Results of Archaeological Works at

Harlech Castle – The Gatehouse Passage

NGR SH 58115 31245

Project Number CR121-2018

C.R Archaeology
Compiled by C. Rees
On Behalf of Grosvenor Construction

Monument Name & Address: Harlech Castle (ME044), Harlech, LL46 2YH

Client Name & Address: Grosvenor Construction Ltd, Tir Llwyd, Kinmel Bay, Conwy, LL18 5JA

Results of Archaeological Works at

Harlech Castle – The Gatehouse Passage

Planning Application Number:	N/A
Scheduled Monument Number:	ME044
National Grid Reference:	SH 58115 31245
Client:	Grosvenor Construction
Report Authors:	C. Rees & M. Jones
Report Number:	CR121-2018
Date:	10-10-2018

Contents

Illustrations

Appendices

1.0 Introduction

1.0.1 C.R Archaeology were instructed by Grosvenor Construction to conduct archaeological works at the Gatehouse Passage, Harlech Castle (figure 1). Harlech Castle is positioned on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. It is one of a series of castles built in North Wales by Edward I following the death of Llywelyn ap Gruffudd in 1282. Construction works were begun at Harlech in May 1283 and were largely completed by 1289. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within walls. It is symmetrical with four corner towers and an impressive gatehouse (Taylor 2002).

1.0.2 The site is a Scheduled Ancient Monument (ME044), a Grade I Listed Building (ID 25500), has been assigned the NPRN 93729 by the RCAHMW and the PRN 2908 by Gwynedd Archaeological Trust.

1.0.3 The works within the castle ran from the Drawbridge Pit, through the Gatehouse Passage and into the Inner Ward. The works were: the removal of all current surfaces within the Gatehouse Passage, the installation of a service trench which ran the entire length from the Drawbridge Pit to the Inner Ward, the installation of a concrete service duct running across between the Gatehouse room entrances, the creation of a lightening duct running along the edge of the Gatehouse Passage, the extension of an access ramp leading into the Inner Ward, the excavation of cable trenches running into the Inner Ward to two socket locations within the Inner Ward and the resurfacing of the entire Gatehouse Passage and any other areas of disturbance. The locations of the works are shown on figure 2.

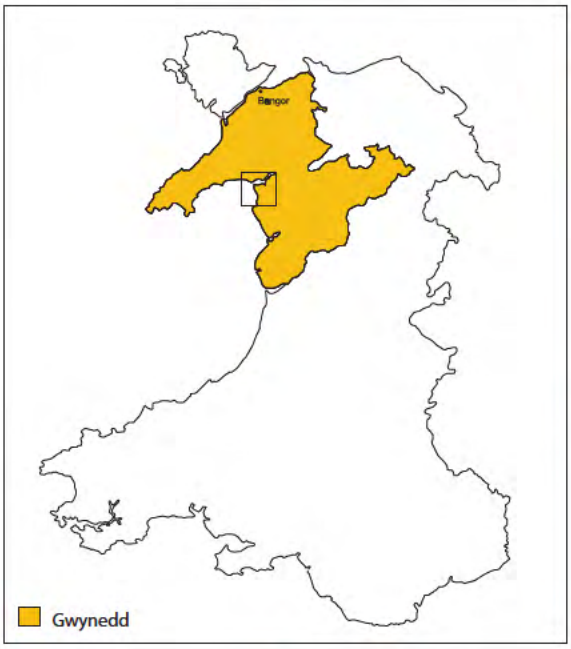
1.0.4 Archaeological works were undertaken in advance of construction and involved the full excavation and recording of all historic deposits which were impacted upon by the construction works. This was in the form of an archaeological watching brief when modern surfaces are removed, and the hand excavation of all deposits below this level. Hand excavation was continued until the desired development depth has been reached.

1.0.5 A project specification was produced with reference to Cadw document "Harlech Castle: Brief for a Programme of Archaeological Works – The Gateway Passage (produced January 2016). This detailed the works to be undertaken with a proviso that there would be further consultation in the event of a significant discovery. A human skeleton was uncovered during the works and a second specification which detailed the strategy for its excavation was produced. Both specifications are included as Appendix A.

1.0.6 Earlier deposits were uncovered during the works and a cobbled surface was excavated in the Gateway Passage. Although this cobbled surface was not securely dated very small pieces of Buckley Ware were found when cleaning between the stones, it is suspected that it was laid as part of the 1869 renovation works at the castle which included extensive works to the gateway and surrounding area.

1.0.7 A near complete human skeleton was excavated during the works which was radiocarbon dated to AD1290-1410 (95% probability). These human remains appear to have originally been interred in a stone cist or similar but were reburied in the mid-20th century.

1.0.8 There were a relatively limited number of Medieval artefacts uncovered during the excavation including a partial quern stone and a 14th century spur.



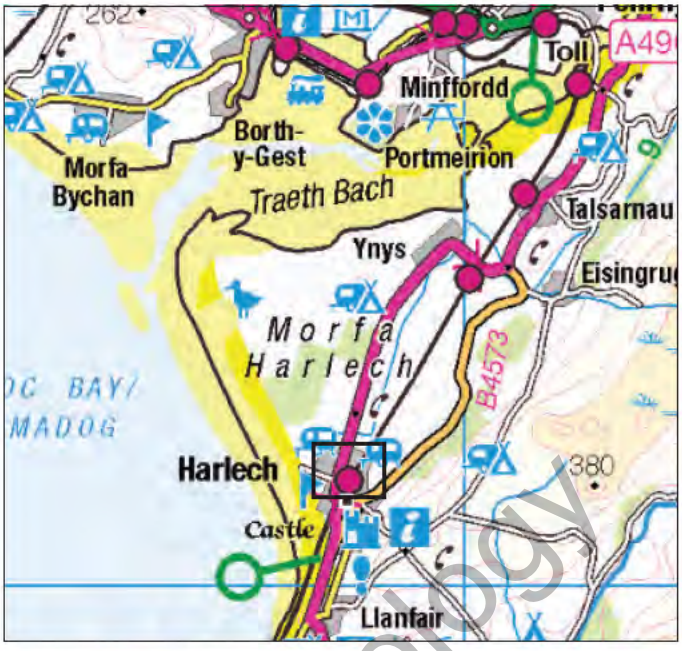


Figure 1. Site Location Map
(Source: OS Open Data Mapping Contains Ordnance Survey data
© Crown copyright and database right 2016)

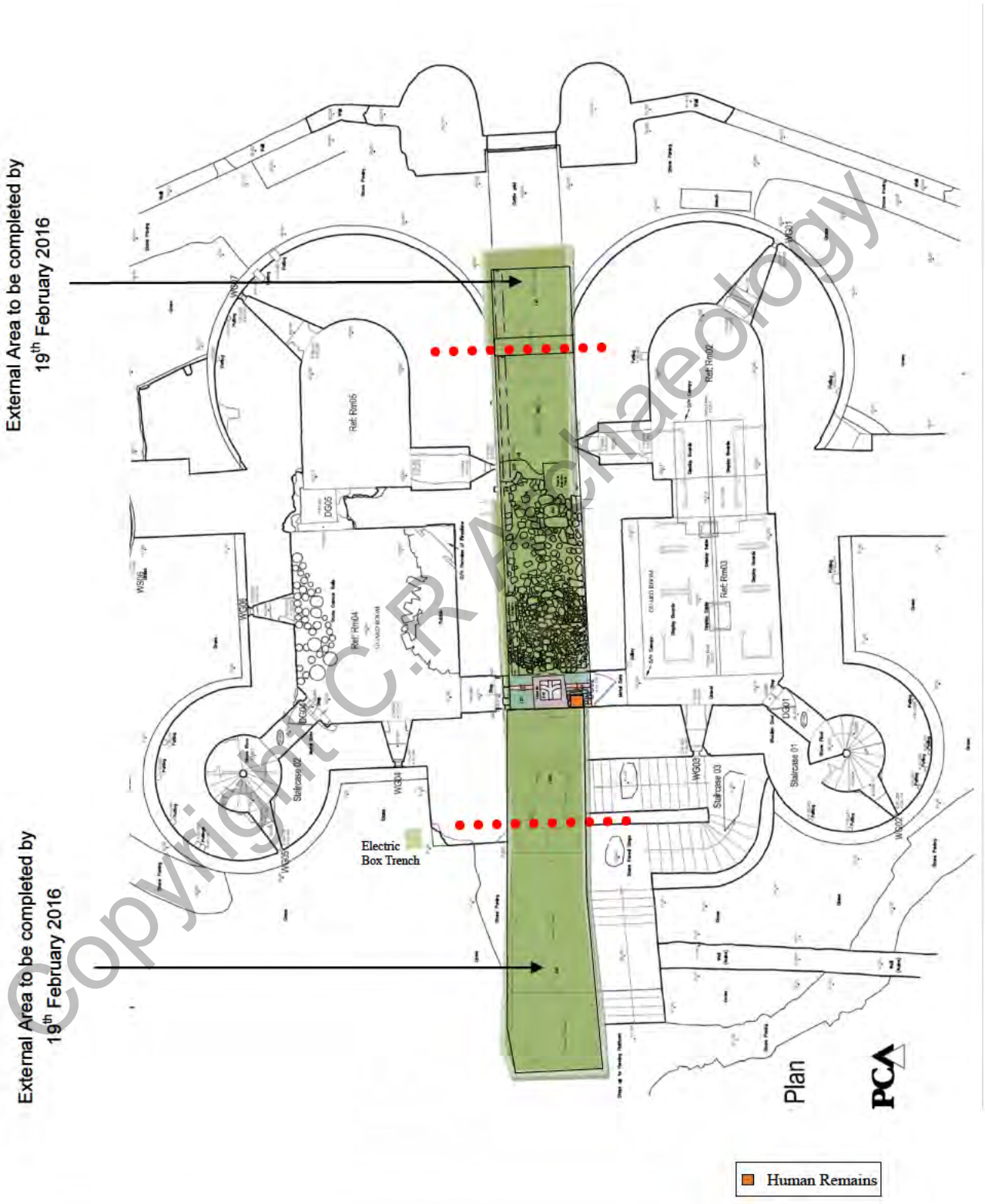


Figure 2. Area of Proposed Archaeological Excavation
Location of Human Remains Marked in Orange

2.0 Project Aims & Objectives

2.0.1 The primary aim of the programme of works was to conduct the archaeological works necessary to allow for the programme of construction works to be undertaken. Archaeological site works were conducted in two stages. The first aim was to monitor the groundworks which were undertaken to remove modern material/surfaces within the proposed development area. Following the removal of modern levels hand excavation was undertaken down to the required development depth.

2.0.2 The aims of this work were:

i) to identify and to make an appropriate record of archaeological remains revealed by excavations
ii) to ensure the long-term survival of the information contained in such remains through archaeological recording prior to their physical destruction
iii) to prepare a report and deposition of a project archive

2.0.3 Significant archaeological remains were identified, and the following set of additional aims was applied:

i) assess the nature, date, density, extent, function and state of preservation of the archaeological remains
ii) assess their potential for answering questions about the development of the castle
iii) where remains are of sufficient importance work in liaison with Cadw to formulate a strategy designed to determine the best method for mitigation

2.0.4 This project aimed to fulfil the mitigation criteria for undertaking an Archaeological Watching Brief and an Archaeological Excavation as specified in the CIfA Standard and Guidance documents (2014).

2.0.5 The objectives of this work were:

i) to excavate and record all deposits which are situated within the proposed development area
ii) to increase understanding of the site's history, development and significance
iii) to create an archive record of the excavation
iv) to establish and make available any further information discovered about the archaeological resource existing on the site

2.0.6 The research objective of this work was to:

i) contribute to our understanding of the development of the castle and in particular the castle defences

3.0 Scheme of Works - Methodology

3.0.1 The works at Harlech Castle were conducted in three stages and each is detailed separately below.

3.1 Scheme of Works – Methodology for Desk Based Research

3.1.1 Sufficient background research was undertaken to allow the site to be understood within its archaeological context. A history of the site was compiled utilising information sourced from Bangor University & Caernarfon Archives, RCAHMW and the Gwynedd HER. Specialist journals, museum collections, publications and personal archives were examined as appropriate. Web resources were also utilised. The depth of research undertaken was in proportion to the archaeological remains uncovered and due to the significance of the discovery of a complete human skeleton more intensive and targeted research was undertaken.

3.1.2 This material forms the historical background for the archaeological report.

3.2 Scheme of Works – Methodology for Archaeological Watching Brief

3.2.1 The removal of all modern surfaces from the area was undertaken by Grosvenor Construction prior to the commencement of hand excavation by C.R Archaeology staff. A member of C.R Archaeology staff was present during the removal of the surfaces and all groundworks took place under archaeological supervision.

3.2.2 This fieldwork element was conducted by Matthew Jones of C.R Archaeology.

3.3 Scheme of Works – Methodology for Hand Excavation

3.3.1 Following the removal of modern surfaces/services by Grosvenor Construction, hand excavation commenced and continued until the desired maximum depth for works was reached. Prior to the commencement of excavation, the area was hand cleaned to define any context boundaries which may be present.

3.3.2 All archaeological features, structures or remains identified during the excavation were trowel cleaned by hand. Investigation of such features, structures or deposits was sufficient to determine their character, date, significance and quality.

3.3.3 No features yielded suitable material for dating/environmental processing. A 100% sample of the material around the human remains was taken and was coarse sieved off site to ensure that all bone material was collected.

3.3.4 The works exposed previously covered surfaces and a detailed photographic and drawn record was made.

3.3.5 Fieldwork was conducted by Matthew Jones & Dr. Ian Brooks. The works were carried out in accordance with the CIfA Standard and Guidance documents for Archaeological Excavation (2014).

3.3.1 Recording

3.3.1.1 The record forms at C.R Archaeology are based on the English Heritage system and full written, graphic and photographic records were made in accordance with the English Heritage *Field Recording Manual*. The written record comprises completed *pro-forma* record sheets.

3.3.1.2 Plans, sections and elevations were produced on gridded, archive standard stable polyester film at scales of 1:10, 1:20 or 1:50, as appropriate. Representative measured sections were prepared as appropriate showing the sequence and depths of deposits. A temporary benchmark (TBM) was established on the site and plans, elevations and sections will contain grid and level information. All drawings were numbered and listed in a drawing register, these drawing numbers were cross-referenced to written site records.

3.3.1.3 Trench sections were drawn at a scale of 1:10 or 1:20 as appropriate, and all archaeological features identified were pre and post excavation planned at an appropriate scale.

3.3.1.4 A high-resolution 14.2mp Sony Alpha digital camera was used to create a photographic record of the site. This was comprised of photographs of archaeological deposits in plan and section, insitu artefacts and any features which were identified within the trenches. Photographs were taken of all trench sections.

3.3.1.5 In addition to those stipulated above the following photographs were also taken:

i) the site prior to the commencement of fieldwork
ii) the site during work showing specific stages of fieldwork
iii) working photographs illustrating the excavations under way
iv) the layout of archaeological features within each trench
v) individual features and where appropriate their sections
vi) groups of features where their relationship is important.

3.3.1.6 All photographic records were indexed and cross-referenced to written site records. Details concerning subject and direction of view were maintained in a photographic register, indexed by frame number. Images from photography will be stored in a loss-less digital format in this case '*.TIF'.

3.3.1.7 A 'harris matrix' diagram was constructed for the excavated area.

3.3.2 Additional Mitigation/Contingency Measures

3.3.2.1 It was stipulated in the project specification that in the event of a significant archaeological discovery being made during the excavation C.R Archaeology would immediately inform both Grosvenor Construction and Cadw, and that consultation would take place between C.R Archaeology, Cadw and Grosvenor Construction with regards to the most suitable course of action.

3.3.2.2 A complete human skeleton was uncovered during the works and mitigation was therefore necessary. As stipulated in the specification site work in that area ceased with immediate effect and the police, coroner, client and monitoring body were informed immediately. The company abided by the requirements of Section 25 of the Burial Act 1857. Excavation was not undertaken until the appropriate Ministry of Justice licence had been granted.

3.3.2.3 No artefacts were recovered which fell within the scope of the Treasure Act 1996.

3.3.2.4 The palaeo-environmental character of the site was unknown prior to the commencement of works and it was proposed that an appropriate sampling strategy be devised on site. This was not necessary as no suitable deposits for sampling were encountered.

3.3.2.1 Additional Methodology for Excavation of Human Remains

3.3.2.1.1 It was not known initially whether the remains encountered were articulated or disarticulated and the specification produced (see Appendix A) included provision for both scenarios. On excavation it was found that the remains were those of a single individual that had been reburied in the location that they were discovered and were therefore disarticulated.

3.3.2.1.2 The following methodology was therefore employed. In the pre-excavation stage of works the feature and locations of the protruding long bones were pre-excavation planned at a scale of 1:20. The excavation of the stone lined feature was undertaken in spits of 0.10m – this was set to continue until either a context change, undisturbed horizon or the feature base was reached and in this instance it was the feature base.

3.3.2.1.3 The position and depths of all bones were recorded and working photographs were taken. Disarticulated remains encountered were bagged and labelled according to context number and were sent for specialist analysis.

3.3.2.1.4 All fill contained within this feature was coarse sieved to recover all surviving human remains and any small artefacts associated with the feature. It was not possible to undertake this activity on site and it was therefore collected as a 100% bulk sample and coarse sieved off site.

3.3.2.1.5 All human remains lifted were immediately bagged and labelled and placed in an opaque container with an opaque lid. They were labelled as containing human remains. No excavated remains were left on site overnight and were brought to the C.R Archaeology office at the end of the working day. Following cleaning the remains were sent to oesteoarchaeologist Stefanie Vincent (MA) for analysis. Following this Stefanie processed the remains for radiocarbon dating at Beta Analytic (UK).

3.3.3 Recovery, Processing and Curation of Artefactual Material

3.3.3.1 All recovered artefactual material was retained, cleaned, labelled and stored according to *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2014) and *First Aid for Finds* (Watkinson & Neal 2001). The aim was to create a stable, ordered, well-documented, accessible material archive forming a resource for current and future research (CIfA 2014).

3.3.3.2 All artefactual material was bagged and labelled with the site code and context number prior to their removal from site. The archive reference number will be clearly marked on all finds.

3.3.3.3 Each assemblage was examined according to typological or chronological criteria and conservation needs identified.

3.3.3.4 Following analysis, it is provisionally intended that all archaeological material recovered will be deposited at Bangor Museum. Processed assemblages will be boxed according to issued guidelines and a register of contents compiled prior to deposition. It may however be the case that in the event of the recovery of significant artefacts that it might be considered more appropriate that the material be retained and displayed at Harlech Castle. C.R Archaeology will therefore consult with Cadw prior to the deposition of any material at Bangor Museum.

3.3.3.5 The works were carried out in accordance with The Chartered Institute for Archaeologists: Standard and Guidance for Archaeological Watching Brief (2014).

3.3.4 Archive Compilation

3.3.4.1 All records created during the fieldwork were checked for consistency and accuracy and will form part of the *Primary Site Archive (P1)* (EH 2006). The archive contains all data collected, including records and other specialist materials. It is ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in the English Heritage *Management of Research Projects in the Historic Environment* (MoRPHE) methodology.

3.3.4.2 The archive was assembled in accordance with the guidelines published in, *Standards in the museum care of archaeological collections* (Museums & Galleries Commission 1994), *Guidelines for the preparation of excavation archives for long-term storage* (United Kingdom Institute for Conservation, 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007).

3.3.4.3 All materials contained within the *Primary Site Archive (P1)* that are subsequently identified by the *Assessment Report* (*P2)* as appropriate for analysis will be processed by suitable specialists and the resultant *Research Archive* (*P3)* will be checked and ordered according to *MoRPHE* criteria.

3.3.4.4 As detailed above Bangor Museum is the likely repository of any artefactual material and will be notified in advance of the proposed deposition of material resulting from this excavation. Artefacts will be deposited in accordance with the museum's terms and conditions for deposition. In the event of a significant discovery it might be considered more appropriate that the material be retained and displayed at Harlech Castle and C.R Archaeology will therefore consult with Cadw prior to the deposition of any material at Bangor Museum.

3.3.4.5 Should the artefactual material be retained by Harlech Castle, the paper/digital archive created by this archaeological project will be deposited with the RCAHMW in accordance with their terms and conditions for archive deposition.

3.4.0 Timetable for Proposed Works

3.4.0.1 Works at Harlech Castle commenced on Wednesday 3rd January 2016. Cadw were informed of the exact site days to allow monitoring of works.

3.4.1 Staffing

3.4.1.1 The project was managed by Catherine Rees (MCIfA, BA, MA, PgDip HEC) and Matthew Jones (BA Archaeology and Welsh History, M.A Archaeological Practice). In addition to Matthew and Catherine, Dr Ian Brooks (FSA, MCIfA, PhD) was also involved in on site excavations at Harlech Castle. C.Vs for all staff employed on the project have been provided as requested.

3.4.1.2 The project was carried out in accordance with CIfA *Standard and Guidance* documents.

3.4.2 Monitoring

3.4.2.1 The project was subject to monitoring by Cadw. The monitor was given prior notice of the commencement of the fieldwork.

