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CASTELL CARNDOCHAN

Excavation report 2016-17



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust



Llywodraeth Cymru
Welsh Government

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CASTELL CARNDOCHAN

Excavation report 2016-17

Project No. G2366

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Prepared for: Cadw

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CASTELL CARNDOCHAN: CONSERVATION AND ASSESSMENT EXCAVATION

PRN 4977, Location SH84703065, Status SAM ME049

SUMMARY

Castell Carndochan is a little-known and under-recorded castle of the Welsh princes. A third phase of excavation revealed the full extent of the entrance into the castle. The entrance was found to run through a thickening in the curtain wall and to taper from a width of 2.75m on the inside to 1.7 on the outside. The outer end had been covered by an arch with slate voussoirs that found collapsed but partially intact in the rubble. The excavated masonry was stabilised and left partially exposed in order to allow the entrance to be used as a safe access point into the castle.

A separate assessment excavation was carried out across the south-west wall of the central square keep. Intact masonry survived to a height of 0.65m with a vertical inner face and a battered outer. Stones on the inner face were heat affected and a layer of charcoal in the interior indicated that the keep had been destroyed by fire.

Mae Castell Carndochan yn gastell anadnabyddus ac wedi'i dan-gofnodi, o gyfnod ac eiddo'r tywysogion Cymreig. Datgelodd trydydd cam y cloddio graddfa lawn y fynedfa i'r castell. Canfuwyd bod y fynedfa yn rhedeg drwy dewychiad yn y llenfur a'i fod yn meinhaus o led o 2.75 medr ar y tu mewn i 1.7 medr ar y tu allan. Roedd y pen allanol wedi cael ei orchuddio gan fwa gyda voussoirs llechi a gafodd eu darganfod wedi dymchwel ond yn rhannol yn gyfan yn y rwbwl. Sefydlogwyd y gwaith maen cloddiedig a'i adael yn rhannol agored er mwyn caniatáu i'r fynedfa gael ei defnyddio fel pwynt mynediad diogel i mewn i'r castell.

Cafodd cloddiad asesu ar wahân ei wneud ar draws wal dde-orllewinol y gorthwr sgwâr canolog. Goroesodd gwaith maen cyfan i uchder o 0.65m gydag wyneb mewnol fertigol ac wyneb allanol toliciog. Roedd y cerrig ar yr wyneb mewnol wedi cael eu heffeithio gan wres ac roedd haen o siarcol y tu mewn yn awgrymu bod y safle wedi cael ei ddinistrio gan dân.

1. INTRODUCTION

Castell Carndochan is a stone-built castle standing on a rocky eminence overlooking Llyn Tegid and the Lliw valley near Llanuwchllyn (Fig. 1). It is thought to have been built by either Llywelyn ap Iorweth or Llywelyn ap Gruffudd although no documentary evidence survives. The dating is based on similarity to other castles of this period and the presence of characteristic elongated D shaped towers found at Castell y Bere and Ewloe Castle (Avent 1983, 11). At the beginning of the project the site was visible as a pile of rubble with some protruding masonry. It had not changed substantially since it was planned by Hogg in 1955 (Fig 2). It was described in History of Merioneth Vol. II (Cathcart King and Kenyon in Smith J&L, 2001, p. 404) as "a neglected ruin at a particularly inaccessible site". There had been little stone-robbing from the structure and most of the destruction appeared to be natural, possibly in part due to poor quality mortar.

The site stands in a spectacular position on a steep crag overlooking low-lying land to the north-east. In contrast, the approach from the south-west is relatively flat and is protected by a rock-cut ditch that also functioned as a source of stone for the construction of the castle. The site is mostly covered with tumbled stone but there is some visible masonry. The most obvious structure is an apsidal tower on the south-west extent of the castle. Walls enclosing the top of the hill abut this,



