving

Arrangements will be made, in consultation with Gwynedd Archaeological Planning Service, for the deposition of the project archive with an appropriate local body within a reasonable time following production of the final report which should not be more than 12 months. It will be the contractor's responsibility to arrange the deposition of finds, subject to the landowners' permission, ascertaining the costs of the storage and deposition with the designated repository and informing Gwynedd Archaeological Planning Service of the arrangement which has been made.

The site archive will be prepared to include all written, drawn and photographic records relating directly to the investigation undertaken. It will be quantified, ordered, indexed and internally consistent before transfer to the recipient body. The site archive will also contain, where relevant, the following items:

- A site matrix;
- Site summary;
- Brief written observations on the artefactual and environmental data from specialist analyses; and
- Artefactual finds arising from the fieldwork.

The site archive, including finds and environmental materials, will be ordered, catalogued, labelled and conserved and stored according to the UKIC Guidelines for the preparation of excavation archives for long-term storage.

If finds are not to be donated to the recipient body identified arrangements will be made for a comprehensive record of all materials (including detailed drawings, photographs and descriptions of individual finds) which can instead constitute the archaeological archive.

Other matters

Staffing

The work will be sub-contracted to a professional archaeological contractor. All staff employed on the scheme will be professional archaeologists competent in the tasks they are being asked to perform.

All persons involved in archaeological work on the site will adhere to the Codes of Conduct of the Institute of Field Archaeologists.

Health and Safety

All work will be subject to health and safety restrictions and the requirements of the Health and Safety at Work Act 1974. Archaeological staff will be fully briefed and subject

to Health and Safety procedures in operation on the site during groundworks. In particular the following should be noted:

- The use of Personal Protective Equipment (PPE; protective footwear, safety helmets, high visibility clothing) should be observed.
- Special care should be taken when working near operating machinery or at a level below the surrounding ground surface;

Monitoring

Curatorial responsibility for the project lies with the Planning Archaeologist at Gwynedd Archaeological Planning Service acting on behalf of Gwynedd Council and provision will be made for monitoring visits if required. To facilitate this as much prior notice of construction works will be given as the timetable allows.

Information provided in this document cannot fully anticipate the conditions which will be encountered as work progresses. Any alteration or amendment to the scope of work of the archaeological programme or reporting and archiving will be notified to Gwynedd Archaeological Planning Service prior to construction commencing.