3.4.3 Health and Safety

3.4.3.1 A risk assessment was conducted prior to the commencement of works and site staff were familiarised with its contents. A first aid kit was located in the site vehicle.

3.4.3.2 All staff were issued with appropriate Personal Protective Equipment (PPE) for the site work. This consisted of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)
- Gloves
- Plastic hard cased kneeling pads
- Alcohol dry "handwash"

3.4.3.3 C.R Archaeology were not the Principle Contractor onsite and staff complied with all Health and Safety Policy or specific on-site instructions provided by Grosvenor Construction.

3.4.4 The Report

3.4.4.1 This report clearly and accurately incorporates information gained from the entire programme of archaeological works. It presents the documentary evidence gathered in such a way as to create a clear and coherent record. The report contains a site plan showing the locations of photographs taken.

3.4.4.2 The report includes:

- a title/cover page detailing site address, Scheduled Monument number, site code and, NGR, author/originating body, client's name and address, report date and planning reference number
- full contents listing
- a non-technical summary of the findings of the excavations
- a description of the archaeological background
- a description of the topography and geology of the excavation area
- a description of the methodologies used during the excavation
- a description of the findings of the excavation
- plans of each of the trenches/areas showing the archaeological features exposed
- sections of the excavated archaeological features
- specialist reports on the artefactual/ecofactual remains from the site
- appropriate photographs of specific archaeological features
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms

3.4.4.3 The report details the results of the background research, the archaeological watching brief, the hand excavation of the trenches and the excavation of the human remains.

3.4.4.4 Specialist reports have been summarised within the main report text but are included in full as appendices.

3.4.4.5 Copies of the reports in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A bound paper copy and PDF digital copy of the report will be submitted as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of the final report.

3.4.4.6 As a minimum a summary of the work will be published in the Archaeology in Wales Journal.

3.4.4.1 Copyright

3.4.4.1.1 C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

4.0 Geographical and Geological Context

4.1 Topography

4.1.1 Harlech Castle is situated on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within wall.

4.2 Geology

4.2.1 The bedrock is recorded as "*Rhinog Formation - Siltstone. Sedimentary Bedrock formed approximately 508 to 528 million years ago in the Cambrian Period. Local environment previously dominated by deep seas. These rocks were formed in deep seas from infrequent slurries of shallow water sediments which were then redeposited as graded beds*". The superficial geology is recorded *as* "*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters*" (www.mapapps.bgs.ac.uk).

5.0 Historical Background

5.0.1 Harlech Castle features in Welsh legend as the site of Twr Bronwen – the Tower of Bronwen, sister of Bran ap Llŷr, king of Britain. Although Pennant writes that "*he resided for some time in a square tower in the ancient fortress, the remains of which are very apparent; as are those of part of the old walls, which the more modern, in certain places, are seen to rest on*" (Pennant 1883: 274) there is currently no conventionally excepted evidence for a Pre-Edwardian structure on the site.

5.0.2 The following section is taken from the Cadw SAM Report (www.cadwpublic-api.azure websites.net/reports/sam/FullReport?lang=en&id=2464). Bold text has been utilised to highlight passages directly related to the gatehouse.

5.0.3 "*This monument comprises the remains of a medieval castle built by King Edward I. Begun in 1283, the castle occupies a strategic site on a rocky outcrop with commanding views over the sea. The castle is of concentric type and built out of local Rhinog Grit and yellow*

sandstone. The main defences consist of four round towers placed at the corners of a roughly rectangular high-walled inner ward, with a lower-walled outer ward forming a narrow secondary line of defence. Beyond this, steep cliffs to the north and west and an artificial ditch to the west and south complete the defences.

5.0.4 *The outer ward broadly follows the line of the inner ward, though its walls have been reduced in height. In the centre of the inner ward's eastern (town-facing) wall is a large square gatehouse block and is the only surviving completed example of this form of gatehouse built for Edward I. It consists of a pair of high D-shaped drum towers to the front, and a pair of narrower stair towers to the rear, the latter rising up two stages above the inner ward's corner towers and one stage above the paired front towers. The gatehouse housed the principal rooms, arranged as lavishly-appointed suites, one on each of the upper floors. The first-floor apartment probably served as the constable's quarters, whilst the upper floor rooms, of rather finer quality of detail, would have been reserved for important visitors. Access to these apartments was from the inner ward. Here an external stone stair, arranged in three straight flights, leads to a round-arched entrance off-centre to the left of the gatehouse's 3-window inner elevation. Various fragmentary fireplaces survive, mostly with stone hoods with decorative corbels.*

5.0.5 ***The gatehouse was conceived as an independently defensible unit, and correspondingly could withstand assault from the inner ward, in the event that it fell to the enemy. The main approach to the castle is in the form of a tunnel entrance between the front towers of the Gatehouse. This leads through to the inner ward via a system of defences including portcullises, gates and murderholes. The portcullises were operated from the first floor and were therefore under the constable's direct control.***

5.0.6 *A hall, chapel, service and storage buildings were sited around the north, south and west sides, with the well located against the north wall. Of these buildings, only the walls of the gabled chapel stand to any height; the remainder is reduced to foundation level.*

5.0.7 *The outer ward has a postern gate, comprising a gateway between small turrets, corbelled-out from the wall; a complex bridge system with further gates and a large drawbridge no longer survives. On the north side is a postern gate with small D-shaped drum towers. This gives access to 'Castle Rock', the rocky plateau which provides the site. A wall runs north-eastwards and curves around and down to protect the rock on this side. At the foot of the rock,* **5.0**.8 *at the north-western point, is the 'Gate-Next-the-Sea', where supplies were landed by ship. This gateway had its own drawbridge and portcullis system and was further covered by two rock-cut engine platforms above. It was linked to the main castle by a walled and defended track (known as the 'Way from the Sea') which winds its way up along the east and south sides of the rock.*

5.0.9 *Harlech remained in military use for several centuries. It is notable for playing a key role in the events that marked the great Welsh uprising (1400-1414) led by Owain Glyndŵr, during which it served as his residence and court from 1404 until 1409. During the subsequent Wars of the Roses the castle was held by the Welsh Lancastrians before surrendering to the besieging Yorkists (as immortalized in the song 'Men of Harlech'), and saw its last action during the Civil War, when it was the last mainland British castle to hold out for King Charles I before finally being surrendered in 1647.*

5.0.10 *This monument is of national and international importance for its potential to enhance our knowledge of medieval social, domestic and political life and warfare. This is reflected by its designation as a World Heritage Site. The scheduled area comprises the remains described and an area around them within which related evidence may be expected to survive*".

5.0.11 The works undertaken at Harlech Castle were concentrated on the gatehouse and therefore the following section will concentrate primarily on this area of the monument to provide context for the discoveries made during the excavation works. The key discoveries are detailed in Section 6 but can be summarised as: cobbled surfaces, human remains, a 15th century iron spur and stone artefacts of Medieval date.

5.0.12 In 1846 an antiquarian compiled a list of the records which was published in Archaeologica Cambrensis. Of particular relevance to this project is a survey of Harlech Castle dated 23rd September 1564 and held in the Porkington collection. This survey details the entire castle and the section detailing the gatehouse is reproduced in full below. The original spelling and punctuation has been retained:

5.0.13 "*The Bridge – Consisteth of an Arche of Stone, rising from the bottom of the diche, battlemented on both sides, in the midds between the Grene and the Castle ye distaunces now fulfilled with tymber and plank, in greate Decaye, where have bene two Drawn Bridges – in bredth iiij yerdes.*

5.0.14 *The Gate House – Theare is a stetely stayre, leading from the inner Courte, in ye said buildings, of – Grises xxx vy bredth ij yards, dimidium.*

5.0.15 *The rounde towre, on the righte hande, consisting of two loftes, with ij chimneys; the roof leaded, greatly decayed, containing in – compasse xx yards.*

5.0.15 *The lodging called the porter's lodge, adioyning to the same, having ij loftes, with iij Chymneys, and a staire in one of the said turrets, to the leades of the Same, greatlie in Decay – containing in length vij yerdes. Bredth vj yerdes.*

5.0.16 *The towre on the left hande, answerable to the foresaide rounde towre beinge leaded, but greatlie Decayed – containing in compasse xx yerdes.*

5.0.17 *The Chambre next the porter's Lodge, now vsed for a hall, having ij loftes, ij chymneys, and a staire in thither rounde turret, to ye leades thereof, being greatlie in decay – containing in bredth vj yerdes dimidium*" (W.W.E.W 1849: 249 – 251).

5.1 Previous Discoveries of Human Remains at Harlech Castle

5.1.1 In light of the discovery of human remains during the current works, it is prudent to include an account of previous discoveries of human remains which were uncovered during works to the gate house in 1869.

5.1.2 "*Discovery of human bones at Harlech Castle – Parties are now busily engaged in restoring the fine entrance gateway of this ancient castle to its original dimensions, as in the lapse of ages it had been partly built up. They are likewise making steps from the moat to the said gateway, which will be a great accommodation to the hundreds of persons who annually pay a visit to the Old Castle from all parts of the kingdom.*

5.1.3 *Two or three days ago as the workmen were excavating under the entrance-arch, they suddenly came upon a quantity of human bones in a heap, and sufficient to fill a barrow. They were identified as human bones; but the great puzzle is to know how they came to be buried in such a place, and when and by whom, as even our old fighting forefathers did not usually bury their dead or slain under castle entrance gates.*

5.1.4 *Perhaps some of our antiquarian friends will give us a hint on the subject. A silver coin has likewise been found, about the size of sixpence, but the superscription is altogether illegible*" (The North Wales Chronicle, May 29th, 1869).

5.1.5 Further information on the works, including details of those who were responsible for undertaking the works detailed above.

5.1.6 "*In form it is a rectangular parallelogram, and its four corners are protected with massive towers, which rise above the general level of the walls. There are steps leading to these walls along which the visitor can walk, but in doing so we would advise him to be exceedingly careful, as a slip would inevitably be fatal. We may likewise add that this castle is not so dilapidated as are many others in Wales, and it is a "ruin" in a tolerably good state of preservation, and is unlike that of Criccieth Castle, the Monastery in Bardsey Isle, or Gogarth Abbey, on the Great Orme's Head. The Hon. Edward Pryce Lloyd is the present constable; the present custodian, or deputy constable, being Samuel Holland, Esq Glan William, Maentwrog, who, during the past year has commenced making sundry necessary repairs, amongst them being a commodious causeway leading to the entrance gates, and which before were almost inaccessible to ladies-and aged persons. ln addition to this, it has been decided to utilize this fine old structure to some extent, and for two years the annual Musical Festival of the Ardudwy Society has been held within its walls; and on the suggestion of Mr Holland, at the last Festival, held a few weeks ago, a tent will be provided for such meetings, as a provision in case the weather should be rainy, and we trust this suggestion will be acted upon. In conclusion, we would strongly recommend tourists and others who are in quest of the romantic, the picturesque, and of places which possess a historical interest to pay a visit to Harlech in order to enjoy the sublime scenery which is to be found there, and to inspect what remains of its ancient and famous castle. A number of new lodging houses have been erected for the accommodation of visitors, and there are several bathing machines on the beach*" (The North Wales Chronicle, August 21st, 1869).

5.1.7 Images of the remodelled entranceway into the castle is shown as figures 3 – 4.

5.2 Sieges and Developments at Harlech Castle AD 1290 – AD 1410

5.2.1 The human remains recovered from the gatehouse were radiocarbon dated to between AD 1290 and AD 1410, and during this period Harlech Castle was besieged/attacked on two notable occasions.

5.2.2 It is postulated that the individuals discovered in the castle gatehouse, both during this excavation and in 1869, were likely to have been killed during a time of siege which prevented their burial within a church/churchyard. It is unclear why the gatehouse passageway was chosen for this macabre purpose, or indeed whether the remains had originally been interred elsewhere in the castle. This possibility cannot be ruled out as the remains uncovered in 1869 appear from the contemporary description to have been disarticulated and those recently discovered had almost certainly been found elsewhere – possibly in one of the guard towers.

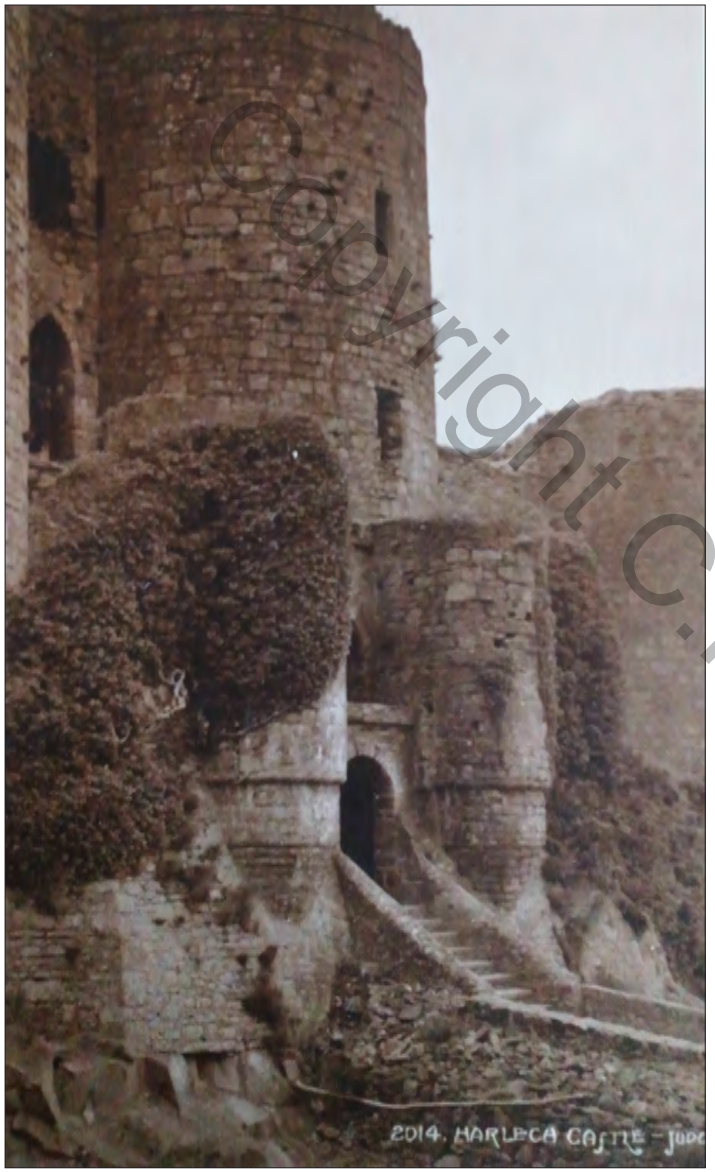


Figure 3. Early Twentieth Century Postcard Showing The Gatehouse Following the 1869 Remodelling (Source: C.R Archaeology Collection)

Figure 4. Early Twentieth Century Postcard Showing The Gatehouse Following the 1869 Remodelling (Source: C.R Archaeology Collection)

5.2.3 The first siege was in 1294 – 95 when Harlech was attacked by Madog ap Llewelyn. Madog ap Llewelyn, whose father had been ejected from Meirionydd by Llewelyn ap Gruffudd, modelled himself on the Princes of Wales and was supported by Morgan ap Maredudd (of the Gwent dynasty) and minor members of the Deheubarth dynasty. The campaign was fought nationwide with attacks against Gilbert de Clare in Glamorgan and the earl of Lincoln in Denbigh. The deputy justicar at Carmarthen was ambushed and killed, as was the sheriff of Anglesey. Along with Harlech, Cricieth and Aberystwyth were besieged, the castles of Denbigh, Ruthin, Hawarden and Morlais taken, Caernarfon captured, and government records destroyed and the town of Llanfaes burned (Moore 2005: 159).

5.2.4 Harlech Castle was cut off from the land during this campaign but due to its coastal location was able to hold out against the Welsh forces as it could be supplied by sea from Ireland (Taylor 2007: 9).

5.2.5 Following the uprising Madog was imprisoned and whilst he spent the remainder of his life in the Tower of London but was not executed. One of his sons became a royal squire and retained the family lands in Anglesey. Morgan was pardoned, and within a few years was knighted and led troops in the king's army (Moore 2005: 160).

5.2.6 As a result of the siege the defences at Harlech Castle were strengthened, with particular emphasis placed on the improvement of the defended route from the sea. The entire castle rock was enclosed, and a new tower was built at the Water Gate (Taylor 2007: 9).

5.2.7 The defences were modified again in 1323-24, when it is believed that Harlech became the primary base for forces led by Sir Gruffudd Llwyd, sheriff of Merioneth, in support of Edward II against the Mortimer family. During this building phase, the fortification of the eastern bridge was increased and two towers were constructed (ibid).

5.2.8 This was followed by an extended period of relative calm until the Welsh uprising led by Owain Glyn Dŵr (c. AD 1400 – 1414). Despite being an effective design to withstand enemy attack, Harlech Castle was ill-equipped and undermanned. An inventory of 1403 lists a pitiful lack of equipment for the garrison comprised of just three shields, eight bassinets, six lances (four lacking heads), ten pairs of gloves, four guns and various stocks of lead and iron (ibid).

5.2.9 The exact dates of the siege are unclear, but the garrison at Harlech Castle which had numbered ten men-at-arms at thirty archers had been reduced by pestilence and desertion had reduced to five Englishmen and around sixteen Welshmen by the 15th January. After a protracted siege the castle fell to the Welsh sometime towards the end of 1404 (Taylor 2007: 10).

5.2.10 It is generally acknowledged that the capture of the key military sites of Aberystwyth and Harlech Castles was key to Glyn Dŵr being accepted by many of the Welsh as having a legitimate claim to the title Prince of Wales (Hodges 2000: 149). The strategic position and effective fortifications of Harlech Castle, no doubt aided by the legendry origins of the site as a powerful native Welsh seat, was adopted by Glyn Dŵr as the residence of his court and family. It was one of two places (together with Machynlleth) to where he summoned parliaments of his supporters (Taylor 2007: 10).

5.2.11 Harlech Castle was held by the Welsh until the winter of 1408-9, when it was retaken by the English following a long, protracted siege. Although Glyn Dŵr evaded capture his wife, daughters and granddaughters together with the sons of Edward Mortimer were taken. Mortimer himself died during the siege (Moore 2005: 183).

5.2.13 The recapture of Harlech Castle followed the surrender of Aberystwyth which is believed to have taken place in September 1408, and it is believed that the retaking of Harlech was the most difficult and expensive of the Welsh castles. Despite the strength of the castle defences, the castle couldn't hold out alone. The loss of Aberystwyth and a truce between France and England denied the castle supplies from the sea and over time hunger and disease took its toll. This is not to suggest that those holding the castle did not put up tremendous resistance, but rather that with the benefit of time the English were able to wait out the surrender of the castle. During this time bombardment of the castle was undertaken and the structure was bombarded by canon, and the walls swept by archers (Hodges 2000: 149 – 150).

5.2.1 Later Sieges at Harlech Castle

5.2.1.1 The most famous siege at Harlech took place sixty years later, during the Wars of the Roses. In the summer of 1460 Harlech Castle was residence of Queen Margaret of Anjou, the wife of King Henry VI and from 1461 – 1468 was held by the Lancastrians by Dafydd ab Ieuan ab Einion (Taylor 2007: 11).

5.2.1.2 By 1468 the Yorkist king, Edward IV had decided that he was no longer prepared to tolerate this situation and empowered Lord William Herbert of Raglan to raise a force of between 7,000 and 10,000 men. Herbert marched north with his brother Sir Richard Herbert and the two wings of their armies converged on Harlech. Poet Hywel Dafi wrote of siege as men being "*shattered by the sounds of guns*" with "*seven thousand men shooting in every port, their bows made from every yew tree*". The castle surrendered after less than a month, and fifty prisoners were taken including Dafydd ab Ieuan ab Einion. The Yorkist siege is traditionally believed to have inspired the popular song "Men of Harlech" (ibid).

5.2.1.3 Following the cessation of hostilities, the castle does not appear to have been repaired and a Crown Surveyors report of 1539 describes Harlech, along with Conwy and Caernarfon, a being wholly unfurnished with means of defence. In the event of a French or Scottish invasion it was considered that the castle would fall within an hour. A later report dated 1564 echoed this situation and declared nearly every tower to be a ruin and the hall and chapel roofless. The drawbridge had been replaced by timber planks in "*greate decaye*" (Taylor 2007: 12).

5.2.1.4 Works to slightly improve the castle and its defences were undertaken during the reign of Queen Elizabeth I (1558 – 1603) as it was directed that the Merioneth Assizes be held there. For this purpose, at least the principle rooms in the gatehouse must have been kept in an occupiable condition (ibid).

5.2.1.5 The final siege at Harlech Castle took place during the Civil War of 1642 – 1651. The castle was defended for the king by its constable, Colonel William Owen from spring 1644 and was under siege from parliamentary forces led by Major-General Thomas Mytton from late 1646. On the 15th March 1647 the castle surrendered, and the surviving garrison were recorded as 16 officers, gentlemen and invalids and 28 common soldiers. Harlech was the last Royalist stronghold to fall and its capture heralded the end of the war (Taylor 2007: 13).

5.2.1.6 Although the order was given to demolish the castle it was never carried out, although the parliamentarians are recorded as rendering the structure untenable by destroying the two original gatehouse staircases (now replaced) and stripping it of all wood, lead and glass (ibid).