Fig.1 Location map

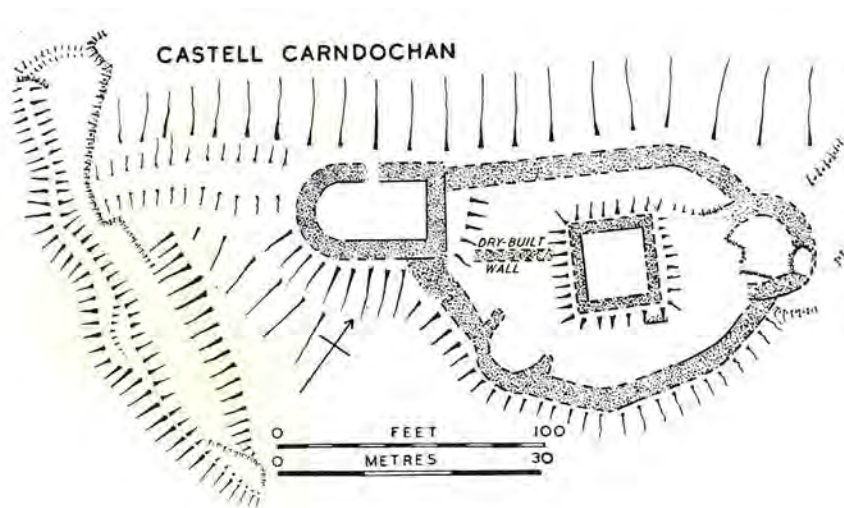


Fig. 2 Castell Carndochan (Hogg 1955)

forming a small ward. There are the possible remains of a half-round or round tower at the north-east and a bank of rubble on the line of the southern curtain wall was interpreted as a half-round tower by Hogg (1955, 179). The interior contains a square building interpreted by Kenyon and King as an early tower predating the

apsidal tower.

The current project began in 2014-15 with preliminary stabilisation works, a review of the stability of the site and recommendations for management and further work. In addition, five areas of clearance and limited excavation were undertaken (Fig. 3 and Hopewell 2015). The trenches in the apsidal tower were excavated in order to clear loose stone as part of the stabilisation works. Two smaller trenches aimed to assess the level of survival of masonry beneath the spread of rubble that