6.0 Results of Archaeological Works (Plates 1 – 29, Figures 2 & 5)

6.0.1 Works were conducted along the full length of the gate house passageway and continued into the inner ward with the resurfacing of a ramp leading into the castle. The modern surfaces (which varied between 0.10m and 0.32m in depth) were removed.

6.0.2 Two service trenches were then excavated – one connecting the two tower entrances at the western end of the passageway (described as cross-trench), and one running the entire length of the passageway along the northern wall (described as gatehouse passageway).

6.0.3 A single 0.45m by 0.30m trench was excavated by hand within the inner ward to accommodate an electric plug point.

6.0.4 Pre-excavation shots are shown as plates 1 – 4. Excavation photographs are shown as plates 5 – 29. Appendix C details the location and direction of the photographic plates.

6.1 Cross Trench (Plates 5 – 20)

6.1.1 The cross trench was cut between the two tower entrances at the western end of the gatehouse passageway. The area was hand excavated to a maximum depth of 0.58m.

6.1.2 The cross-trench area had previously been disturbed and was capped with modern concrete (context 01) which was approximately 0.10m in depth. This context was removed using a mechanical pecker.

6.1.3 Below this level a mixed brown, silty clay deposit (context 12) was uncovered which contained frequent angular and rounded medium size stones. This deposit continued beyond the trench limits and was excavated to a maximum depth of 0.48m but the base of the deposit was not reached. This material was modern backfill which covered a ceramic soil pipe for the toilets which were previously located within the gatehouse towers. Also contained within this fill were redeposited Medieval stone finds which are detailed in Section 7.

6.1.4 Centrally to the disturbed cross-trench area was a large concrete chamber (context 10 - see plates 5 – 7) with a cut slate cover. Two ceramic pipes (context 11) were recorded at the base of the trench either side of this feature running under the two opposing doorways (see plates 9 And 10). A third pipe ran from the concrete chamber runs along the passage way and was recorded discharging at the trench limit (plate 25). That pipe appears to have been "pushed under" the cobbled surfaces although it is possible that they may been re-laid in the mid-twentieth century.

6.1.5 Built into the southern side of the concrete chamber (10), and using the same slate as capping, was small stone-built chamber (context 21). The slate cover (context 22) had a 0.03m layer of concrete as part of its matrix and was bonded with the construction of the concrete chamber (see plates 8 – 10).

6.1.6 Following the removal of the slate cover (context 22), a small stone-built chamber (context 21) which measured 0.48m by 0.39m. The chamber was 0.54m in depth and was constructed using predominantly rounded beach stone. There was no base to the structure.

Figure 5. Plan of and Section Through Gatehouse Passageway

Plate 1. West Facing View of Gatehouse Passage - Pre-excation

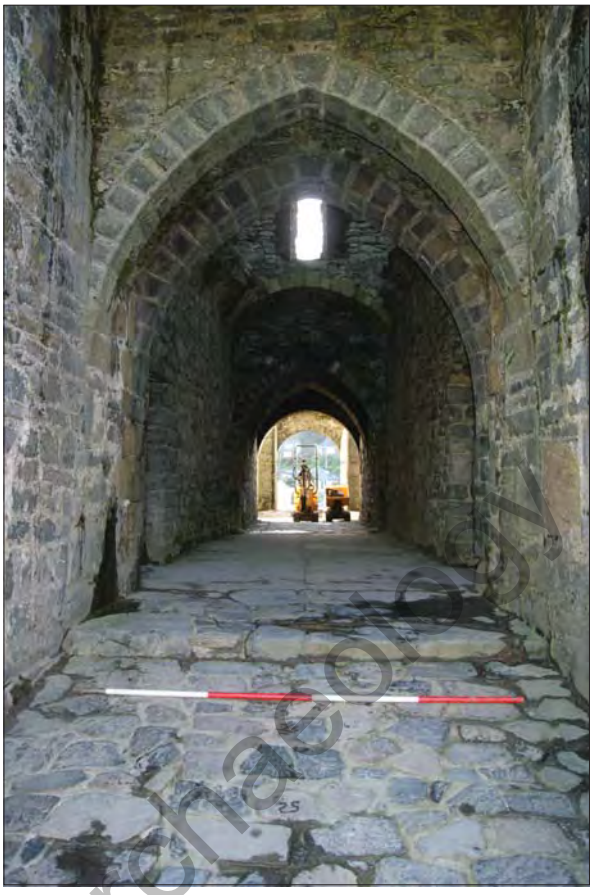


Plate 2. East Facing View of Gatehouse Passage - Pre-excation

Plate 3. Internal Step into Inner Ward Showing Steps to be Removed

Plate 4. Step into Gatehouse - Pre-excavation

Plate 5. South Facing View of Cross Trench Showing Earlier Services

Plate 6. North Facing View of Cross Trench Showing Earlier Services

Plate 7. Slate and Concrete Drain Cover Slate Cist Slab Visible Bottom Left

Plate 8. Slate Cist Capping

Plate 9. Cross-passage Trench Showing Modern Drainage and Disturbance (Facing South)

Plate 10. Cross-passage Trench Showing Modern Drainage and Disturbance (Facing North). Note Slate Cap Stone to Left in Foreground

Plate 11. South Facing Section Showing Dressed Stone Step

Plate 12. Human Remains Exposed Following The Lifting of Slate Capping Shown in P10

Plate 13. Disarticulated Human Remains Exposed Within Rough Stone Chamber Beneath Slate Capping in Cross Passage Trench

Plate 14. Stone Chamber Within Wider Setting Showing Level of Modern Disturbance in Cross Trench

Plate 15. Disarticulated Human Remains at Base of Stone Chamber

Plate 16. Post-Excavation Plan View of Stone Chamber

Plate 17. West Facing Elevation of Stone Chamber. Note Cement in Pointing

Plate 18. South Facing Elevation of Stone Chamber. Note Cement in Pointing

Plate 19. East Facing Elevation of Stone Chamber. Note Cement in Pointing

Plate 20. North Facing Elevation of Stone Chamber. Note Cement in Pointing

Fragments of slate had been placed between the larger stones, and in places the stones appear to have been bonded using the same concrete as was used in the pipe chamber.

6.1.7 The chamber contained a single loose clay and gravel fill (context 19) which contained disarticulated human remains along with fragments of concrete and slate (see plates 12 – 15). Two iron nails were also recovered from this fill.

6.1.8 The inclusion of human remains within the chamber has been interpreted as a secondary re-burial undertaken during works at the site in the mid-twentieth century, rather than this being the original inhumation location. The remains are from a single individual and do not appear to have been placed within the stone chamber in any particular order. There was very little damage to the bones, so it appears they were treated well when discovered and moved. The osteological report is included in Section 7.

6.1.9 The relative completeness of the skeleton would indicate that it had originally been buried within a stone cist or crypt, therefore resulting in a very limited soil matrix around the remains. Two iron nails which are presumed to be coffin nails were recovered alongside the human remains suggest that a wooden coffin was also used. This would have allowed for ease of collection of the small bones of the hands and feet, which are well represented in the assemblage.

6.1.10 There was a lower deposit (context 20) of clean grey clay at the base of the structures. It was approximately 0.06m in depth. See plate 16.

6.2 Gatehouse Passageway (Plates 21 – 26)

6.2.1 Excavation of the passageway involved the removal of the modern surface layers and the excavation of a service trench. The trench runs the whole length of the northern edge of the passageway.

6.2.2 Two modern surfaces were encountered within the passageway – as mentioned above, at the western end was a layer of concrete (context 01). Covering the eastern area was modern stone paving (context 02) which varied between 0.20m and 0.32m in depth. In the central area of the passageway between the two surfaces, the earlier evaluation trench could be identified and was located at the junction between the two. A lighter square is visible in the concrete and the adjacent cobbles had clearly been re-laid (see plate 1), – possibly related to the removal of a previous kiosk.

6.2.3 Both contexts were removed using a mechanical pecker and the trench was then cleaned by hand. They are not shown on the plan or section as they were removed in their entirety prior to the commencement of archaeological work.

6.2.4 Below context 01 was an irregular cobbled surface (context 03). The surface measured a maximum of 2.80m in length and survived to a maximum width of 2.20m. The surface did not reach the internal entrance way to the west as it was truncated by the modern services identified in the cross-trench described above. Incorporated within the cobbles were two large stone shots – one was recovered and is described in section 7 and the other left insitu. Very small fragments of Buckley Ware were found whilst cleaning between the stones. Although these were undiagnostic and could be intrusive, they would be consistent with a later nineteenth century date for the surface.

Plates 21 - 24. Cobbled Surfaces (03) & (06)
Plate 25. Remains of Ceramic Waste Water Pipe

6.2.5 A second smaller cobbled surface (context 06) measured a maximum of 2.40m in length and 1.80m in width. The stones used in this cobbled area were also irregular and contained three very large stones. Very small fragments of Buckley Ware were found whilst cleaning between the stones. Although these were undiagnostic and could be intrusive, they would be consistent with a later nineteenth century date for the surface.

6.2.6 A large area of disturbance [05] cut through surfaces (03) and (06). It is probable that the surfaces are contemporary and would have formed a single layer prior to having been separated by the disturbance. The fill within [05] - context (04) was as a disturbed deposit comprised of displaced cobbles within a loose dark brown silt clay soil matrix. Animal bone was recovered from this context.

6.2.7 A slot was excavated along the length of the Gatehouse Passageway for the insertion of services. This trench had a maximum depth of 0.40m and a maximum width of 0.40m. The trench did not reach the base of cut [05] which was filled with a single loose dark brown silt-clay fill with frequent stone cobbles (context 04). Fill (04) was 3m in width and 3.70m in length along the northern wall and 1.30m in length along the southern wall. The frequent large cobbles which were within the fill were presumably the remains of the cobbled surface which it had disturbed.

6.2.8 Context 28 is further modern disturbance and was distinguished from this deposit by a lack of cobbles. It sat as an upper fill within cut [26] which is a vertically sided pit 0.90m in width and extending beyond the trench depth. Cut [26] contained a lower fill, context 17 which was a 0.10m deep deposit of off-yellow sand. The very straight edges of this feature suggest that it may have been part of a pay gate put in the mid-20th century and the disturbance is presumably related to its removal.

6.2.9 As mentioned above, the previous evaluation trench and evidence for the removal of a kiosk were identified in the central area of the passageway at the junction between the modern concrete and the modern stone paving.

6.2.10 The upper deposit after this point is (02), a modern stone surface which was bedded into a layer of loose gravel and sand with a slight mix of clay silt within its matrix (context 09). This deposit was 0.18m in depth. The deposit continued for 2.75m until it reaches the step to the outer ward.

6.2.11 Below this step there was a deposit of mortar (context 23) which continued until the end of the trench. Context 14 was stratigraphically the lowest deposit encountered and the length of the remainder of the trench. It was a mixed dark brown clay deposit and was very similar to the soil matrix in context 04. The base of this deposit was not reached.

6.2.12 East of the step, the upper surface (context 27) was a modern stone paving/cobbled surface similar to (0)2. It had a depth of approximately 0.25m and was bedded on a layer of loose gravel and sand mixed with clay (context 16). This deposit was 0.18m – 0.28m in depth. Although of similar construction to the passageway it could not be conclusively proven that the two are of contemporary build date, although both post-date the mid twentieth century. As with contexts (01) & (02), context (27) was removed using a mechanical pecker and the trench was then cleaned by hand. This context is not shown on the plan or section as it was removed in its entirety prior to the commencement of the archaeological work.

6.2.13 Mortar deposit 23 continues beneath context 16 at a depth of 0.10m - 0.20m and overlies context (14) runs below these deposits. These deposits run for a length of 2.50m.

6.2.14 The end of the trench is a large modern deposit of stone and concrete (context 24) approximately 1m wide with stone facing (context 25). This forms the wall of the drawbridge pit.

6.3 Inner Ward Ramp (Plates 27 – 28)

6.3.1 The inner ward ramp leads from a stone step within the gate house (context 31) into the main ward of the castle. Works carried out here involved the removal of the large stone cobbled surface and its concrete bonding (context 29). The depth of this varied between 0.28m - 0.43m and a part of rotary quern (SF 06) was identified as part of this surface. The area was hand cleaned and one modern feature was identified. This was a twentieth century drainage pipe which ran centrally to a drain cover within the inner ward.

6.3.2 The ramp itself appears to have been constructed out of a heavily disturbed mid-brown clay-slit with frequent gravels and occasional small angular stone (context 30) and Post Medieval/modern material. Small areas of black course silty soil were noted which the soil matrix which contained animal bone. A 15th century spur was also recovered from one of these mixed patches.

6.4 Electric Connection Box (Plate 29)

6.4.1 A small trench was hand excavated to accommodate an electric plug point, 0.45m by 0.30m and 0.48m deep. Four contexts were identified within this trench. The upper context was (101) a turf, topsoil layer between 0.05m to 0.10m in depth, and below this was (102) a mid-brown clay silt with occasional small rounded stones and a single large angular stone. This deposit had a maxim depth of 0.27m. A rough stone and mortared wall (context 104) was identified at a depth of 0.10m within this deposit. The stones are medium sub-angular and are set within a pinkish mortar. Below context 02, and butting up against the wall, is context (103) which was a loose mid brown clay silt. It contained frequent small to medium angular and rounded stones with a single large stone seen in the section.

6. 5 Summary

6.5.1 None of the excavation areas uncovered what could be conclusively proven to be intact Medieval (or earlier) deposits. The small wall section uncovered in the electric connection box is presumed to be Medieval, but this cannot conclusively be proven due to the small size of the excavated area. Medieval artefactual material was recovered from the site but was residual rather than being found insitu.

6.5.2 It would seem likely that the cobbled surfaces exposed (contexts 03 & 06) were laid as part of the late 1860's work around the gatehouse, with later disturbances associated with the use of the area as a tourist venue during the mid-twentieth century when visitor toilets were installed. It must however be noted that there does remain the possibility that this surface is mid-twentieth century as there is a waste water pipe running from the cross-trench to the eastern limits of the excavation area. It was not clear whether this had been "pushed under" along the passageway or whether the cobbles had been relaid.

6.5.3 The lowest stratigraphic level reached – context 14 is also believed to be a Post Medieval layer associated with the clearance and levelling of the castle entrance. It contained animal bone but no pottery.

Plate 26. Sample of Section Exposed by Service Trench

Plate 27. Post-Excavation Shot of Ramp in Inner Ward (Facing West)

Plate 28. Post-Excavation Shot of Ramp in Inner Ward (Facing East)

Plate 29. Post-Excavation Shot of Electric Connection Trench Showing South Facing Section

6.5.4 Despite a Medieval date for the human remains recovered during the works, these remains were not uncovered insitu and they are believed to have been discovered during the works in the mid-twentieth century and reburied within the passageway.

7.0 Artefactual Material & Human Remains

The following section has been compiled using the specialist reports. It details the analysis of the human remains and each of the artefact types.

7.1 Human Remains - Analysis by S. Vincent (Plates 30 - 32)

7.1.1 Scope

7.1.1.1 This report contains the results of osteological analysis carried out on Skeleton 1 from Harlech Castle, (CR121-2016). The area around the burial is known to have been disturbed in the 1950's as the result of building work; despite this the skeleton is remarkably complete and represents a single individual. The presence of a number of small elements (hand and foot bones etc.) may support the theory that the original burial was demarcated in some way, (a cist or otherwise lined grave has been suggested by the excavators) but cannot confirm it.

7.1.1.2 Due to the lack of associated contextual evidence a bone sample was sent for C14 dating. This returned a date range of AD1290-1410 (95% probability) which encompasses two documented sieges of Harlech Castle. This data is included as Appendix F.

7.1.1.3 Raw data is presented in the appendices.

7.1.2 Bone preservation and skeletal completeness

7.1.2.1 Skeletal completeness and bone preservation were estimated by visual assessment. Bone preservation was good, majority of the skeleton was graded 0-1 (Brickley and McKinley, 2004) for surface erosion. Preservation was more variable across the skull with some areas of the cranium scoring 4 on the same system. There are post depositional breaks present, but nothing to suggest the method by which the skeleton was disturbed during the building work.

7.1.2.2 Completeness is based on the estimated percentage of skeletal elements present and found to be 95%. A single proximal hand phalange was recovered from an adjacent context (Unstratified Cross Cut); the size, morphology and colour are consistent with the other elements from skeleton 1 but it cannot be definitively assigned to the skeleton so is not referenced in the rest of this report.

7.1.3 Sex and Age determination

7.1.3.1 The individual examined is a young adult male whose age at death is estimated to be 20-35 years old. Osteological analysis was carried out using the standards of Brickley and McKinley, (2004) and Buikstra and Uberlaker (1994). Sex was determined both cranial and pelvic traits, while age was determined by a combination of tooth wear and eruption, epiphyseal fusion, auricular surface and sternal rib end morphology.

7.1.4 Stature

7.1.4.1 Stature estimation (using the femur and tibia) is 168cm ±2.99 (Brickley and McKinley, 2004).

7.1.5.1 The only pathology observed was in the dentition; supra-gingiveal calculus scored 2, using the criteria of Dobney and Brothwell (1987). There is evidence that the $M1^{L}$ had been

Plate 30. Harlech Skeleton as Laid out by S. Vincent
Plates 31 & 32. Details of Dental Wear
Photograph Credit S. Vincent

lost prior to death, the tooth itself is missing and the area around the socket has begun to heal. This indicates the tooth had been lost some time before death occurred.

7.1.5.2 The possibility of the individual living through a period of siege at Harlech Castle was raised by the results of the C14 dating. There were no skeletal markers linked to malnutrition observed on skeleton 1, however this neither supports nor disproves this theory.

7.2 Artefactual Material

7.2.1 For ease of interpretation and discussion the artefacts have been divided by type rather than context.

7.2.1 Stone Artefacts (Text & Analysis by T. Cromwell)

7.2.1.1 Six stone artefacts, all of forms consistent with a Medieval date were recovered during the excavation.

7.2.1.1 SF1 (Context 12 – Figure 6)

7.2.1.1.1 Stone fragment SF1 is a roughly rectangular piece of sandstone, 0.195m long, 0.10m wide, and 0.09m high. Although roughly shaped, the interesting feature of this otherwise unremarkable stone is a series of grooves along one edge. These appear to be wear-grooves rather than any planned and carved decoration. Six grooves are set perpendicular to the long axis of the stone and vary in both depth and width. This is likely to represent differing amounts of use as a fulcrum against which something (probably a rope) was dragged repeatedly. One of these grooves is at the end of the stone and is only one side of a groove – the other half was presumably worn into the adjacent stone (which we do not have). The seventh groove runs at a diagonal to the others, and cuts across two of them. It is deeper than the rest, suggesting a longer period of use. The exact use of this stone, and the cause of the grooves, is uncertain.

7.2.1.1.2 There is a patch of what appears to be lime wash on one face, where it is interrupted by the large diagonal groove, suggesting it may have been exposed and lime-washed during the period when the grooves were worn into it.

7.2.1.2 SF2 (Context 03 – Figure 7)

7.2.1.2.1 Stone fragment SF2 is a large fractured roughly spherical water-worn cobble of fairly common local quartzite sandstone of a type known as *greywacke*. The castle itself stands on a plug of this material, and the surrounding area of sedimentary rocks is called the Rhinog Grit. The hard, dense material of this stone is even-grained, and has a dark blue/grey colour. Its rounded surface is pitted from small impacts and possibly from erosion, while one-half of the stone is made of two sheared faces from a significant impact event that has removed probably half the original stone. Smaller areas of damage around this broken edge suggest the stone was exposed and moved around after the main impact event. Measurement is difficult due to the shape, but the major diameter varies between 0.19m and 0.21m, with a thickness (from broken face to natural worn face) of 0.14m.

7.2.1.2.2 The stone's naturally-rounded shape, convenient "bowling-ball" size, and evidence of major impact make an interpretation as a trebuchet or catapult missile attractive, especially as the castle suffered sieges in 1294-5, 1404, 1408, 1468, and 1646-7. Its shape is visibly less than perfectly round, so it would be less likely to serve as cannon-shot, suggesting one of the earlier rather than later events, if indeed it is actually a missile.

Figure 6. Small Find 1

Figure 7. Small Find 2

Figure 8. Small Find 3

7.2.1.3 SF3 (Context 12 – Figure 8)

7.2.1.3.1 Stone fragment SF3 is also local sandstone, approximately triangular in plan, and is wedge-shaped when viewed from the side. One face appears carved and weathered and can be treated as the "outward" face of the stone. Dimensions (with this worn face upwards) are 0.13m long, 0.12m high, and 0.065m thick at the thickest point of the wedge. The worn face has a groove separating it into a flat rectangular band and another raised area that appears to be curved. The narrow end, where the curved area tapers into the groove, has lime mortar on it. The edge adjacent to the flat band is also weathered and is the thick end of the wedge profile. The other edge (opposite the mortared edge) has been broken and forms a sharp reverse angle towards the rear face, which is smooth and clearly dressed.

7.2.1.3.2 The shape of this stone is a puzzle – the weathered face appears to show a band separated from a curved decoration by a rounded groove. It could be part of a decorative badge, or possibly window tracery, although it lacks any grooves for glazing on the edges. The back face is cut at such an angle as to make the stone too thin for any practical use, but it may have been dressed flat at a later date if the stone was recycled for a new use as simple ashlar.