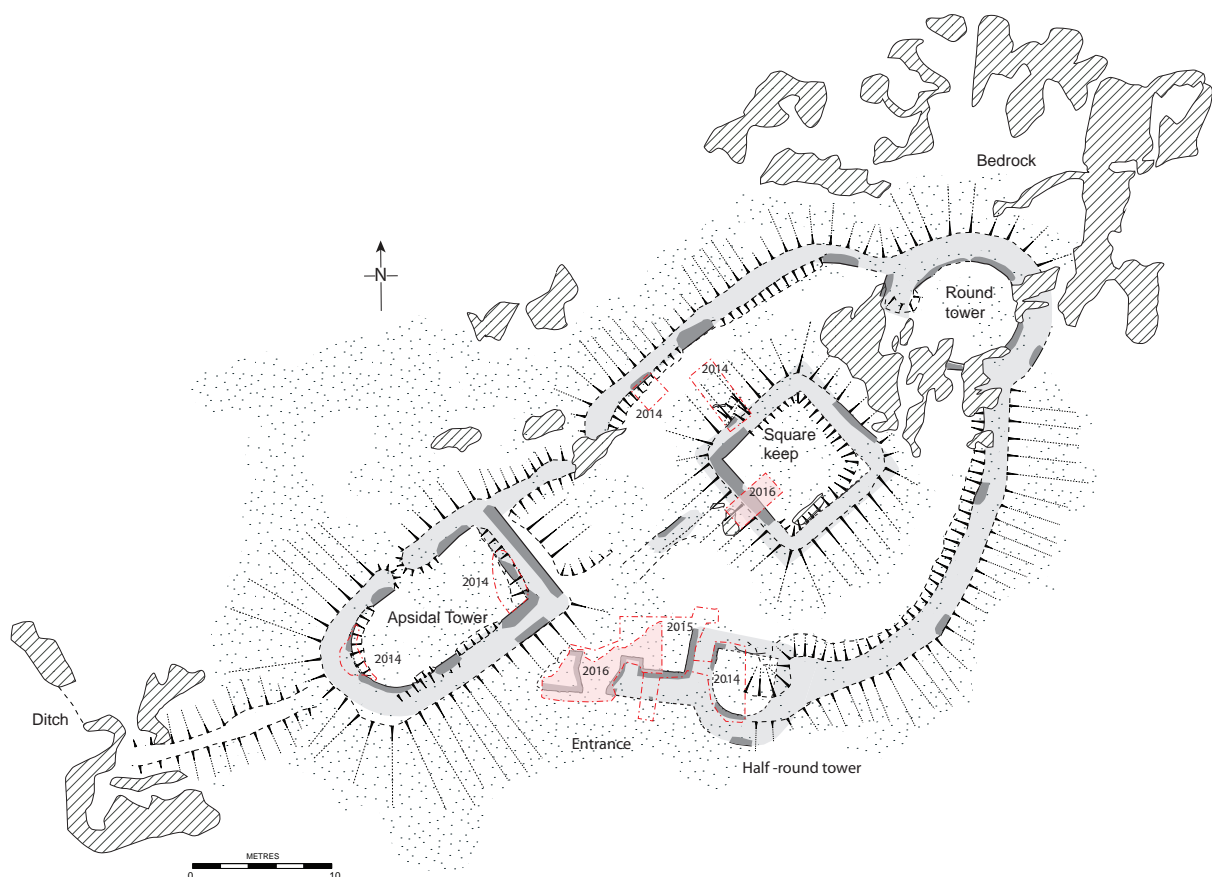


Fig. 3 Trench locations

extends across most of the site in order to test Cathcart King and Kenyon's assessment of the site: "its state of ruin is so advanced that such activity [serious excavation or consolidation] might well prove to be of little value" (2001, 404). Two of the three trenches revealed well-preserved masonry thus demonstrating the potential for the recovery of information about the site through further excavation. One slightly larger trench revealed the lower courses of a small half-round tower (as suggested by Hogg) and the adjoining curtain wall with masonry surviving to a height of at least 1.5m (see Figs 3 and 4). The clearance was limited to the removal of obvious collapsed stone and associated gravel (the degraded remains of mortar) and no stratified deposits were investigated.

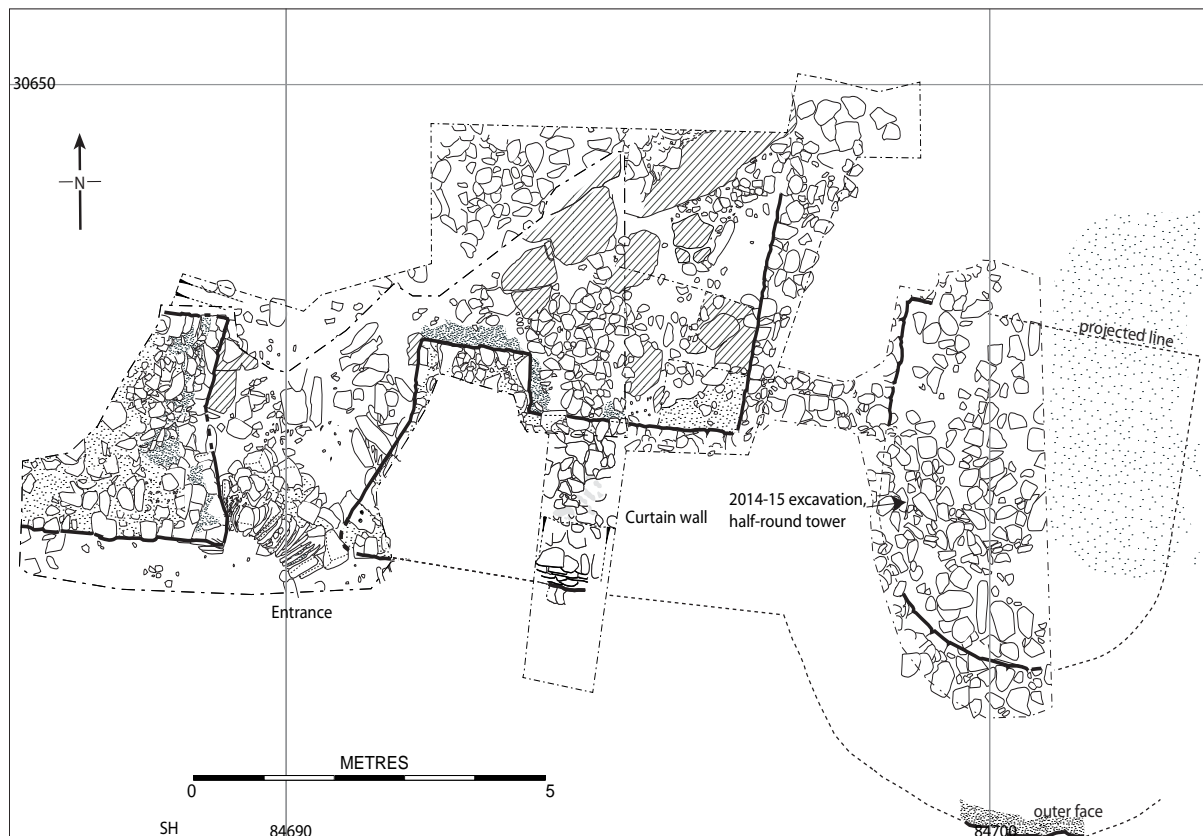


Fig. 4 Combined plan of excavations 2014-16

The 2014-15 phase of the project had demonstrated that there was well-preserved masonry beneath the piles of rubble that extend across most of the castle. One area to the south-east of the main south-western apsidal tower, initially investigated in Trench 3 of the 2014-15 phase, was selected for more extensive excavation in 2015-16 (Fig. 4 and Hopewell 2016). This confirmed Cathcart King and Kenyon's prediction that the entrance is most likely to be "under the great mass of fallen masonry alongside the apsidal tower". The east side of the entrance passage was traced and partly excavated. The inner end of the western side was identified but the rest of the wall and much of the passageway was buried by collapsed masonry from both the apsidal tower and the entrance itself.