7.2.1.4 SF4 (Context 12 – Figure 9)

7.2.1.4.1 Stone fragment SF4 is a roughly rectangular block of sandstone with chamfered edges. Dimensions are 0.30m length, width (at widest point) 0.19m & (at narrowest point) 0.12m, and height 0.115m. In section the block is actually five-sided and asymmetrical. At least three of the long faces appear to be finely finished as flat planes, while the others are roughly finished to a level surface. One end is roughly finished with worn edges, while the other end is broken, removing any evidence of finishing. There is a large crack running the length of one side, presumably along a bedding plane.

7.2.1.4.1 The odd shape gives one of the finished long faces a distinct trapezoidal taper (from 0.10m to 0.04m), suggesting this stone was originally part of an embossed decoration such as found on fireplaces and window openings. There is remnant decayed mortar clinging to most of the faces – whether this was a bonding agent or part of a render coat is uncertain, but on the trapezoidal face and adjacent faces it is more likely to be render on an exposed architectural detail.

7.2.1.5 SF5 (Context 12 – Figure 10)

7.2.1.5.1 Stone fragment SF5 is another local sandstone block roughly rectangular in plan, with a distinct taper from one end to the other. In section it is triangular, with one edge chamfered along two-thirds of its length to form a triangular flat "point" surface. It is 0.235m long, 0.14m wide (at the wider end), and 0.11m high. The triangular chamfer is 0.08m across at its base. Aside from the flat finish if the chamfer, the long sides are only roughly finished. They are also relatively unweathered, unlike the chamfered face. The narrow end of the stone appears to be chiselled flat (but not smooth), while the wider end looks to be broken off rather than finished. Traces of either mortar or render are visible in the surface of the long faces adjacent to the chamfered face.

7.2.1.5.2 It is tempting to consider this stone as an architectural detail similar to SF4 above, but the rougher faces argue against it.

Figure 9. Small Find 4

Figure 10. Small Find 5

Figure 11. Small Find 6

7.2.1.6 SF6 (Context 06 – Figure 11)

7.2.1.6.1 Stone fragment SF6 appears to be part of a circular millstone, representing roughly one-eighth of a complete ring. It has a crudely rounded outer edge and part of a socket at the inner edge that may have been roughly squared originally. Dimensions are 0.12m thick, and 0.19m from central hole to outer edge.

7.2.1.6.2 The quartzite material contains extremely large inclusions of such a size and frequency as to make the stone appear to be cast with a gravel-rich concrete – this is consistent with the millstones quarried around Penmon on Anglesey. Evidence for water mills and windmills in Northwest Wales starts in the 13th century (Davidson, 2001, p5) but this does not preclude an earlier date for the millstone.

7.2.1.6.3 Traces of lime mortar on the broken edges of the stone attest to re-use as building material.

7.2.1.7 Discussion

7.2.1.7.1 Of the six stones recovered, two (SF 2 & SF6) have their origins beyond the structure of the castle. The others all appear to be fragments of building fabric that were demolished and eventually re-used. SF3 and SF4 both appear to be remnants of architectural decoration, while SF5 and SF1 are more likely to have been facing stones of more simple design. SF1 is interesting in that it has grooves reflecting some frequent use to support a moving rope – possibly to hold something that hung over an edge or parapet?

7.2.1.7.2 It is tempting to suggest these stones were made available for re-use due to a major incident at the castle, such as the siege of 1294-5. The stone cobble lends strength to this argument if indeed it is a missile, but the evidence is circumstantial and the true origin of these stones remains uncertain. Indeed, their re-use in a cobbled floor may not be the first new purpose for them after they became surplus from their original positions.

7.2.1.8 Conclusion

7.2.1.8.1 These stones represent surplus materials gathered together to form a new cobbled surface, but each has a story to tell of its original use.

7.2.2 Metal Artefacts -Analysis by K. Watts Senior Curator of Armour and Art, Royal Armouries, Leeds (Figure 12)

7.2.2.1 The spur (SF 07, context 30) recovered from Harlech Castle was missing the majority of the diagnostic elements which allow the secure dating of this form of artefact including the rowel itself, the terminals on the heel-plate, the other half of the heel-plate.

7.2.2.2 In chronological development Medieval spurs begin with short necks which lengthen over time before the shortened form reappears. Due to these difficulties it is possible for a ravaged spur of the 14th century to have a similar appearance to a 17th century example.

7.2.2.3 Both options were considered and he primary diagnostic element used in the dating of this spur was the very straight-line profile (heelband to neck) and the length of the neck and the size of missing rowel (estimated from its groove). This has led to the tentative conclusion that it is most likely that the spur dates from the latter part of the 14th century and is of NW European origin.

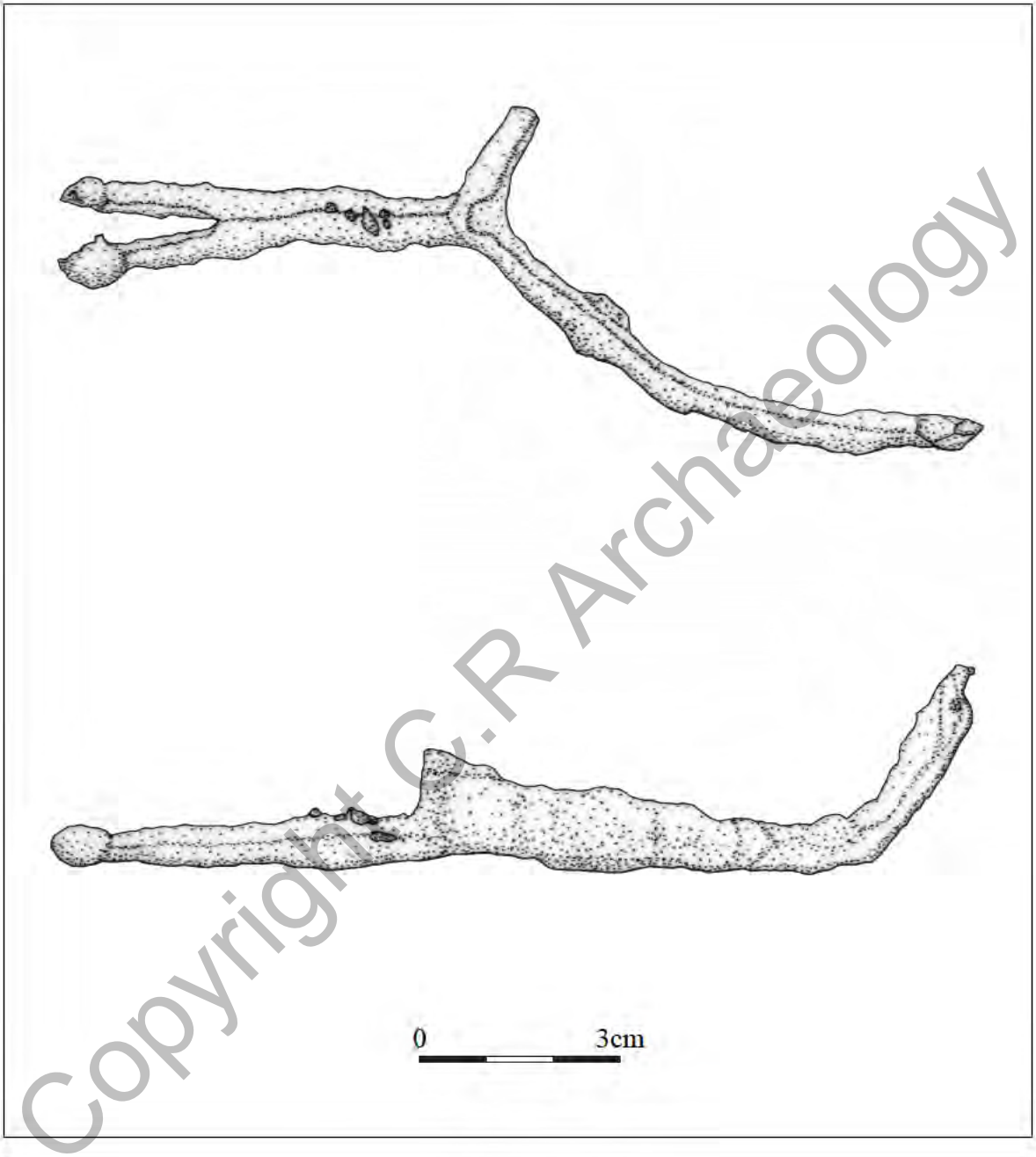


Figure 12. Spur (SF 07, Context 30)

7.2.3 Animal Bone Assemblage (Analysis by V. Hudson)

7.2.3.1 The faunal assemblage presented from the excavations at Harlech Castle was of a fairly small size, meaning any statistical analysis of the bones would produce skewed results, which would not represent the husbandry or butchery practises across the population as a whole. Therefore, it was decided not to apply such techniques to this particular assemblage, and to deal with the material context by context. Each bone was identified to species and side where possible using both the author's own reference collection and Hillson, S., 2009, and age was also determinable for some of the more complete bones, based on the level of fusion of the epiphysis, (*Silver*, 1963). Any pathology pre or post mortem has been noted, and photographs included of some of those pathologies. Whilst it is not possible to use such a small assemblage to extrapolate data for animal husbandry practises across the site as a whole, it was possible to produce some conclusions about this particular collection of material. The data has been shown in table form to allow for easier understanding of the information from each element, (*Tab. 1).*

Table 1

Context	Species	Element	Complete	Side	Age	Condition	Pathology/ butchery
14	Small ungulate	Rib body	Fragment	N/A	N/A	Fair	Gnawing at both ends, probably Canid
14	Small ungulate	Rib body	Fragment	N/A	N/A	Fair, recently broken	Rodent gnawing on edge
14	Small ungulate	Rib body	Fragment	N/A	N/A	Good	N/A
14	Small ungulate	Rib, proximal	Fragment	N/A	Juvenile, unfused	Good	N/A
14	Ovine	Calcaneum	Complete	Left	<2.5 yrs.	Good	Pair of puncture marks on the Lateral side, probably caused by canine teeth
14	Ovine/ Caprine	Tibia	Diaphysis fragment	Left	N/A	Good, recently broken	Possible puncture mark near the distal caudal edge
14	Ovine/ Caprine	Metatarsal	Diaphysis	Left	N/A	Fair, some surface flaking	Gnawing at distal end
14	Ovine/ Caprine	Lower 1st molar	missing a root	Left	N/A	Good	N/A
14	Large ungulate	Rib body	proximal fragment	N/A	N/A	Good	Chopped at medial side, proximal end
14	Large ungulate	Rib body	Fragment	N/A	N/A	Fair	N/A
14	Large ungulate	Rib body	Fragment	N/A	N/A	Good	Large chop to distal end medial edge, cut marks on medial and lateral sides

14	Ovine/ Caprine	Proximal articulation and body	Fragment	N/A	Juvenile, unfused	Good	Chopped at distal end, cut marks on lateral edge
14	Small ungulate	Proximal rid body	Fragment	N/A	N/A	Good	Chop to distal end
14	Ovine/ Caprine	Lower 3rd molar	Complete	Right	3-4 yrs.	Good	N/A
14	Bovine	Ph1	Complete	Right	>1.5 yrs.	Good	Healed depression on the distal articulation
14	Bovine	Ph1	Complete	Right	>1.5 yrs.	Good	Cut marks to the caudal surface
14	Bovine	Ph2	Complete	Right	>1.5 yrs.	Good	Some extra bone growth on the caudal side of the proximal articulation
14	Ovine/ Caprine	Radius	Diaphysis	Left	N/A	Good	Gnawed and a large chop to proximal end
14	Ovine/ Caprine	Calcaneum	Complete	Left	>2.5-3yrs	Good	N/A
14	Large ungulate	Rib body	3 fragments	N/A	N/A	Recently broken	Large cut mark on the largest fragment
14	Ovine/ Caprine	Mandibular condyle	Fragmented	Left	N/A	Recently broken	N/A
14	Ovine/ Caprine	Humerus	Distal articulation and diaphysis	Right	>10 months	Good	Cut marks on caudal surface of the supracondylar foramen
14	Bovine	Scapula	Distal articulation	Left	>10 months	Good	Covered with what appears to be mortar
14	Ovine/ Caprine	Radius	Proximal diaphysis	Left	N/A	Good	Gnawed at proximal end
14	Bovine	Mandible	Section	Left	>4 yrs.	Good	Heavily butchered, large chops to distal and proximal edges on the buccal edge with radial fracturing due to the force of the blows.

14	Large ungulate	Vertebral body	Fragment	N/A	N/A	Good	Heavily butchered, with 3 chop marks to the right and 3 to the left, as well as one to remove the dorsal spinous process. There is also a large 'V' shaped notch and smaller nick on the ventral edge.
04	Bovine	Scapula	Blade, caudal edge fragment	Left	N/A	Good	Chopped to proximal edge, gnawed to distal edge
04	Large ungulate	Rib body	Fragment	N/A	N/A	Good	Chopped at one end
04	Bovine	Lower M2	Complete	Left	>30 months	Good	N/A
04	Large ungulate	Long bone	Fragment	N/A	N/A	Good	N/A
04	Ovine/ Caprine	Femur	2 diaphysis fragments	Left	N/A	Recently broken	N/A
04	Feline	Radius	Proximal articulation and diaphysis	Right	>6.5 months	Good	N/A
30	Ovine/ Caprine	Metatarsal	Diaphysis	Left	N/A	Fair	Gnawing
30	Bovine	Ph1	Fragment	Right	>1.5 yrs.	Recently broken	N/A
30	Bovine	Ph1	Complete, missing part of proximal end	Left	>1.5 yrs.	Good, recently broken	Depression on distal articular surface
30	Bovine	Ph1	Complete	Left	>1.5 yrs.	Good	Cut marks and a depression to the distal articular surface
30	Bovine	Ph2	Complete, missing part of proximal end	Left	>1.5 yrs.	Good	N/A
103	Ovine/Caprine	Tibia	Diaphysis	Right	N/A	Recently broken	Gnawing to both ends, cut mark on the cranial edge of the proximal end, and a bone lesion on the medial edge.
103	Small mammal	Rib body	Fragment	N/A	N/A	Fair	N/A

103	Sus	Lower canine	Complete	Left	N/A	Good	N/A
103	Unidentifiable	Flat bone	Fragment	N/A	N/A	Poor, recently broken	Unidentifiable due to a layer of mortar on the bone
103	Bovine	Humerus	Diaphysis	Right	N/A	Good, recently broken	Gnawing to proximal end
12	Small ungulate	Rib body	Fragment	N/A	N/A	Fair, splintered	N/A

7.2.3.1 The single bone from the cross-cut context (context 12) can offer no information of value to the report, so has been discounted from the discussion.

7.2.3.2 The inner ward (context 14) assemblage consisted of mostly Bovine phalanges which could have come from the same animal according to age at the time of death, and relative size and form. As low meat yield bones, these could have been the remains of primary butchery, as supported by the cut marks on one of the first phalanges. Both complete Ph1 also show slight depressions on the distal articular surface, which according to a recent study could represent rapid growth, (*Thomas, R. & Johannsen, N.* 2011), (*Fig.2 & 3*).

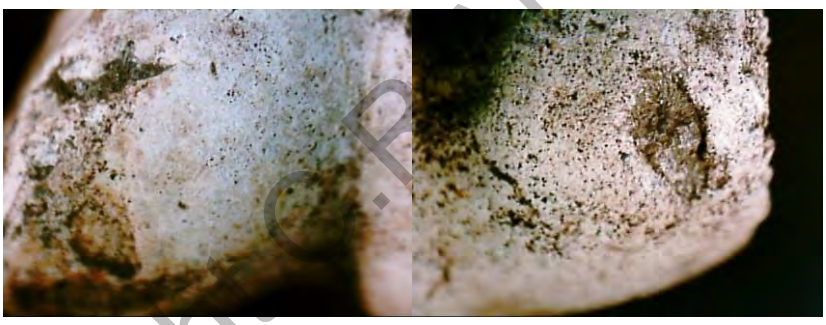


Figure 2, cut mark and depression, distal articular surface
Figure 3, depression on distal articular surface

7.2.3.3 Included in the assemblage from the electric box (context 103) was an oyster shell, and one unidentifiable fragment of flat bone which was covered in what appeared to be mortar. Two of the bones showed evidence of gnawing, with the Ovine/Caprine tibia diaphysis also showing a cut mark. This may again show the primary butchery of carcasses, removing low meat yield elements before further processing.

7.2.3.4 A Limpet shell was included in the bones from context (04), the bones from this group appeared more fragmentary than in some of the other contexts, and included a limpet shell and, unusually, a Feline radius. One fragment of Bovine scapula showed gnawing, and one rib fragment had a cut mark. Again, this could show the removal of low meat yield elements and their subsequent disposal via scavenging carnivores.

7.2.3.5 The largest context was context 14, and contained a wide range of skeletal elements, as well as an oyster and a limpet shell. One Ovine/Caprine calcaneus had been punctured by two small pointed objects quite close together, which could have been the canine teeth of a particularly small dog or possibly a cat, (*Fig. 4*).

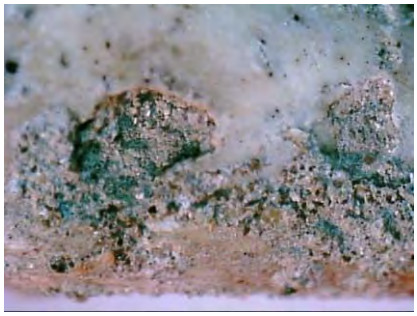


Figure 4, puncture marks on an Ovine calcaneum

7.2.3.6 One other bone, an Ovine/Caprine tibia fragment also had evidence of a possible puncture mark, (*Fig. 5*).

Figure 5, possible tooth puncture mark on an Ovine/Caprine tibia

7.2.3.7 Many of the bones in this context showed evidence of gnawing, with one small ungulate rib fragment showing rodent teeth marks. One Ovine/Caprine rib body fragment had cut marks showing that it had taken more than one attempt to remove it from the carcass. Two fragments, both Bovine, from a rib body and mandible showed radial fractures coming from chop marks, meaning they must have been hit with considerable force. Two Bovine 1st phalanges and a 2nd phalanx showed small amounts of extra bone growth around the articulations, (which may be evidence for traction animals), and one of the 1st phalanges showed a healed depression on the distal articulation, (*Fig. 6*), which could be associated with rapid growth and limited diet, (*Thomas, R. & Johannsen, N.* 2011). However, with only one example of each pathology this cannot be proven, as it could be a peculiarity of this particular animal.

Figure 6, depression on the distal articular surface of a Bovine Ph1

7.2.3.8 One bone in the (04) assemblage, a Bovine scapula articulation, was encrusted with a powdery grey material which appeared to be mortar. It is possible that this fragment was used as some form of temper for construction or was accidently covered by mortar falling whilst still wet.

7.2.3.9 The most heavily butchered elements in this context were all Bovine, with a section of mandible and a vertebral body warranting special mention. The mandible had chop marks severing both sides of the lower M3, with radial fractures emanating from the caudal cut, (*Fig. 7),* and some smaller cut marks on the buccal surface.

Figure 7, cut marks and radial fractures to a Bovine mandible

7.2.3.10 The vertebral body had at least 3 chops to each side, 1 across the top to remove the spinous process, and a large notch to the ventral surface. These bones seem to represent secondary butchery, the process of reducing a carcass to more manageable pieces, suitable for domestic use.

7.2.3.11 In conclusion, there is a general trend of primary butchery waste within these contexts, with some secondary butchery taking place too. All of the fragments present would have been small enough for a scavenging carnivore to have been given, or taken, the bones whilst still fresh as evidenced by the level of gnawing. Epiphysis have thinner layers of cortical bone, meaning they survive less well than the diaphysis where there is a high level of scavenger activity, also a trend seen in the bones present in the assemblage. Although the assemblage is small, it does seem to represent a collection of smaller pieces of low meat yield elements from a cross section of commonly consumed domesticated animals which could have easily been scavenged from a larger dump site.

7.3.4 Pottery

7.3.4.1 There were a small number of Buckley Ware fragments (all c. 1cm in length) recovered when cleaning between the cobbles in surfaces (03) and (06). These were undiagnostic beyond this material being in common usage between 1820 – 1950.

8.0 Conclusion

8.0.1 None of the excavation areas uncovered what could be conclusively proven to be intact Medieval (or earlier) deposits. The small section of wall uncovered in the electric connection box is presumed to be Medieval, but this cannot conclusively be proven due to the small size of the excavated area. Medieval artefactual material was recovered from the site but was residual rather than being found insitu.

8.0.2 It would seem likely that the cobbled surfaces exposed (contexts 03 & 06) were laid as part of the late 1860's work around the gatehouse, with later disturbances associated with the use of the area as a tourist venue during the mid-twentieth century when visitor toilets were installed. This cobbled surface corresponds with the stone layer uncovered during previous archaeological works at the site (Morgan 2013).

8.0.3 The lowest stratigraphic level reached – context 14 is also believed to be a Post Medieval layer, also associated with the clearance and levelling of the castle entrance for visitor access. It contained animal bone but no pottery.