1.1 Copyright

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2. BACKGROUND

2.1 Geology

The castle stands on a prominence above the Lliw valley formed from Ordovician acid ash-flow tuff of the Aran Fawddwy Formation (part of the Aran Volcanic Group). The lower ground to the north-east, including Llyn Tegid comprises, Ceiswyn Mudstones. The Aran Volcanic Group is a thick volcanic sequence with interbedded sedimentary rocks (BGS sheet 136 1986)

2.2 Historical background

Castell Carndochan stands within the township of Pennant Lliw, in the parish of Llanuwchllyn and in the commote of Penllyn (Figs 5 and 6). This area was frequently on the ever-changing borders of Gwynedd and Powys throughout the medieval period. The commotal centre appears to have been at Bala, centred on the (probable) Norman motte. The timber buildings of a royal llys and possibly the nucleated structures of a dependent bond township might be expected in the immediate vicinity of the motte with the associated royal hafodydd in the form of large-scale cattle pastures (vaccaries) in the highlands to the south-west of Llyn Tegid (GAT 2006).

The history of this area is inextricably linked to the fortunes of the various royal dynasties of Gwynedd and Powys. This was explored in last year's report and is not repeated in detail here (Hopewell 2016 2-7). For background see J. Beverley Smith *The Age of the Princes in History of Merioneth Vol II*. (Beverley Smith and Beverley Smith 2001), R. Avent, *Castles of the Princes of Gwynedd* (1983) and H. Brodie *Apsidal and D-shaped towers of the Princes of Gwynedd* (2015)

Castell Carndochan is not mentioned in any contemporary documents so its history and development can only be projected from morphological and circumstantial historical evidence unless some phased dating evidence is produced by excavation. Penllyn and Ardudwy were repeatedly on the border of Gwynedd in times of conflict, with the parish of Llanuwchllyn in a particularly exposed position. Carndochan is set in a strategically important site in the landscape. The Dee Valley to the north-east provides a corridor into England and appears to have been used as an invasion route from either Chester or the Marches several times. The strategic importance of this area is demonstrated by the concentration of military and defended sites in the area around Bala, from the Roman invasion fort at Llanfor and auxiliary fort at Caer Gai to a concentration of four earthwork castles to the north of Llyn Tegid.

Carndochan is, however, set back from the most direct route into northern Snowdonia from the north-east that runs to Tomen-y-Mur, a much used defensive position from Roman times to the Norman Invasions. The most obvious route runs from Bala along the Prysor and Tryweryn valleys past Castell Prysor. This route has to cross the watershed between two valleys and reaches a height of just over 400m. An alternative route, following the Roman road which runs along the Lliw valley below Carndochan, also appears to have been significant despite reaching a height of 520m near Blaen Lliw Uchaf. The Roman road across the uplands along this route is still well-preserved and

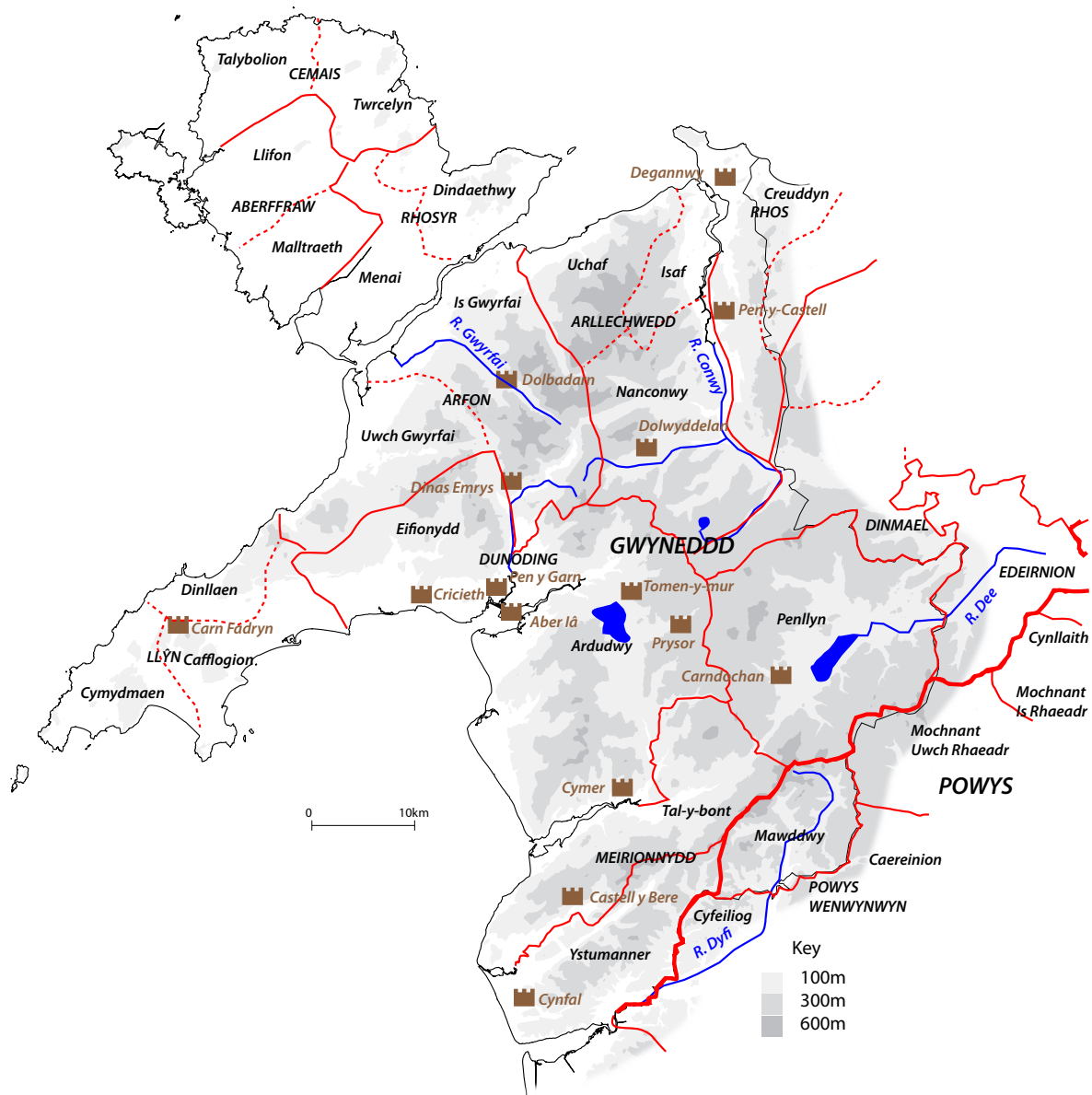


Fig. 5 Castles of the Welsh Princes and commotes in Gwynedd

shows little sign of heavy post-Roman erosion but is likely to have been known about and would have been a metalled route into northern Snowdonia in the medieval period (Hopewell 2013). The presence of Castell Carndochan at the south-east end and Castell Prysor close to the point where it descends to the valley at the north-west suggests that it was still of strategic significance in the time of the princes. Castell Carndochan also overlooks minor passes to the south-east over Bwlch y Groes and the former Roman road leading towards Vyrnwy. It does not overlook but stands at the junction between the above routes and the route running south-west (another Roman road) via Drws y Nant to the Mawddach valley and the coast.

The castle's setting in the landscape can also be seen in the context of the territory it aimed to influence. Its position commands views along the wide valley to the north-east containing Llyn Tegid and the commotal centre at Bala. Conversely its position on a dominant rocky eminence when seen from the valley allows it to be seen and identified as a place of power in the landscape from some distance away. Significantly its approach from the south-west is unspectacular and provides easy

access to the castle. Carndochan is one of the smallest and least sophisticated of the Welsh castles with relatively light defences; the defensive ditch does not extend beyond the south-west corner thus forming only a token barrier. Its function was therefore most likely to be to exert power over the southern part of the frequently contested commote of Penllyn and to overlook the converging routeways in the area. It certainly was not designed to defend against a substantial military force. Brodie (2015, 234) proposes that the castle was built by Llywelyn ab Iorwerth to secure control of Penllyn acquired in 1202 and to watch the route into Gwynedd. There has been some debate over the date of construction of the apsidal tower; this may have been a secondary addition by Llywelyn ab Iorwerth. Butler (2010, 32) suggests that it was built by Llywelyn ap Gruffudd but both Cathcart King and Kenyon (2001, 406) and Brodie (2015, 236-7) consider this to be unlikely