8.0.4 Despite a Medieval date for the human remains recovered during the works, these remains were not uncovered insitu and they are believed to have been discovered during the works in the mid-twentieth century and reburied within the passageway.

8.0.5 It is postulated that the individuals discovered in the castle gatehouse, both during this excavation and in 1869, were likely to have been killed during a time of siege which prevented their burial within a church/churchyard. It is unclear why the gatehouse passageway was chosen for this macabre purpose, or indeed whether the remains had originally been interred elsewhere in the castle. This possibility cannot be ruled out as the remains uncovered in 1869 appear from the contemporary description to have been disarticulated and those recently discovered had almost certainly been found elsewhere – possibly in one of the guard towers. It must be noted that whilst it has been assumed that the remains discovered in 1869 were contemporary with the recent discovery this is unproven.

8.0.6 It is unclear whether the human remains excavated during this phase of works were treated in a different manner when buried than the remains uncovered during 1869. From the 1869 newspaper description it appears that a mass grave was discovered as the remains were described as "*sufficient to fill a barrow*" rather than being a single individual. It may also be that these remains were disarticulated but this cannot be confirmed.

8.0.7 It is unclear whether this was the primary burial site or if those buried at this location had originally been buried individually and later redeposited. There is no indication as to where the human remains were removed to in 1869 and they are therefore unavailable for study. It is therefore impossible to determine whether there is any significance in the use of individual burial rather than a mass interment, and it does not necessarily follow that it is indicative of greater status. It is unlikely that the remains uncovered in 2016 were the same as those uncovered in 1869 due to the quantity of bone recovered, although it cannot be completely discounted.

8.0.8 A single finger bone was also recovered during the 2016 works. It is possible that this finger came from the same individual as the main interment and the size was consistent with this hypothesis, but this was not conclusive. The finger bone was not recovered from a secure context and was discovered at the mixed interface between contexts (14) and (12).

8.0.9 Further study of the human remains will likely yield further information about the individual. Isotopic analysis will determine the geographic origin of the individual and details of their diet. DNA analysis may also be possible.

9.0 Bibliography

AAF. 2007. ***Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation***

Brickley, M and McKinley, J (Volume Eds). 2004. Guidelines to the Standards for Recording Human Remains. ***Institute of Field Archaeologists Technical Paper No 7.*** IFA and BABAO

Brothwell, D. 1981. ***Digging up Bones.*** 3rd ed. Oxford University Press, Oxford

Brown, D. H. ***Archaeological Archives: A Guide to Best Practise in Creation, Compilation, Transfer and Curation.*** Archaeological Archives Forum

Buikstra and Uberlaker (Volume Eds). 1994. ***Standards for Data Collection from Human Skeletal Remains.*** Arkansas Archaeological Survey Research Series. No. 44.

Cadw. 2016. ***Harlech Castle: Brief for a Programme of Archaeological Works – The Gatehouse Passage***

Davidson, Andrew, 2001. ***The Medieval Mills of Anglesey: Archaeological Threat-Related Assessment (G1591),*** Report number 405, CADW

Davidson, A. 2010. ***Morfa Harlech, Harlech.*** GAT Report 868

Dobney, K. and Brothwell, D. 1987. A Method for Evaluating the Amount of Dental Calculus on Teeth from Archaeological Sites. ***Journal of Archaeological Science.*** 14, 343-51.

English Heritage. 2006. ***Management of Research Projects in the Historic Environment (MORPHE)***

English Heritage. 2011. Environmental Archaeology: ***A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation***

Hillson, S. 2009. ***Mammal Bones and Teeth: An Introductory Guide to Methods of Identification.*** UCL Institute of Archaeology Publications. London

Mays, S. 2010. ***The Archaeology of Human Bones***. 2nd Ed. Routledge, Oxford.

Moore, D. 2005. ***The Welsh Wars of Independence***. Tempus. Stroud

Morgan, T. 2013. ***Investigation by Tim Morgan on Behalf of Cadw within the Gatehouse Passage, Harlech Castle***

Pennant, T. 1883. ***Tours in Wales.*** H. Humpreys. Caernarfon

RCAHMW. 1921. ***Merionethshire: An Inventory of the Ancient Monuments in the County***

Richards, J. & Robinson, D. 2000. ***Digital Archives from Excavation and Fieldwork: Guide to Good Practice.*** The Archaeology Data Service Guide to Good Practice: Oxbow Books

Silver, I.A. 1970. The Aging of Domestic Animals, in Brothwell, D.R. & Higgs, E.S. ***Science in Archaeology.*** Thames and Hudson. London

Taylor, A. 2002. ***Harlech Castle***. CADW

The Chartered Institute for Archaeologists. 2014. ***Code of Conduct***

The Chartered Institute for Archaeologists. 2014. ***Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology***

The Chartered Institute for Archaeologists. 2014. ***Standard and guidance for the collection, documentation, conservation and research of archaeological materials***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Excavation***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Desk-Based Assessment***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Watching Brief***

The Chartered Institute for Archaeologists. 2014. The Institute for Archaeologists. 2008. ***Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives***

Thomas, R. & Johannsen, N., Articular depressions in Domestic Cattle Phalanges and their Archaeological relevance, in ***International Journal of Paleopathology***, vol. 1, 2001, 43-54

Walker, K.1990. ***Guidelines for the preparation of excavation archives for long-term storage.*** United Kingdom Institute for Conservation (UKIC) Archaeology Section

Watkinson, D. & Neal, V. 2001. ***First Aid for Finds.*** London. United Kingdom Institute for Conservation of Historic & Artistic Works

Williams, D.M & Kenyon, J.R. 2010. ***The Impact of the Edwardian Castles in Wales.*** Oxford. Oxbow Books

Websites – all sites were visited 06/07/2015

www.bgs.ac.uk/geologyofbritain/home.html
www.britishlistedbuildings.co.uk/wa-25500-harlech-castle-harlech#.VqeNkSqLShc
www.cadw.wales.gov.uk
www.coflein.gov.uk
www.historicwales.gov.uk

Newspapers

The North Wales Chronicle, May 29th, 1869
The North Wales Chronicle, August 21st, 1869

Appendix A.
Specification for Archaeological Works

Specification for Archaeological Works at

Harlech Castle – The Gatehouse Passage

NGR SH 58115 31245

Project Number CR121-2016

C.R Archaeology
Compiled by C. Rees
on Behalf of Grosvenor Construction

Specification for Archaeological Works at
Harlech Castle – The Gatehouse Passage

Planning Application Number:	N/A
National Grid Reference:	SH 58115 31245
Client:	Grosvenor Construction
Report Authors:	C. Rees
Report Number:	CR121-2016
Date:	27-01-2016

Contents

1.0 Introduction

C.R Archaeology have been instructed by Grosvenor Construction to conduct archaeological works at the Gatehouse Passage, Harlech Castle (figure 1). Harlech Castle is positioned on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. It is one of a series of castles built in North Wales by Edward I following the death of Llywelyn ap Gruffudd in 1282. Works were begun at Harlech in May 1283 and were largely completed by 1289. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within wall. It is symmetrical with four corner towers and an impressive gatehouse (Taylor 2002).

The site is a Scheduled Ancient Monument (ME044), a Grade I Listed Building (ID 25500) and has been assigned the NPRN 93729 by the RCAHMW and the PRN 2908 by Gwynedd Archaeological Trust.

The proposed works within the castle which will run from the Drawbridge Pit, through the Gatehouse Passage and into the Inner Ward. They will involve: the removal of all current surfaces within the Gatehouse Passage, the installation of a service trench (approx. 600mm in width x 500mm in depth) which will run the entire length from the Drawbridge Pit to the Inner Ward, the installation of a concrete service duct running across between the Gatehouse room entrances, the creation of a lightening duct running along the edge of the Gatehouse Passage, the extension of an access ramp leading into the Inner Ward, the excavation of cable trenches running into the Inner Ward to two socket locations within the Inner Ward and the resurfacing of the entire Gatehouse Passage and any other areas of disturbance. The location of the proposed works is shown on figure 2.

Archaeological works are to be undertaken in advance of any construction and will involve the full excavation and recording of all historic deposits which will be impacted upon by the proposed works. This will be in the form of an archaeological watching brief when modern surfaces are removed, and the hand excavation of all deposits below this level. Hand excavation is to continue until the desired development depth has been reached.

This document has been produced with reference to Cadw document “Harlech Castle: Brief for a Programme of Archaeological Works – The Gateway Passage (produced January 2016).

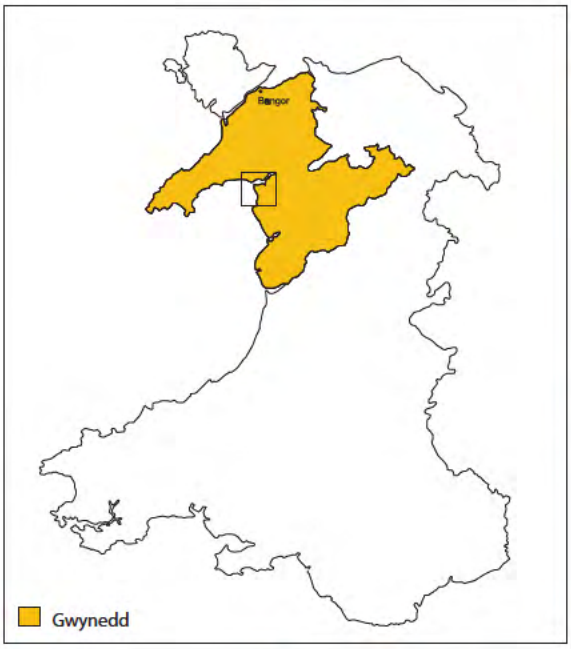
2.0 Project Aims & Objectives

The primary aim of this programme of works is to conduct the archaeological works necessary to allow for the proposed programme of works to be undertaken. Archaeological site works will be conducted in two stages with the first aim being to monitor groundworks which are to be undertaken to remove modern material/surfaces within the proposed development area. Following the removal of modern levels hand excavation will be undertaken down to the required development depth.

The aims of this work are:

i) to identify and to make an appropriate record of archaeological remains revealed by excavations
ii) to ensure the long-term survival of the information contained in such remains through archaeological recording prior to their physical destruction
iii) to prepare a report and deposition of a project archive

Should significant archaeological remains be identified then the following additional set of aims has been stipulated:



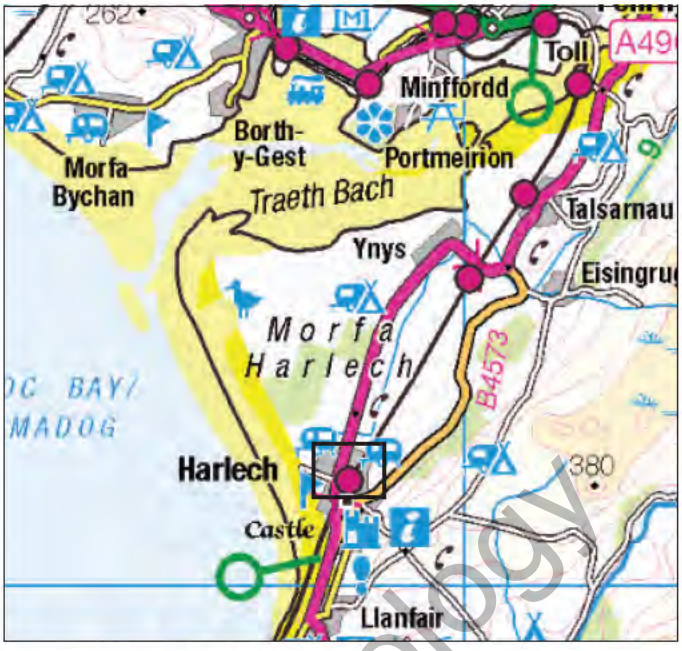


Figure 1. Site Location Map
(Source: OS Open Data Mapping Contains Ordnance Survey data
© Crown copyright and database right 2016)

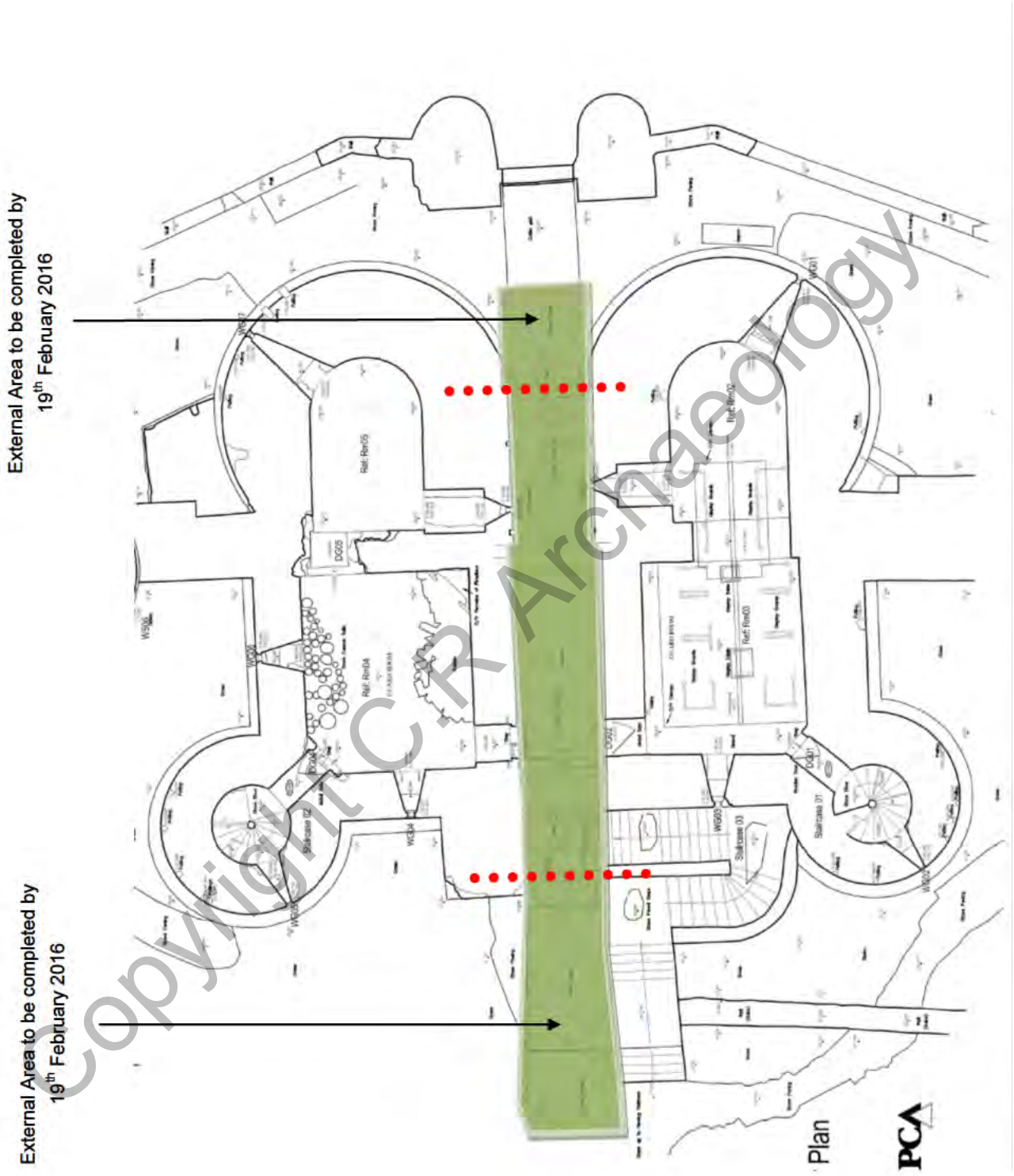


Figure 2. Area of Proposed Archaeological Excavation

i) assess the nature, date, density, extent, function and state of preservation of the archaeological remains
ii) assess their potential for answering questions about the development of the castle
iii) where remains are of sufficient importance work in liaison with Cadw to formulate a strategy designed to determine the best method for mitigation

This project aims to fulfil the mitigation criteria for undertaking an Archaeological Watching Brief and an Archaeological Excavation as specified in the CIfA Standard and Guidance documents (2014).

The objectives of this work are:

i) to excavate and record all deposits which are situated within the proposed development area
ii) to increase understanding of the site's history, development and significance
iii) to create an archive record of the excavation
iv) to establish and make available any further information discovered about the archaeological resource existing on the site

The research objective of this work is to:

i) contribute to our understanding of the development of the castle and in particular the castle defences

3.0 Historical Background

This section is through necessity brief and is intended merely to provide a basic outline of the site history. The compilation of a more detailed history will form an integral part of the final report.

The following section is taken from the RCAHMW Inventory for the County of Merioneth (1921: 59 – 60).

"*Harlech castle was built between the years 1280 and 1284, although it may not have been completely finished until some time later. It is placed on a platform of rock which rises abruptly from the level plain that at a still earlier period may have been covered by the sea. The plan is that of a concentric fortress, the main buildings of the castle forming part of a great gateway which is placed in the centre of the north front. Behind this gateway is the court yard of the castle, and round the curtain walls were ranged the domestic buildings. The chapel was in the north Wall, and in course of the preservative work undertaken by the Oflice of Works the upper portion of the east window has been uncovered. The castle was besieged and taken in the Glyndwr rising, and again during the Wars of the Roses, and once more during the Civil War. The apartments in the gateway were used for the sittings of the judges itinerant from the establishment of the Welsh judiciary by Henry VIII, and the interior fittings of the rooms must have been consider ably altered in consequence*".

The Listed Building entry adds:

"*Harlech castle is regarded as one of the most important medieval castles in Wales and is a textbook example of concentric castle design. It was built by the English King Edward I following his conquest of Wales, the main work being constructed between 1283 and 1289 with additions of c1295 and 1323-4; the overall cost is recorded as around £9,500 (in the region of £9.5 million in current terms).*

Harlech belongs to a series of Royal castles designed by Edward's chief military engineer, the Savoyard Master James of St. George, which rank amongst the most highly sophisticated and innovative examples of military engineering in contemporary Europe. Master James was himself created its first constable in 1290, and received a salary of 100 marks a year.

Historically the castle has seen significant action: in 1294 the English garrison withstood a siege by the Welsh under Madog; in the Spring of1404 Owain Glyndwr and his forces took the castle which, for the next five years became his court and capital; during the Wars of the Roses the castle was held by the Welsh Lancastrians before surrendering to the besieging Yorkists (as immortalised in the song 'Men of Harlech'). The castle's last action was in the Civil War. In 1647 the Royalist garrison under Colonel William Owen surrendered to the Parliamentarians; it was the last mainland British castle to hold out for King Charles I" (www.britishlistedbuildings.co.uk).

4.0 Geographical and Geological Context

4.1 Topography

Harlech Castle is situated on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within wall.

4.2 Geology

The bedrock is recorded as "*Rhinog Formation - Siltstone. Sedimentary Bedrock formed approximately 508 to 528 million years ago in the Cambrian Period. Local environment previously dominated by deep seas. These rocks were formed in deep seas from infrequent slurries of shallow water sediments which were then redeposited as graded beds*". The superficial geology is recorded *as* "*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters*" (www.mapapps.bgs.ac.uk).

5.0 Scheme of Works - Methodology

The proposed works will be conducted in three stages and each is detailed separately below.

5.1 Scheme of Works – Methodology for Desk Based Research

Sufficient background research will be undertaken to allow the site to understood within its archaeological context. A history of the site will be compiled utilising information sourced from Bangor University & Caernarfon Archives, RCAHMW and the Gwynedd HER. Specialist journals, museum collections, publications and personal archives will be examined as appropriate. Web resources will also be utilised. The depth of research will be in proportion to the archaeological remains uncovered and in the event of a negative excavation result limited time will be expended on this task. In the event of a significant find then more intensive and targeted research will be undertaken.

This material will form the historical background for the archaeological report.

5.2 Scheme of Works – Methodology for Archaeological Watching Brief

The removal of all modern surfaces from the area is to be undertaken by Grosvenor Construction prior to the commencement of hand excavation by C.R Archaeology staff. A member of C.R Archaeology staff will be present during this work and all groundworks are to take place under archaeological supervision.

Grosvenor Construction will also be responsible for the removing/making safe of any services encountered and should it be safe to do so C.R Archaeology will also monitor this work.

This fieldwork element is to be conducted by Matthew Jones or Catherine Rees of C.R Archaeology. Both staff members are qualified, experienced archaeologists and cv's can be provided on request.

5.3 Scheme of Works – Methodology for Hand Excavation

Following the removal of modern surfaces/services by Grosvenor Construction hand excavation will commence and will continue until the desired maximum depth for works is reached. Prior to the commencement of excavation the area is to be hand cleaned in order to define any context boundaries which may be present.

Any archaeological features, structures or remains identified in the course of the excavation will be trowel cleaned by hand. Investigation of such features, structures or deposits will be sufficient to determine their character, date, significance and quality. This will in general involve the half sectioning of discrete features such as pits and postholes and the excavation of a minimum of 20% of linear features to characterise their profiles. Should features yield significant results or if it is necessary to remove them in order to reach the desired excavation depth then they may be excavated in their entirety.