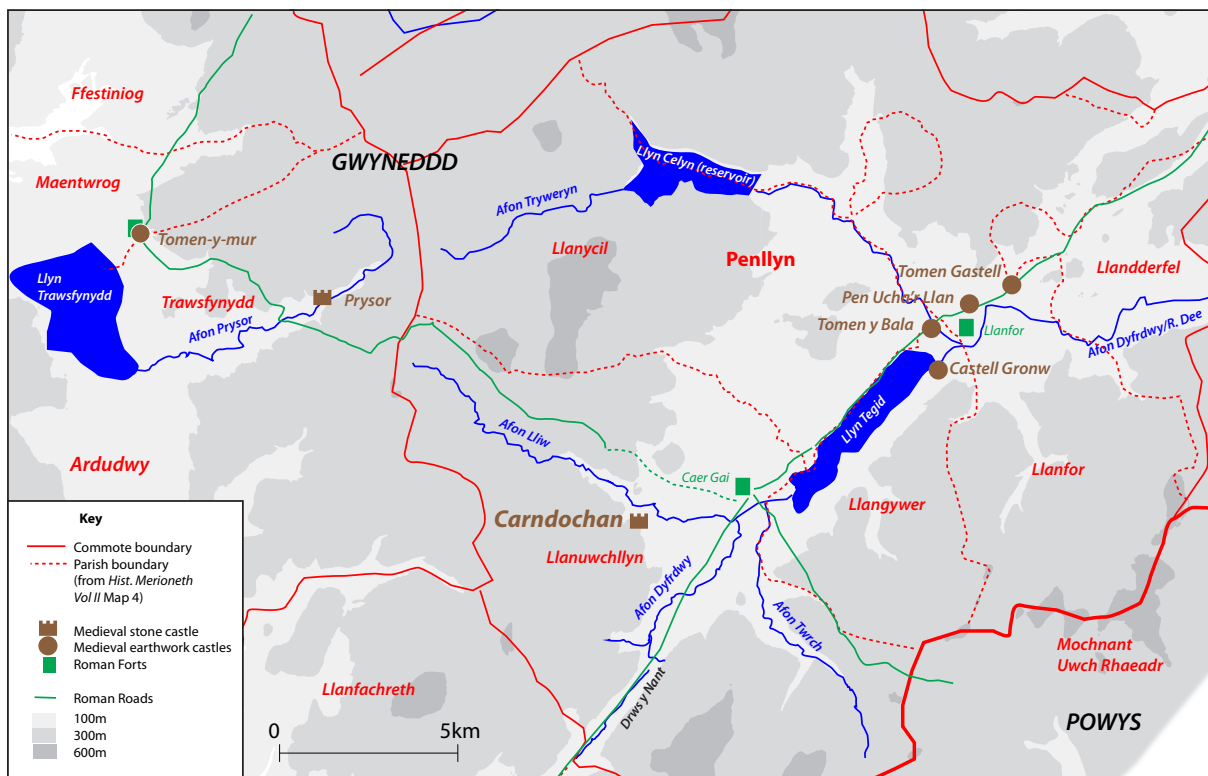


Fig. 6 Castell Carndochan and environs - historic and topographic features

A detailed walkover survey of Cwm Lliw was carried out as part of the RCAHMW Uplands Initiative and 38 long huts or building platforms, probably hafodydd, were identified demonstrating transhumance in the uplands around the castle, probably in the form of summer pasturage for cattle (Oxford Archaeology North 2012 18-19). A reference in a Lay Subsidy Roll of 1292-3 records that Madoc ap Iorwerth, a large landowner in Pennant Lliw, was taxed at over 30 shillings compared to the meagre average for Penllyn of four shillings, demonstrating a considerable income from farming (Beverly-Smith and Beverly-Smith 2001, 173).

3.0 METHODOLOGY

An outline method statement was prepared in advance of the project by GAT containing proposals to fully excavate the entrance and leave it open as a safe point of access to the castle. It was proposed that this would replace the previous access point over the walls of the large D-shaped tower which

was both hazardous and a potential source of erosion to the extant masonry in this area. The proposal was examined by conservation architect Mike Garner (Garner Southall Partnership) and was found to be feasible.

An irregular area with maximum dimensions of 8.8m x 5.8m was investigated in the 2016 excavation (Trench 1). This comprised full excavation of the area that had been partially excavated in 2015 and included an additional area to the south-west that contained the outer end of the western side of the entrance to the castle (Fig. 7). The area of the excavation was constrained by the need to grade and stabilise the steep rubble slope at the south-west end of the site. A small (4.5m x 2.0m) additional assessment trench (2) was excavated across the south-west wall of the central square keep in order to investigate the level of survival of the masonry and deposits in this area (See Fig.3 for trench location).

The excavation was carried out over ten working days from 20th to the 30th September by the writer and Neil McGuinness from Gwynedd Archaeological Trust along with a team of between 4 and 6 experienced volunteers.

The excavation in trench 1 entailed the removal of several tons of undifferentiated rubble. This was used to build a simple terraced access ramp leading to the entrance and to partially backfill the excavated area (see below for details). Trench 2, was backfilled after excavation and landscaped by replacement of stones lichen side up and reinstatement of turf.

Consolidation work, comprising pointing all newly exposed masonry and rebuilding several minor collapses using lime mortar was carried out after the excavation was completed under the auspices of Snowdonia National Park Authority (SNPA). The works were monitored by the writer with site visits by John G. Roberts (SNPA), Mike Garner, Ian Halfpenny and Will Davies (Cadw).

The site and contexts were recorded both photographically and using a Trimble high precision GPS surveying system. Stone-by-stone drawings were transcribed from a 3D model produced in Agisoft PhotoScan. The software carries out photogrammetric processing of an overlapping array of digital images and generates an accurate and detailed georeferenced 3D model. This can generate vertical or horizontal orthographic projections. Orthographic (or orthogonal) projections are used in cartography; the point of perspective is at infinite distance thus avoiding perspective or parallax errors (Fig 8). Elevations and sections were drawn with the aid of orthographic projections from the 3D model with some details added by hand on site. Elevation drawings were produced of all standing masonry both before and after conservation and are included as appendix 1.

4. OUTREACH

The remoteness of the site made a large-scale outreach event impractical but an open day was held on 25th September 2016. This was organised by Naomi Jones, Head of Education and Communication at Snowdonia National Park Authority. Groups of visitors, who had previously booked, were brought to bottom of the hill in a mini-bus and led on a guided walk to the site and around the excavations.