If features yield suitable material for dating/environmental processing then samples will be taken for processing off site. The size of these samples will depend on the size of the feature but for smaller features a sample of up to 100% will be taken. For larger features a sample of up to 40 litres will be taken. In the event of a significant discovery Cadw will be informed and a mitigation strategy agreed before works will progress.

As the works will expose previously covered areas of the internal elevation, a drawn and photographic record will be made of these surfaces. C.R Archaeology will also undertake detailed recording (drawn and photographic) of the threshold stones at either end of the Gatehouse prior to them being lifted by Grosvenor Construction staff. C.R Archaeology staff will also provide archaeological supervision when the stones are reinstated in their original positions following the completion of works.

Fieldwork is to be conducted by Matthew Jones & Dr. Ian Brooks. Should additional staff be required Catherine Rees will be available to assist as necessary. The works will be carried out in accordance with the CIfA Standard and Guidance documents for Archaeological Excavation (2014).

5.3.1 Recording

The record forms at C.R Archaeology are based on the English Heritage system and full written, graphic and photographic records will be made in accordance with the English Heritage *Field Recording Manual*. Sample forms can be provided on request. The written record shall comprise completed *pro-forma* record sheets.

Plans, sections and elevations will be produced on gridded, archive standard stable polyester film at scales of 1:10, 1:20 or 1:50, as appropriate. Representative measured sections will be prepared as appropriate showing the sequence and depths of deposits. A temporary benchmark (TBM) will be established on the site and plans, elevations and sections will contain grid and level information. Where possible this will be relative to OS data. All drawings will be numbered and listed in a drawing register, these drawing numbers being cross-referenced to written site records.

Trench sections will be drawn at a scale of 1:10 or 1:20 as appropriate and any archaeological features identified will be pre and post excavation planned at an appropriate scale.

A high-resolution 14.2mp Sony Alpha digital camera will be used to create a photographic record of the site. This will be comprised of photographs of archaeological deposits in plan and section, insitu artefacts and any features which may be identified within the trenches. Included in each photograph will be an appropriate scale and north arrow. Photographs will be taken of all trench sections.

In addition to those stipulated above the following photographs will also taken:

i) the site prior to the commencement of fieldwork
ii) the site during work showing specific stages of fieldwork
iii) working photographs illustrating the excavations under way
iv) the layout of archaeological features within each trench
v) individual features and where appropriate their sections
vi) groups of features where their relationship is important.

All photographic records will be indexed and cross-referenced to written site records. Details concerning subject and direction of view will be maintained in a photographic register, indexed by frame number. Images from photography will be stored in a loss-less digital format in this case '*.TIF'.

A 'harris matrix' diagram will be constructed for the excavated area.

5.3.2 Additional Mitigation/Contingency Measures
In the event of a significant archaeological discovery being made during the excavation C.R Archaeology will immediately inform both Grosvenor Construction and Cadw. Consultation will take place between C.R Archaeology, Cadw and Grosvenor Construction with regards to the most suitable course of action. It is agreed that if extensive archaeological remains are identified it may be necessary to pause groundworks until a strategy has been designed to fully establish their character, distribution, extent, condition, dating and further treatment.

In the event that human remains are encountered site work in that area will cease with immediate effect. The coroner, client and monitoring body will be informed immediately. The company will abide by the requirements of Section 25 of the Burial Act 1857. Any arrangements regarding the discovery of human remains will be at the discretion of HM Coroner whose instruction/permission will be sought. All human remains are to be preserved *in situ*, covered and protected. They will only be removed in exceptional circumstances and with the appropriate Ministry of Justice licence, environmental health regulations, Coroner's permission and, if appropriate, in compliance with the Disused Burial Grounds (Amendment) Act 1981 or other local Act, with adequate security provided in such cases.

Any artefacts recovered that fall within the scope of the Treasure Act 1996 will be reported to Cadw and to HM Coroner.

The palaeo-environmental character of the site is as yet unknown and it is therefore deemed that until the excavation is under way the potential of the site is unknown and an appropriate response difficult to gauge. It is also as yet unknown whether there will be organic matter preserved within the lower deposit layers. It is therefore proposed that a sampling strategy be developed onsite in consultation with Cadw. Should waterlogged deposits be encountered, further consultation with an appropriate specialist will determine the recovery methodology.

As a provisional strategy it is proposed that samples be taken from any securely dated deposits containing:

- charred plant remains
- large quantities of molluscs
- large quantities of bone
- hearths and other bunt features
- other domestic features eg house gullies.

5.3.3 Recovery, Processing and Curation of Artefactual Material

All recovered artefactual material will be retained, cleaned, labelled and stored according to *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2014) and *First Aid for Finds* (Watkinson & Neal 2001). The aim will be to create a stable, ordered, well-documented, accessible material archive forming a resource for current and future research (CIfA 2014).

All artefactual material will be bagged and labelled with the site code and context number prior to their removal from site. The archive reference number will be clearly marked on all finds.

Each assemblage will be examined according to typological or chronological criteria and conservation needs identified. An assessment report of all post-medieval material will be produced by Matthew Jones and further specialists will be appointed as required. A list of specialists will be prepared prior to the post-excavation phase of works.

Specialist conservation will be undertaken by an approved conservator on advice provided by a suitable specialist. This will be conducted in accordance with guidelines issued by the Institute for Conservation.

Following analysis it is provisionally intended that all archaeological material recovered will be deposited at Bangor Museum. Processed assemblages will be boxed according to issued guidelines and a register of contents compiled prior to deposition. It may however be the case that in the event of the recovery of a significant artefact/artefacts that it might be considered more appropriate that the material be retained and displayed at Harlech Castle. C.R Archaeology will therefore consult with Cadw prior to the deposition of any material at Bangor Museum.

The works will be carried out in accordance with The Chartered Institute for Archaeologists: Standard and Guidance for Archaeological Watching Brief (2014).

5.3.4 Archive Compilation

All records created during the fieldwork will be checked for consistency and accuracy and will form part of the *Primary Site Archive (P1)* (EH 2006). The archive will contain all data collected, including records and other specialist materials. It will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in the English Heritage *Management of Research Projects in the Historic Environment* (MoRPHE) methodology.

The archive will be assembled in accordance with the guidelines published in, *Standards in the museum care of archaeological collections* (Museums & Galleries Commission 1994), *Guidelines for the preparation of excavation archives for long-term storage* (United Kingdom Institute for Conservation, 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007).

All materials contained within the *Primary Site Archive (P1)* that are subsequently identified by the *Assessment Report* (*P2)* as appropriate for analysis will be processed by suitable specialists and the resultant *Research Archive* (*P3)* will be checked and ordered according to *MoRPHE* criteria.

As detailed above Bangor Museum is the likely repository of any artefactual material and will be notified in advance of the proposed deposition of material resulting from this excavation. Artefacts will be deposited in accordance with the museum's terms and conditions for deposition. In the event of a significant discovery it might be considered more appropriate that the material be retained and displayed at Harlech Castle and C.R Archaeology will therefore consult with Cadw prior to the deposition of any material at Bangor Museum.

The paper/digital archive created by this archaeological project will be deposited with the RCAHMW in accordance with their terms and conditions for archive deposition.

5.4.0 Timetable for Proposed Works
It is envisaged that works at Harlech Castle will commence on Wednesday 3rd January 2016. Initial site work (archaeological watching brief during removal of modern surfaces) is to take place over 3 days with 15 further days (beginning 8th January 2016) allotted to the excavation and recording of the trenches. Cadw will be informed of the exact site days to allow monitoring of works.

5.4.1 Staffing
The project will be managed by Catherine Rees (MCIfA, BA, MA, PgDip HEC) and Matthew Jones (BA Archaeology and Welsh History, M.A Archaeological Practice). In addition to Matthew and Catherine, Dr Ian Brooks (FSA, MCIfA, PhD) will also be involved in on site excavations at Harlech Castle. C.Vs for all staff employed on the project have been provided as requested.

All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

5.4.2 Monitoring
The project will be subject to monitoring by Cadw. The monitor will be given prior notice of the commencement of the fieldwork. A projected time-scale and copy of the risk assessment can be provided on request to the monitoring body prior to the commencement of works.

5.4.3 Health and Safety
A risk assessment will be conducted prior to the commencement of works and site staff will be familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff will be issued with appropriate Personal Protective Equipment (PPE) for the site work. Initially this is anticipated to consist of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)
- Gloves
- Plastic hard cased kneeling pads
- Alcohol dry “handwash”

Any further PPE required will be provided by C.R Archaeology.

C.R Archaeology are not the Principle Contractor onsite and staff will comply with all Health and Safety Policy or specific on-site instructions provided by Grosvenor Construction.

5.4.4 The Report
The report will clearly and accurately incorporate information gained from the entire programme of archaeological works. It will present the documentary evidence gathered in such a way as to create a clear and coherent record. The reports will contain a site plan showing the locations of photographs taken.

The report will include:

- a title/cover page detailing site address, Scheduled Monument number, site code and accession number, NGR, author/originating body, client's name and address, report date and planning reference number
- full contents listing
- a non-technical summary of the findings of the excavations
- a description of the archaeological background
- a description of the topography and geology of the excavation area
- a description of the methodologies used during the excavation
- a description of the findings of the excavation
- plans of each of the trenches/areas showing the archaeological features exposed
- sections of the excavated archaeological features
- specialist reports on the artefactual/ecofactual remains from the site
- appropriate photographs of specific archaeological features
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms

The report will detail the results of the background research, the archaeological watching brief and the hand excavation of the trenches.

Should remains be encountered which require specialist analysis Cadw and the client will be consulted to discuss whether an interim report will be produced or whether publication would more appropriately be delayed until the results of all works have been obtained. Specialist reports may be summarised within the main report text but as a minimum will be included in full as appendices.

Copies of the reports in Adobe PDF format will be sent to the appropriate monitoring archaeologist for approval before formal submission. A bound paper copy and PDF digital copy of the report will be submitted as part of the formal submission. A digital Adobe PDF version and a bound paper copy of the final report and will be lodged with the Gwynedd Historic Environment Record within six months of completion of the final report.

As a minimum in the event of a positive result a summary of the work will be published in the Archaeology in Wales Journal. Papers will be submitted to relevant additional publications dependant on the results of the field work.

5.4.4.1 Copyright
C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

6.0 Bibliography

AAF. 2007. ***Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation***

Brown, D. H. ***Archaeological Archives: A Guide to Best Practise in Creation, Compilation, Transfer and Curation.*** Archaeological Archives Forum

Cadw. 2016. ***Harlech Castle: Brief for a Programme of Archaeological Works – The Gatehouse Passage***

Davidson, A. 2010. ***Morfa Harlech, Harlech.*** GAT Report 868

English Heritage. 2006. ***Management Of Research Projects in the Historic Environment (MORPHE)***

English Heritage. 2011. Environmental Archaeology: ***A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation***

Morgan, T. 2013. ***Investigation by Tim Morgan on Behalf of Cadw within the Gatehouse Passage, Harlech Castle***

RCAHMW. 1921. ***Merionethshire: An Inventory of the Ancient Monuments in the County***

Richards, J. & Robinson, D. 2000. ***Digital Archives from Excavation and Fieldwork: Guide to Good Practice.*** The Archaeology Data Service Guide to Good Practice: Oxbow Books

Taylor, A. 2002. ***Harlech Castle***. CADW

The Chartered Institute for Archaeologists. 2014. ***Code of Conduct***

The Chartered Institute for Archaeologists. 2014. ***Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology***

The Chartered Institute for Archaeologists. 2014. ***Standard and guidance for the collection, documentation, conservation and research of archaeological materials***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Excavation***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Desk-Based Assessment***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Watching Brief***

The Chartered Institute for Archaeologists. 2014. The Institute for Archaeologists. 2008. ***Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives***

Walker, K.1990. ***Guidelines for the preparation of excavation archives for long-term storage.***

United Kingdom Institute for Conservation (UKIC) Archaeology Section

Watkinson, D. & Neal, V. 2001. ***First Aid for Finds.*** London. United Kingdom Institute for Conservation of Historic & Artistic Works

Williams, D.M & Kenyon, J.R. 2010. ***The Impact of the Edwardian Castles in Wales.*** Oxford. Oxbow Books

Websites – all sites were visited 06/07/2015
www.bgs.ac.uk/geologyofbritain/home.html
www.britishlistedbuildings.co.uk/wa-25500-harlech-castle-harlech#.VqeNkSqLShc
www.cadw.wales.gov.uk
www.coflein.gov.uk
www.gwynedd.gov.uk
www.historicwales.gov.uk/

Specification for Excavation of Human Remains

Harlech Castle – The Gatehouse Passage

NGR SH 58115 31245

Report Number CR121a-2016

C.R Archaeology
Compiled by Catherine Rees
on Behalf of Grosvenor Construction

Specification for Excavation of Human Remains at
Harlech Castle – The Gatehouse Passage

Planning Application Number:	N/A
National Grid Reference:	SH 58115 31245
Client:	Grosvenor Construction
Report Authors:	C. Rees
Report Number:	CR121a-2016
Date:	28-02-2016

Contents

1.0 Introduction

C.R Archaeology have been instructed by Grosvenor Construction to conduct archaeological works in the Gatehouse Passage, Harlech Castle (figure 1). Harlech Castle is positioned on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. It is one of a series of castles built in North Wales by Edward I following the death of Llywelyn ap Gruffudd in 1282. Works were begun at Harlech in May 1283 and were largely completed by 1289. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within wall. It is symmetrical with four corner towers and an impressive gatehouse (Taylor 2002).

The site is a Scheduled Ancient Monument (ME044), a Grade I Listed Building (ID 25500) and has been assigned the NPRN 93729 by the RCAHMW and the PRN 2908 by Gwynedd Archaeological Trust.

The ongoing works currently being undertaken within the castle run from the Drawbridge Pit, through the Gatehouse Passage and into the Inner Ward. They are detailed in Document CR121-2016. During these archaeological works a slate capped, stone lined box shaped structure was encountered which when opened was found to contained disarticulated human remains. All works were ceased immediately and the Police, Coroner and Cadw were informed. An application for an "*Authority to Excavate Human Remains for Archaeological Purposes*" has been made to the Ministry of Justice and this document has been prepared to detail the excavation methodology to be adopted when the licence has been issued. It has been produced following liaison with Cadw. The location of the works currently being undertaken is shown on figure 2. This figure has been amended to show the location of the human remains uncovered.

This document has been produced with reference to Cadw document "*Harlech Castle: Brief for a Programme of Archaeological Works – The Gateway Passage* (produced January 2016) and C.R Archaeology document CR121-2016 "*Specification for Archaeological Works at Harlech Castle – The Gatehouse Passage*".

2.0 Project Aims & Objectives

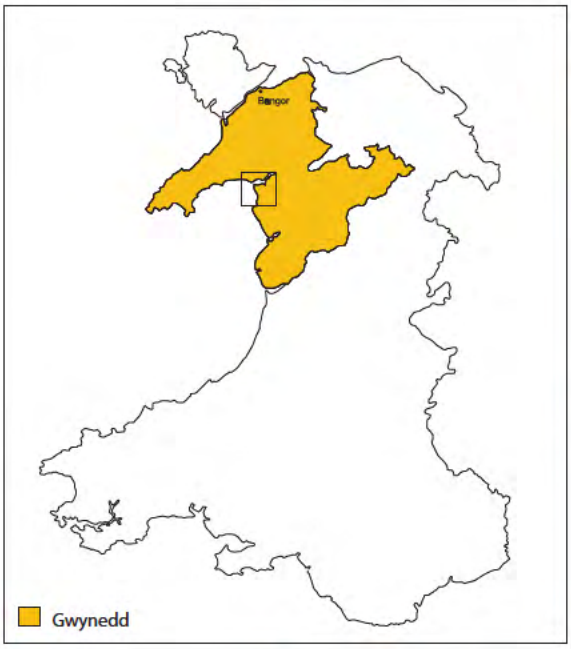
The aims and objectives are as set out in C.R Archaeology document CR121-2016 "*Specification for Archaeological Works at Harlech Castle – The Gatehouse Passage*". They have been modified to be specific to the excavation of the human remains and are reproduced below.

The primary aim of this programme of works is to conduct the archaeological works necessary to allow for the proposed programme of construction works to be completed.

The aims of this work are:

i) to excavate and record the human remains revealed by the ongoing site works
ii) to determine the nature, date, extent and state of preservation of these remains
iii) to undertake sufficient post excavation works to allow for the interpretation of these remains and their place within the history of Harlech Castle
iv) to prepare a report and deposition of a project archive

This project aims to fulfil the mitigation criteria for undertaking an Archaeological Excavation as specified in the CIfA Standard and Guidance documents (2014).



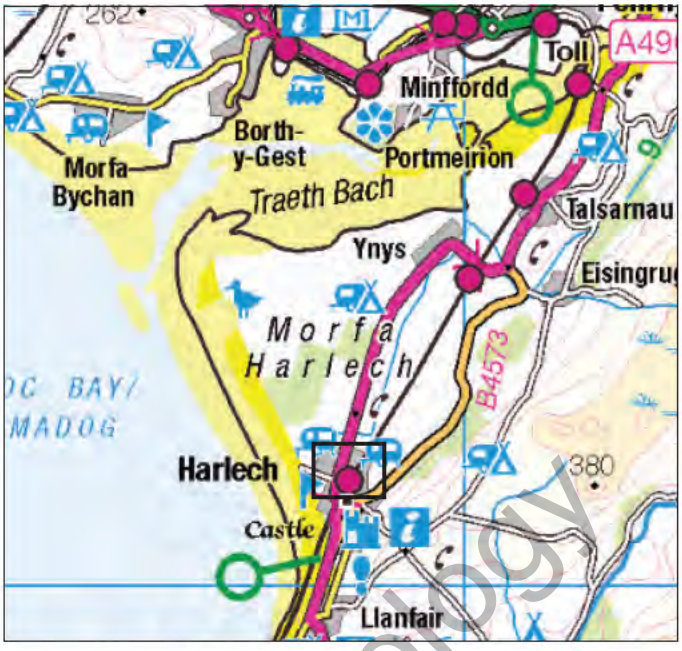


Figure 1. Site Location Map
(Source: OS Open Data Mapping Contains Ordnance Survey data
© Crown copyright and database right 2016)

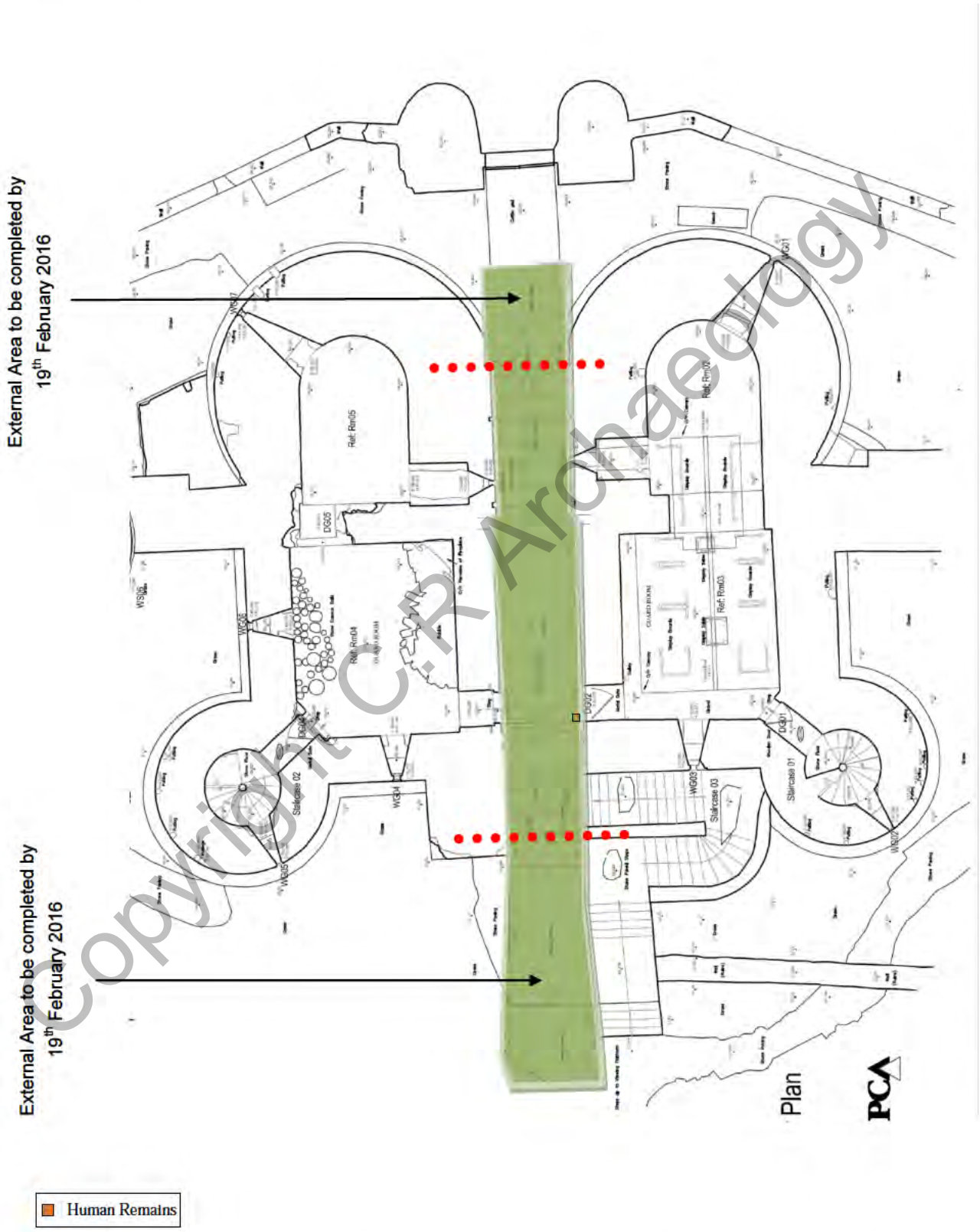


Figure 2. Area of Proposed Archaeological Excavation
Location of Human Remains Marked in Orange

The objectives of this work are:

i) to excavate and record the human remains uncovered during these works
ii) to carry out post excavation analysis to determine the date of the remains, the age/sex of the individual/individuals, skeletal analysis to examine cause of death/injury, dietary information
iii) to increase understanding of the site's history, development and significance
iv) to create an archive record of the excavation
v) to establish and make available any further information discovered about the archaeological resource existing on the site

The research objective of this work is to:

i) contribute to our understanding of the development of the castle and in particular the castle defences
ii) to attempt to determine the date of the remains and the date of their reburial

3.0 Historical Background

This section is through necessity brief and is intended merely to provide a basic outline of the site history. The compilation of a more detailed history will form an integral part of the final report.

The following section is taken from the RCAHMW Inventory for the County of Merioneth (1921: 59 – 60).

"*Harlech castle was built between the years 1280 and 1284, although it may not have been completely finished until some time later. It is placed on a platform of rock which rises abruptly from the level plain that at a still earlier period may have been covered by the sea. The plan is that of a concentric fortress, the main buildings of the castle forming part of a great gateway which is placed in the centre of the north front. Behind this gateway is the court yard of the castle, and round the curtain walls were ranged the domestic buildings. The chapel was in the north Wall, and in course of the preservative work undertaken by the Oflice of Works the upper portion of the east window has been uncovered. The castle was besieged and taken in the Glyndwr rising, and again during the Wars of the Roses, and once more during the Civil War. The apartments in the gateway were used for the sittings of the judges itinerant from the establishment of the Welsh judiciary by Henry VIII, and the interior fittings of the rooms must have been consider ably altered in consequence*".

The Listed Building entry adds:

"*Harlech castle is regarded as one of the most important medieval castles in Wales and is a textbook example of concentric castle design. It was built by the English King Edward I following his conquest of Wales, the main work being constructed between 1283 and 1289 with additions of c1295 and 1323-4; the overall cost is recorded as around £9,500 (in the region of £9.5 million in current terms).*

Harlech belongs to a series of Royal castles designed by Edward's chief military engineer, the Savoyard Master James of St. George, which rank amongst the most highly sophisticated and innovative examples of military engineering in contemporary Europe. Master James was himself created its first constable in 1290, and received a salary of 100 marks a year.

Historically the castle has seen significant action: in 1294 the English garrison withstood a siege by the Welsh under Madog; in the Spring of1404 Owain Glyndwr and his forces took the castle

which, for the next five years became his court and capital; during the Wars of the Roses the castle was held by the Welsh Lancastrians before surrendering to the besieging Yorkists (as immortalised in the song 'Men of Harlech'). The castle's last action was in the Civil War. In 1647 the Royalist garrison under Colonel William Owen surrendered to the Parliamentarians; it was the last mainland British castle to hold out for King Charles I" (www.britishlistedbuildings.co.uk).

4.0 Geographical and Geological Context

4.1 Topography

Harlech Castle is situated on a rocky crag overlooking the sea on the north-western coast of Wales – an eminently defensible position with a channel leading out to sea. The castle dimensions were restricted by the lack of available space on the outcrop and the design is based upon a concentric ground plan with walls within wall.

4.2 Geology

The bedrock is recorded as "*Rhinog Formation - Siltstone. Sedimentary Bedrock formed approximately 508 to 528 million years ago in the Cambrian Period. Local environment previously dominated by deep seas. These rocks were formed in deep seas from infrequent slurries of shallow water sediments which were then redeposited as graded beds*". The superficial geology is recorded as "*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions. These rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters*" (www.mapapps.bgs.ac.uk).

5.0 Scheme of Works – Methodology for Excavation of Human Remains

As excavation can not begin until a Ministry of Justice "*Authority to Excavate Human Remains for Archaeological Purposes*" has been granted, the stone feature containing the human remains identified during works has not been examined in detail and its depth is not currently known. It is also not known how many individuals are represented by the remains within the feature, nor is it yet clear if there are undisturbed human remains below those visible near the top of the "grave".

The following methodology has therefore been subdivided to detail the excavation strategies for both disarticulated and articulated remains to cover both scenarios.

5.1 Excavation and Recording of Disarticulated Human Remains

It was clear on lifting the slate capstone that at least some of the enclosed remains are disarticulated as there are long bones standing on end above the top level of the fill. It is not yet clear as to whether the remains were placed within this stone structure on burial and later disturbed, or whether they have been encountered during later works to a the castle – most likely associated with the ceramic pipes which are located next to the feature - and placed within this feature as it was a convenient place to put them.

The feature and locations of the protruding long bones have been pre-excavation planned at a scale of 1:20. The excavation of the stone lined feature will be undertaken in spits of 0.10m until either a context change, undisturbed horizon or the feature base is reached. The position and depths of all bones will be recorded and working photographs taken. Disarticulated remains encountered will be bagged and labelled according to context number and will be sent for specialist analysis to determine the number of individuals present.

All fill contained within this feature will be coarse sieved to recover all surviving human remains and any small artefacts associated with the feature. If this is not possible to undertake this activity on site then it will be collected as a 100% bulk sample and taken off site for coarse sieving.

Should any clear soil horizons be encountered below the disturbed material currently visible at the top of the feature then a 100% bulk sampling policy is to be adopted and all material is to be bagged and labelled for wet sieving off site.

All remains lifted will be immediately bagged and labelled and placed in an opaque container with an opaque lid. They will be labelled as containing human remains. No excavated remains are to be left on site overnight and are to brought to the C.R Archaeology office at the end of each working day. Following cleaning the remains are to be sent to oesteoarchaeologist Stefanie Vincent (MA) for analysis. Following this Stefanie will process the remains for radiocarbon dating at Beta Analytic (UK). If funding is available it may also be possible that the remains undergo isotopic analysis.

5.1.1 Excavation and Recording of Articulated Human Remains

As detailed above it is not known whether there are undisturbed or articulated human remains contained within the stone lined feature. The following methodology has been prepared to outline excavation procedures should articulated remains be uncovered during excavation.

The grave fill will be excavated to fully expose the skeleton. All grave fill will be bulk sampled (100% sample size) and wet sieved recover all surviving human remains, any small artefacts such as shroud pins etc associated with the grave and possible environmental evidence. A separate context number will be assigned to the material above and below the body and a written context record will be compiled for each deposit.

The skeleton will be assigned a Skeleton Number and a written record compiled on pro-forma sheets. The exposed the skeleton will be photographed vertically with an appropriate scale and additional close-up shots and photographs from a variety of different angles will be taken.

The skeleton will be drawn at a scale of 1:10. If necessary this will be supplemented by the redrawing of certain areas at a larger scale to record the details of grave goods, coffin fittings etc. Should it be possible then levels will be taken at the skull, sacrum and feet. If this is not possible then measurements will be taken in relation to a fixed point on which a level may later be taken.

Once the recording of the bones is complete they will be lifted and bagged as follows: skull, torso, left arm, right arm, left leg, right leg, lower torso. Four separate bags will also be used for the right and left hands and feet. Any disarticulated bones in the grave fill will be collected and bagged separately. The various bags will all be stored together in an opaque box before being taken to the C.R Archaeology office for processing. Following cleaning the remains are to be sent to oesteoarchaeologist Stefanie Vincent (MA) for analysis. Following this Stefanie will process the remains for radiocarbon dating at Beta Analytic (UK). If funding is available it may also be possible that the remains undergo isotopic analysis.

Following the lifting of the bones all the soil remaining on the grave floor will be recovered as four separate bulk samples: one from the head, one from the torso, one from the stomach area and one from the leg/foot area. The samples will be wet sieved and sorted to recover small grave goods/bones. It may be possible that the sample from the stomach area be sent to a specialist for environmental analysis to investigate the presence of parasites or dietary remains but this is as yet undetermined.

Although considered unlikely should a lead coffin be encountered then excavation is to cease immediately. A separate risk assessment must be undertaken prior to the opening of a lead coffin and conservation specialists consulted as to the most appropriate excavation and lifting methodology.

It is not proposed to remove the stone lined feature within which the human remains have been placed. A detailed record of this feature will however be made including a detailed photographic and written record with drawn elevations. Mortar samples will also be taken.

5.1.2 Recording Forms
The record forms at C.R Archaeology are based on the English Heritage system and full written, graphic and photographic records will be made in accordance with the English Heritage *Field Recording Manual*. Sample forms can be provided on request. The written record shall comprise completed *pro-forma* record sheets.

Plans, sections and elevations will be produced on gridded, archive standard stable polyester film at scales of 1:10, 1:20 or 1:50, as appropriate. Representative measured sections will be prepared as appropriate showing the sequence and depths of deposits. A temporary benchmark (TBM) will be established on the site and plans, elevations and sections will contain grid and level information relative to OS data. All drawings will be numbered and listed in a drawing register, these drawing numbers being cross-referenced to written site records.

A high-resolution 14.2mp Sony Alpha digital camera will be used to create a photographic record of the site. This will be comprised of photographs of archaeological features and appropriate groups of features and structures. Included in each photograph will be an appropriate scale, north arrow and a record board detailing the site name, number and context number. All photographic records will be indexed and cross-referenced to written site records. Details concerning subject and direction of view will be maintained in a photographic register, indexed by frame number. Images from photography will be stored in a loss-less digital format in this case '*.TIF'.

A 'harris matrix' diagram will be constructed for the excavated area.

5.2 Additional Mitigation/Contingency Measures
In the event of a further significant archaeological discovery being made during the excavation C.R Archaeology will immediately inform both Grosvenor Construction and Cadw. Consultation will take place between C.R Archaeology, Cadw and Grosvenor Construction with regards to the most suitable course of action.

Any artefacts recovered that fall within the scope of the Treasure Act 1996 will be reported to the landowner, Cadw and to HM Coroner.

The current MOJ license application has estimated the number of individuals contained within the stone lined feature as 1-10 and this will have to be modified should this number significantly increase.

5.3 Recovery, Processing and Curation of Artefactual Material
All recovered artefactual material will be retained, cleaned, labelled and stored according to *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2014) and *First Aid for Finds* (Watkinson & Neal 2001). The aim will be to create a stable, ordered, well-documented, accessible material archive forming a resource for current and future research (CIfA 2014).

All artefactual material will be bagged and labelled with the site code and context number prior to their removal from site. The archive reference number will be clearly marked on all finds.

Each assemblage will be examined according to typological or chronological criteria and conservation needs identified. Human remains are to be sent to specialist Stephanie Vincent for

analysis. An assessment report of all post-medieval material will be produced by Matthew Jones and further specialists will be appointed as required. A list of specialists will be prepared prior to the post-excavation phase of works.

Specialist conservation will be undertaken by an approved conservator on advice provided by a suitable specialist. This will be conducted in accordance with guidelines issued by the Institute for Conservation.

Following analysis it is provisionally intended that all archaeological material recovered will be deposited at Bangor Museum. Processed assemblages will be boxed according to issued guidelines and a register of contents compiled prior to deposition.

Depending on the date of the human remains (radiocarbon dating to follow) it might be considered more appropriate that the material be either retained and displayed at Harlech Castle or sent to the reference collection at the National Museum of Wales, Cardiff. C.R Archaeology will therefore consult with Cadw prior to the deposition of any material.

The works will be carried out in accordance with The Chartered Institute for Archaeologists: Standard and Guidance for Archaeological Watching Brief (2014).

5.4 Archive Compilation

All records created during the fieldwork will be checked for consistency and accuracy and will form part of the *Primary Site Archive (P1)* (EH 2006). The archive will contain all data collected, including records and other specialist materials. It will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in the English Heritage *Management of Research Projects in the Historic Environment* (MoRPHE) methodology.

The archive will be assembled in accordance with the guidelines published in, *Standards in the museum care of archaeological collections* (Museums & Galleries Commission 1994), *Guidelines for the preparation of excavation archives for long-term storage* (United Kingdom Institute for Conservation, 1990) and *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (AAF 2007).

All materials contained within the *Primary Site Archive (P1)* that are subsequently identified by the *Assessment Report* (*P2)* as appropriate for analysis will be processed by suitable specialists and the resultant *Research Archive* (*P3)* will be checked and ordered according to *MoRPHE* criteria.

As detailed above the deposition institution which will receive the human remains has yet to be determined and C.R Archaeology will therefore consult with Cadw prior to their deposition.

The paper/digital archive created by this archaeological project will be deposited with the RCAHMW in accordance with their terms and conditions for archive deposition.

5.5 Timetable for Proposed Works

It is envisaged that (license permitting) the excavation of the human remains uncovered at Harlech Castle will commence on Monday 29th January 2016 and will take up to 5 days. Cadw will be informed of the exact site days to allow monitoring of works.

5.6 Staffing
The project will be managed by Catherine Rees (MCIfA, BA, MA, PgDip HEC) and Matthew Jones (BA Archaeology and Welsh History, M.A Archaeological Practice). In addition to Matthew and Catherine, Dr Ian Brooks (FSA, MCIfA, PhD) will also be involved in on site excavations at Harlech Castle. C.Vs for all staff employed on the project have been provided as requested.

All projects are carried out in accordance with CIfA *Standard and Guidance* documents.

5.7 Monitoring
The project will be subject to monitoring by Cadw. The monitor will be given prior notice of the commencement of the fieldwork. A projected time-scale and copy of the risk assessment can be provided on request to the monitoring body prior to the commencement of works.

5.8 Health and Safety
A risk assessment will be conducted prior to the commencement of works and site staff will be familiarised with its contents. A first aid kit will be located in the site vehicle.

All staff will be issued with appropriate Personal Protective Equipment (PPE) for the site work. Initially this is anticipated to consist of:

- Safety Helmets (EN397)
- Hi-visibility vests (EN471)
- Safety footwear – steel toecap and mid-sole boots and Wellingtons (EN345-47)

Any further PPE required will be provided by C.R Archaeology

All staff will have passed at least a CITB health and safety test at least operative level and will carry a Construction Related Organisation (CRO) White Card for Archaeological Technician (Code 5363) or a Site Visitor card.

The principle contractor is responsible for the overall H&S on site and C.R Archaeology staff will comply with any Health and Safety Policy or specific on-site instructions provided by the client or their appointed Principal contractor or H&S coordinator.

Due to the skeletal state of the human remains it is felt unlikely that any pathogens or fungal spores will have survived in the burial environment. However as an additional precaution disposable gloves will be worn during excavation.

It is recognised that psychological stress may occur during the excavation of human remains. Although this is more common amongst those working with human remains preserving soft-tissues it is a consideration here and if at any time staff are feeling uncomfortable/anxious then they are to withdraw from the excavation area.

Although considered unlikely should a lead coffin be encountered then excavation is to cease immediately. A separate risk assessment must be undertaken prior to the opening of a lead coffin and specialist conservation specialists consulted as to the most appropriate excavation and lifting methodology.

If the ground conditions are dusty then a suitable mask covering the nose and mouth must also be worn to minimise the risk of the inhalation of contaminants.

5.9 The Report

The results of this phase of works will be integrated into the main report. It is however expected that specialist analysis will take time to complete and it may be necessary to initially produce an interim report. This will be followed up by a final report which will detail the results of all specialist analysis. Cadw will decide as to whether an interim report is necessary for the Harlech works.

5.9.1 Copyright

C.R Archaeology and sub-contractors shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it hereby provides a licence to the client and the local authority for the use of the report by the client and the local authority in all matters directly relating to the project as described in the Project Specification.

6.0 Bibliography

AAF. 2007. ***Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation***

Brown, D. H. ***Archaeological Archives: A Guide to Best Practise in Creation, Compilation, Transfer and Curation.*** Archaeological Archives Forum

Cadw. 2016. ***Harlech Castle: Brief for a Programme of Archaeological Works – The Gatehouse Passage***

C.R Archaeology. 2016. ***Specification for Archaeological Works at Harlech Castle – The Gatehouse Passage. Document CR121-2016***

Davidson, A. 2010. ***Morfa Harlech, Harlech.*** GAT Report 868

English Heritage. 2006. ***Management Of Research Projects in the Historic Environment (MORPHE)***

English Heritage. 2011. Environmental Archaeology: ***A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation***

Morgan, T. 2013. ***Investigation by Tim Morgan on Behalf of Cadw within the Gatehouse Passage, Harlech Castle***

RCAHMW. 1921. ***Merionethshire: An Inventory of the Ancient Monuments in the County***

Richards, J. & Robinson, D. 2000. ***Digital Archives from Excavation and Fieldwork: Guide to Good Practice.*** The Archaeology Data Service Guide to Good Practice: Oxbow Books

Taylor, A. 2002. ***Harlech Castle***. CADW

The Chartered Institute for Archaeologists. 2014. ***Code of Conduct***

The Chartered Institute for Archaeologists. 2014. ***Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology***

The Chartered Institute for Archaeologists. 2014. ***Standard and guidance for the collection, documentation, conservation and research of archaeological materials***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Excavation***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Desk-Based Assessment***

The Chartered Institute for Archaeologists. 2014. ***Standard and Guidance for Archaeological Watching Brief***

The Chartered Institute for Archaeologists. 2014. The Institute for Archaeologists. 2008. ***Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives***

Walker, K.1990. ***Guidelines for the preparation of excavation archives for long-term storage.*** United Kingdom Institute for Conservation (UKIC) Archaeology Section

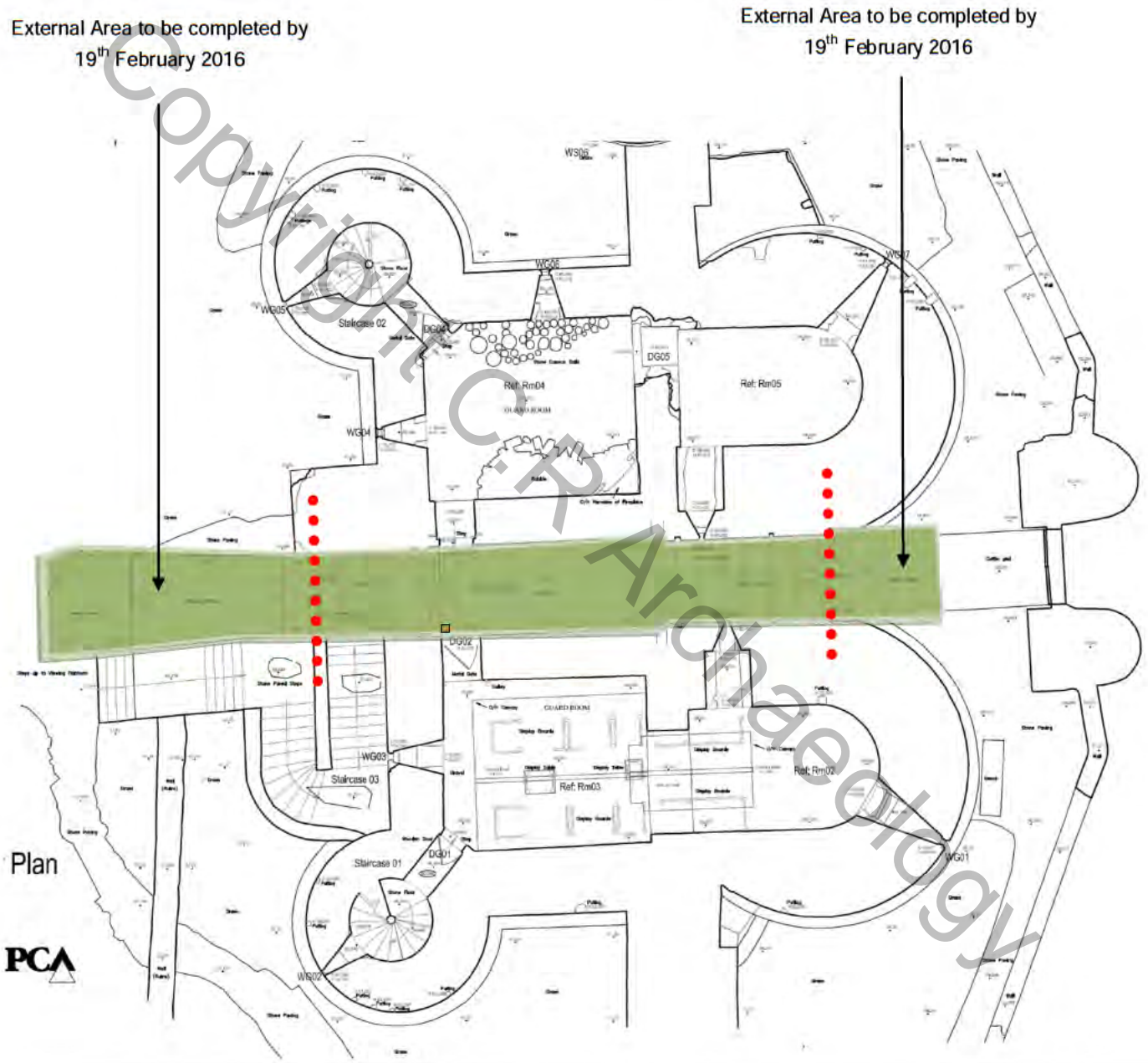
Watkinson, D. & Neal, V. 2001. ***First Aid for Finds.*** London. United Kingdom Institute for Conservation of Historic & Artistic Works

Williams, D.M & Kenyon, J.R. 2010. ***The Impact of the Edwardian Castles in Wales.*** Oxford. Oxbow Books

Websites – all sites were visited 06/07/2015

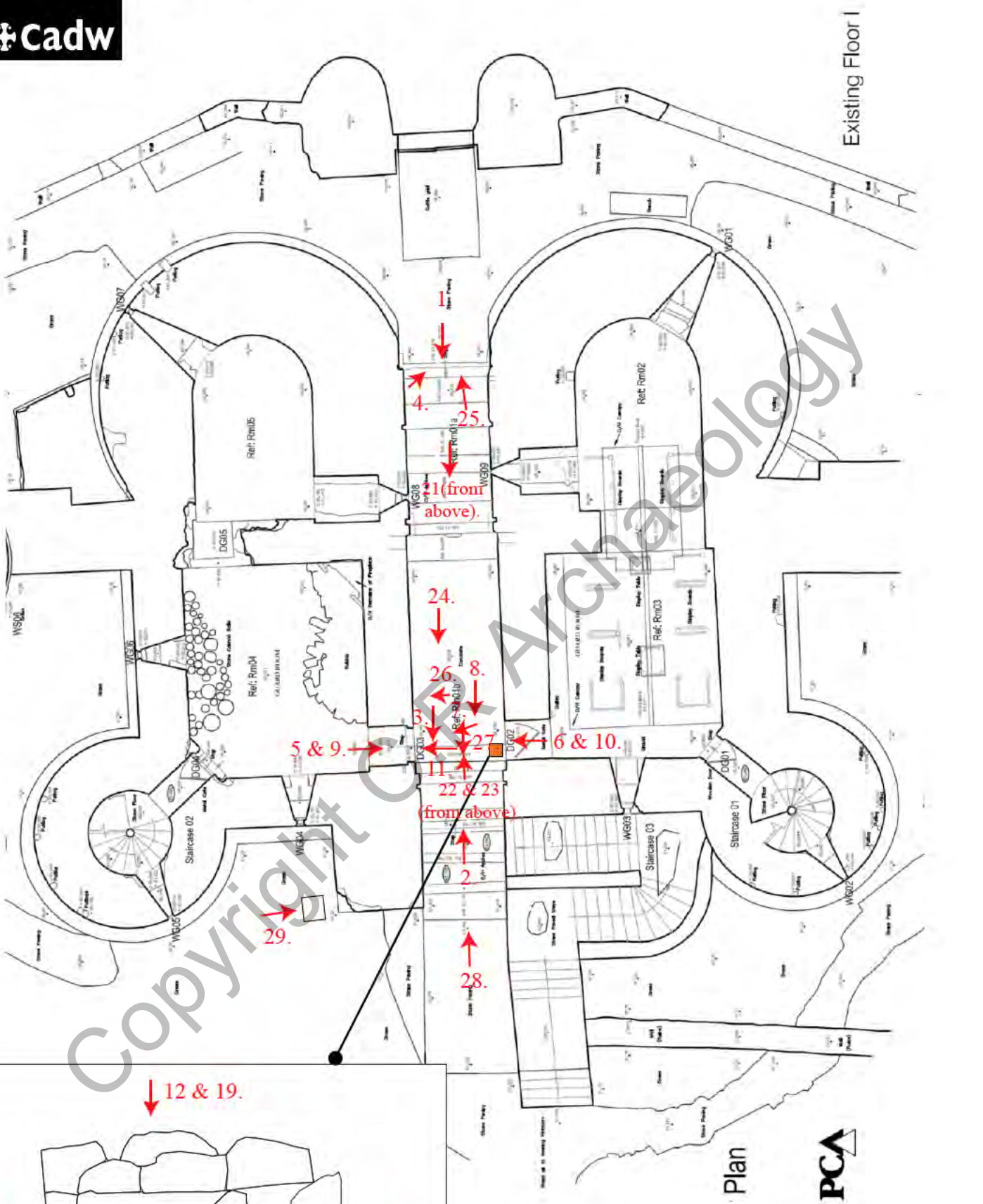
www.bgs.ac.uk/geologyofbritain/home.html
www.britishlistedbuildings.co.uk/wa-25500-harlech-castle-harlech#.VqeNkSqLShc
www.cadw.wales.gov.uk
www.coflein.gov.uk
www.gwynedd.gov.uk
www.historicwales.gov.uk/

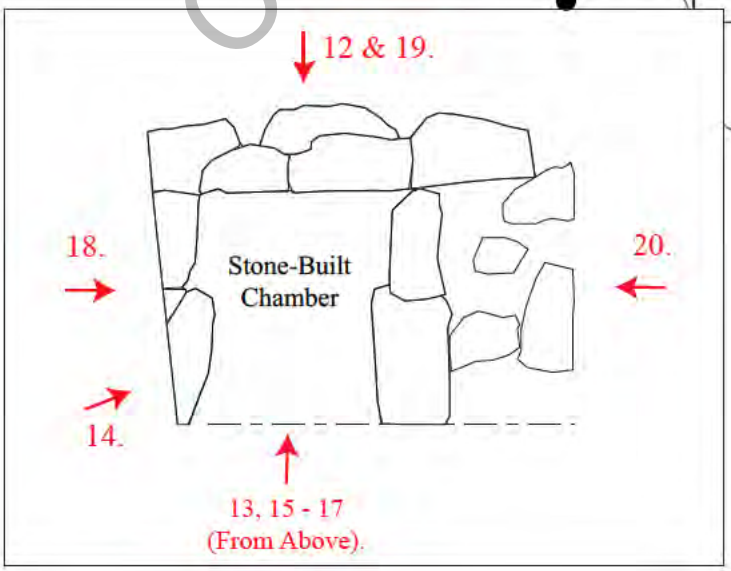
Appendix B.
Proposed Development Plans



Llywodraeth Cymru
Welsh Government

Cadw





Appendix C. Location and Direction of Photographic Plates

Appendix D.

Context List

Area Key:

CT – Cross Trench
ECB – Electric Connection Box
GP – Gatehouse Passageway
IWR – Inner Ward Ramp
OW – Outer Ward

Context Number	Area	Description	Above	Below	Approximate Date
01	GP/CT	Concrete layer	03/12	-	Modern
02	GP	Area of "crazy paving"	02	09	Modern
03	GP	Cobbled area	14	01	Post Medieval?
04	GP	Disturbed redeposited cobbles	05	01	Modern?
05	GP	Cut of disturbed area between cobbled surfaces	03, 06	01	Modern
06	GP	Small cobbled area	14	01	Post Medieval?
07	-	VOID	-	-	-
08	-	VOID	-	-	-
09	GP	Bedding sand/gravel for (02)		02	Modern
10	CT	4-way concrete drain chamber		01	Modern
11	CT	General number for ceramic pipes			Modern
12	CT	Fill of service trench	10	01	Modern
13	CT	Cut for drainage pipes in cross trench	03	01	Modern
14	GP	Lower Mixed clay deposit in service trench	-	02, 23, 06	Post Medieval?
15	-	VOID	-	-	-
16	OW	Gravel bedding for paving	14	27	Modern
17	-	VOID	-	-	-
18	-	VOID	-	-	-
19	CT	Mixed upper fill of (21)	20	22	Modern
20	CT	Clay Lower fill of (21)		19	Modern
21	CT	Stone and concrete 'box' structure containing human remains			Modern
22	CT	Slate and concrete capping	21,19,20		Modern
23		Mortar layer	14		
24	OW	Concrete, stone and modern rubbish backing for wall facing (25)	25	12	Modern
25	OW	Facing for draw bridge pit	-	24	Modern
26	GP	Modern cut for toll gate	14	28	Modern
27	OW	Modern Cobbled surface			Modern
28	GP	Fill of toll gate pit	26	04	Modern
29	IWR	Cobbles in concrete matrix	30	-	Modern
30	IWR	Brown clay ramp material	-	30	Modern

31	IWR	“Step” from GP			Modern
101	ECB	Turf, topsoil	102	-	Modern
102	ECB	Mid-brown clay silt	103, 104	101	Modern
103	ECB	Loose mid brown clay silt	-	102	Modern?
104	ECB	Rough stone and mortared wall	-	103	Medieval?

Appendix E.
Osteological Report in Full

Osteological report on skeletal remains excavated from Harlech Castle,

CR121-2016

Prepared for CR Archaeology

By

S. Vincent

Scope

This report contains the results of osteological analysis carried out on Skeleton 1 from Harlech Castle, (CR121-2016). The area around the burial is known to have been disturbed in the 1950's as the result of building work; despite this the skeleton is remarkably complete and represents a single individual. The presence of a number of small elements (hand and foot bones etc.) may support the theory that the original burial was demarcated in some way, (a cist or otherwise lined grave has been suggest by the excavators), but cannot confirm it.

Due to the lack of associated contextual evidence a bone sample was sent for C14 dating. This returned a date range of AD1290-1410 (95% probability) which encompasses two documented sieges of Harlech Castle.

Raw data is presented in appendix A.

Bone preservation and skeletal completeness

Skeletal completeness and bone preservation were estimated by visual assessment. Bone preservation was good, majority of the skeleton was graded 0-1(Brickley and McKinley, 2004) for surface erosion. Preservation was more variable across the skull with some areas of the cranium scoring 4 on the same system. There are post depositional breaks present, but nothing to suggest the method by which the skeleton was disturbed during the building work.

Completeness is based on the estimated percentage of skeletal elements present and found to be 95%. A single proximal hand phalange was recovered from an adjacent context (Unstratified Cross Cut); the size, morphology and colour are consistent with the other elements from skeleton 1 but it cannot be definitively assigned to the skeleton so is not referenced in the rest of this report.

Sex and Age determination

The individual examined is a young adult male whose age at death is estimated to be 20-35 years old. Osteological analysis was carried out using the standards of Brickley and McKinley, (2004) and Buikstra and Uberlaker (1994). Sex was determined both cranial and pelvic traits, while age was determined by a combination of tooth wear and eruption, epiphyseal fusion, auricular surface and sternal rib end morphology.

Stature

Stature estimation (using the femur and tibia) is 168cm ±2.99 (Brickley and McKinley, 2004).

Pathology

The only pathology observed was in the dentition; supra-gingiveal calculus scored 2, using the criteria of Dobney and Brothwell (1987). There is evidence that the $M1^{L}$ had

been lost prior to death, the tooth itself is missing and the area around the socket has begun to heal. This indicates the tooth had been lost some time before death occurred.

The possibility of the individual living through a period of siege at Harlech Castle was raised by the results of the C14 dating. There were no skeletal markers linked to malnutrition observed on skeleton 1, however this neither supports nor disproves this theory.

References

Brickley, M and McKinley, J (Volume Eds). 2004. Guidelines to the Standards for Recording Human Remains. *Institute of Field Archaeologists Technical Paper No 7.* IFA and BABAO.

Brothwell, D. 1981. *Digging up Bones*. 3rd ed. Oxford University Press, Oxford.

Buikstra and Uberlaker (Volume Eds). 1994. Standards for Data Collection from Human Skeletal Remains. *Arkansas Archaeological Survey Research Series.* No. 44.

Dobney, K. and Brothwell, D. 1987. A Method for Evaluating the Amount of Dental Calculus on Teeth from Archaeological Sites. *Journal of Archaeological Science*. 14, 343-51.

Mays, S. 2010. *The Archaeology of Human Bones.* 2nd Ed. Routledge, Oxford.

Appendix A: Raw Data

Dentition

	Left								Right							
Tooth Position	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Maxillary Teeth	X	.	*A	X	.	X	X	X	X	X	X	.	X	X	.	.
Mandibular Teeth	.	.	.	.	.	X	X	X	X	X	.	X	X	-	-	-

Key: . = tooth present in socket, X = post mortem tooth loss, 0 = congenital absence, T = socket missing but tooth present, * = ante mortem tooth loss, A = periapical void, D = deciduous tooth, C = carie present, - = tooth and socket missing.

Skeletal Elements

Skeletal Element			
Cranium	60%		
Mandible	60%		
Hyoid	-		
Cervical vertebrae	7		
Thoracic vertebrae	12		
Lumbar vertebrae	5		
Sacrum	100%		
Sternum	95%, Xyphoid absent		
	Left	**Right**	**Unknown**
Ribs	10	12	
Clavicle	100%	100%	
Scapula	95%	100%	
Humerus	100%	100%	
Radius	100%	100%	
Ulna	100%	100%	
Carpals	3, hamate, capitate, trapezium	3, hamate, trapezium, lunate	
Metacarpals	5	4, (1-4)	
Phalanges	-	1	P5, intermediate 1
Pelvis	100%	90%	
Femur	95%	100%	
Patella	100%	-	
Tibia	100%	95%	
Fibula	100%	100%	
Calcaneus	100%	100%	
Talus	100%	100%	
Tarsals	3, cuboid, navicular, 1st cuniform	2, cuboid, 3rd cuniform	
Metatarsals	4 (1,2,4,5)		
Phalanges	-	-	

Key: P = proximal, M = midshaft, D = distal, - = element missing. % present estimated by visual assessment.

Cranial Measurements

Due to the fragmentary nature of the cranium, only limited cranial measurements (as described in Brickley and McKinley, (2004), pg 29) could be taken.

Measurement	
GOL	203mm
XCB	-
BBH	-
BNL	-
BPL	-
NHP	-
FMB	-
FRC	-
PAC	-
OCC	-
ZMB	-
NLB	-
NLH	-
OBH	-
OBB	-
EKB	-
G'1'	36.9mm
MAB	-
GOGO	
WI	
RB'	
Mandibular length	105mm

Key - = measurement not possible due to missing or damaged element.

Post-cranial Measurements

Post-cranial measurements are selected from Buikstra and Uberlaker (1994).

Measurement	Left	Right
ClavLength	150mm	154mm
HumLength	329mm	336mm
HumHDL	46mm	47.5mm
HumMidMax	24.2mm	23mm
HumMidMin	16.7mm	17.3mm
HumEPW	63mm	60.8mm
RadLength	252mm	256mm
UlnLength	271mm	-
FemLength	457mm	449mm
FemHead	48.6mm	48.7mm
FemAPSubTroc	27mm	26.6mm
FemMLSubTroc	33.5mm	34.4mm
FemMidAP	28.3mm	28.7mm

FemMidML	28mm	29.6mm
FemBiCond	82.3mm	83.1mm
TibLength	-	356mm
TibAP	-	29.8mm
TibML	-	20.3mm
FibLength	350mm	350mm

Key - = measurement not possible due to missing or damaged element.

Non-metric variation

Non-metric variations are a range of minor variations in presence or morphology of structures such as foramina or facets. While it has been established that some traits (such as the Inca bone) have a genetic component, the causes of the majority of the traits are unknown. Cranial and post-cranial non-metric variations were selected from Buikstra and Uberlaker (1994).

Cranial non-metrics

Non-metric trait	L	R
Metopic Suture	0	
Supra Orbital Foramen	1	0
Zygomatic facial foraman	1	0
Accessory infra-orbital foramen	0	0
Coronal Ossicle	-	
Bregmatic Bone	-	
Epipteric Bone	-	-
Sagital ossical	-	
Lambdoid ossicle	0	
Asterionic Bone	0	-
Ossicle in occipito-mastoid suture	-	-
Pariatal Notch Bone	-	-
Pariatal Foramen	-	-
Mastoid Foramen extra-sutural	0	-
Auditory exostosis	0	0
Condylar canal	0	0
Condoylar facet double	-	0
Divided hyperglossal canal	-	1
Foramen ovale incomplete	-	-
Accessory lesser palatine foramen	-	-
Palatine Torus	0	
Mandibular torus	0	
Mental foramen double	0	-
Mylohyoid bridge	0	-

Key: 1 = trait present, 0 = trait absent, - = trait unobservable due to missing or damaged element.

Post cranial non-metrics

Non-metric Trait	L	R
Atlas Facet Double	0	0
Posterior Bridging	1	0
Lateral Bridging	0	0
Acromial Articular Facet	0	0
Supra-Scapular Foramen	-	0
Os Acromiale	0	0
Supra-Condyloid Process	0	0
Septal Aperture	0	0
Spina Bifida	0	
Sacralisation of L5	0	
Acetabular Crease	0	0
Accessory Sacral Facets on Ilium	0	0
Fossa of Allen	0	0
Poirier's Facet	0	0
Plaque Formation	0	0
Exostosis in Trochanteric Fossa	0	0
Vastus Notch	0	-
Vastas Fossa	0	-
Emarginate Patella	0	-
Medial Squatting Facets	0	0
Lateral Squatting Facets	-	-
Anterior Calcaneal Facets Double	0	0
Anterior Calcaneal Facets Absent	0	0

Key: 1 = trait present, 0 = trait absent, - = trait unobservable due to missing or damaged element.

Assessment of Sex

Skeletal Trait	Observation
Ventral Arc	Male
Sub-pubic concavity	Male
Inferior pubic ramus	Male
Sciatic notch	Male
Mastoid Process	Male
Nuchal crest	Male
Supra-orbital crest	Male
Supra-orbital margin	Male
Mandible	Male

Assessment of Age

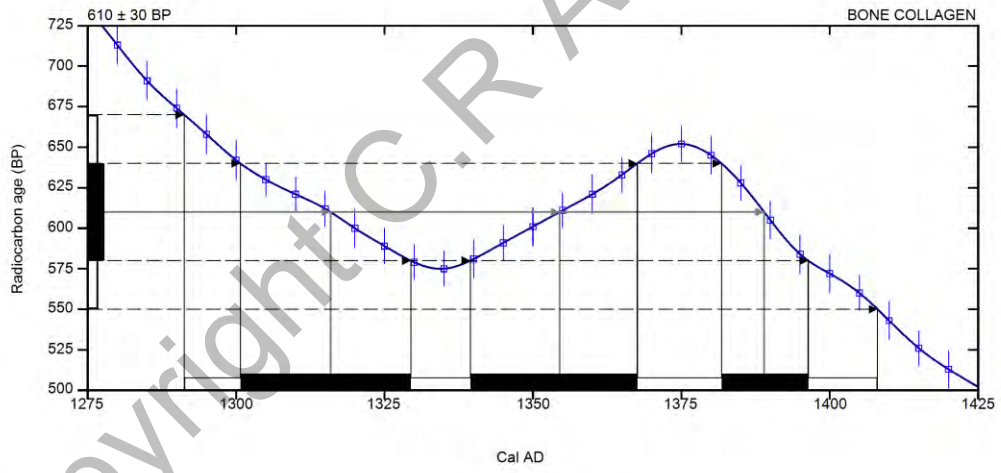
Skeletal Trait	Observation/Phase
Dental Wear	17-25
Pubic Symphysis	Localised damage, not able to score
Auricular Surface	Localised damage, not able to score
Rib end morphology	Fusion complete
Medial Clavicle	Fusion complete 22-30
3rd Molar Eruption	18+

Appendix F. Beta Analytic Radiocarbon Dating Report

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -20.1 o/oo : lab. mult = 1)

Laboratory number	**Beta-438605 : CR121-2016**
Conventional radiocarbon age	**610 ± 30 BP**
Calibrated Result (95% Probability)	**Cal AD 1290 to 1410 (Cal BP 660 to 540)**
Intercept of radiocarbon age with calibration curve	Cal AD 1315 (Cal BP 635) Cal AD 1355 (Cal BP 595) Cal AD 1390 (Cal BP 560)
Calibrated Result (68% Probability)	Cal AD 1300 to 1330 (Cal BP 650 to 620) Cal AD 1340 to 1370 (Cal BP 610 to 580) Cal AD 1380 to 1395 (Cal BP 570 to 555)



Database used
INTCAL13

References

Mathematics used for calibration scenario
A Simplified Approach to Calibrating C14 Dates, Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database
Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887., 2013.

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • Email: beta@radiocarbon.com

Appendix G. Small Finds Register

Area Key:
CT – Cross Trench
ECB – Electric Connection Box
GP – Gatehouse Passageway
IWR – Inner Ward Ramp
OW – Outer Ward

Small Find Number	Context Number	Material	Description	Site Area
01	12	Stone	Stone fragment with rope lines	CT
02	03	Stone	Large stone shot	GP
03	12	Stone	Stone fragment with inset carving	CT
04	12	Stone	Large fireplace fragment	CT
05	12	Stone	Large fireplace fragment	CT
06	29	Stone	Grit stone millstone frag	GP
07	30	Iron	Spur	IWR
08	19	Iron	Nail (coffin?)	CT
09	19	Iron	Nail (coffin?)	CT