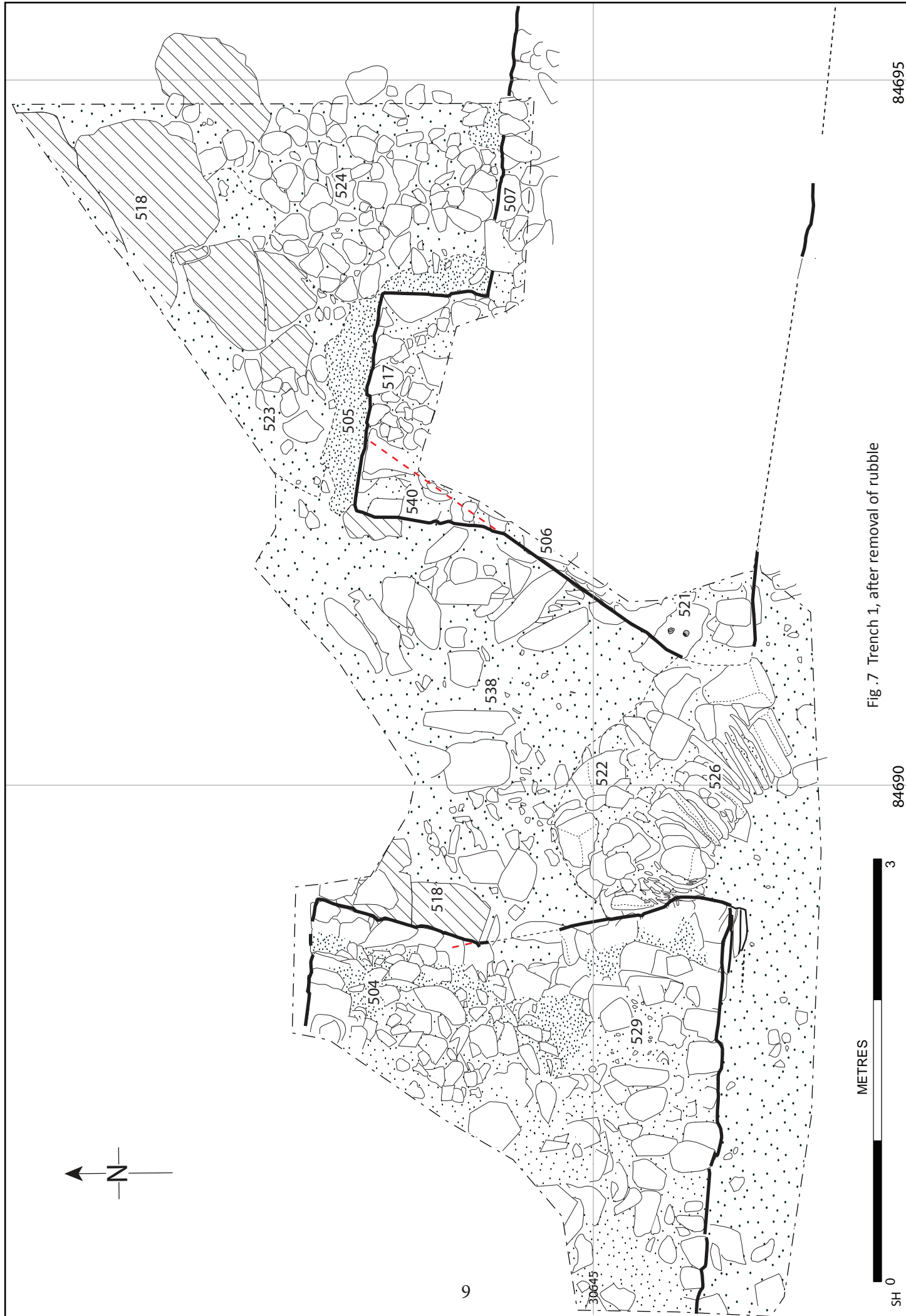


Fig.7 Trench 1, after removal of rubble



Fig. 8 Trench 1, orthographic projection from 3D model



Fig. 9 Curtain wall, inner face (507), N facing elevation

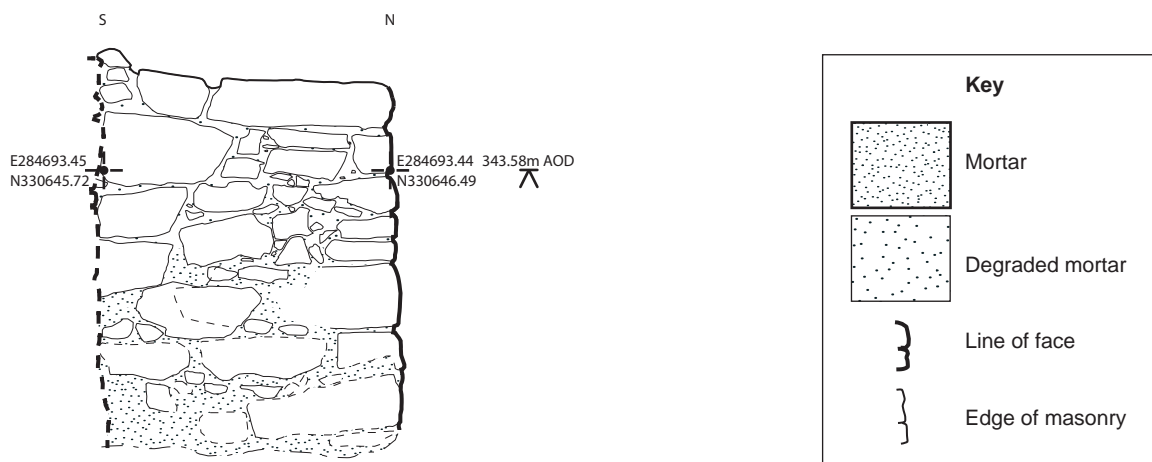
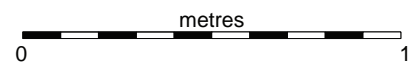


Fig. 10 Curtain wall thickening (517), E facing elevation



Fig. 11 Entrance floor (538)



Fig. 12 Entrance floor (538) stones running beneath wall face

5. ACKNOWLEDGEMENTS

The project was grant-aided by Cadw; thanks to Ian Halfpenny for supporting the project. Many thanks are due to the landowner Gwyn Roberts for permission to work on the site.

The excavations were carried out by a hardy team of volunteers: John Burman, Jeff Marples, Beaver Hughes, David Ellis-Jones, George Smith and Rhys Mwyn. Neil McGuinness from GAT assisted on site and produced the elevation drawings for the report. Thanks are due to Naomi Jones and staff at Snowdonia National park for arranging and carrying out outreach activities.

The conservation works were carried out by Alwyn Ellis and his team from Stonewyrce Cyfyngedig. The conservation programme was arranged by John G Roberts (SNPA) with technical advice from Mike Garner (Garner Southall Partnership) and was funded by SNPA with grant-aided from Cadw.

6. RESULTS

6.1 Trench 1 (Figs 7 and 8)

The entrance into the castle and the interior to the east of the entrance was, where possible, excavated down the level of the passage floor. A collapsed archway was encountered within the rubble and this was retained *in situ* and as a result the outer end of the passage was not fully excavated. The results, arranged in phased context-groups, are described in the following sections. Slightly more of the elevations of the curtain wall (507 and 517) were exposed than in the 2015 excavation and these are shown on Figs. 9 and 10.



Fig. 13 Discontinuity in lower eastern wall of entrance passage (540)

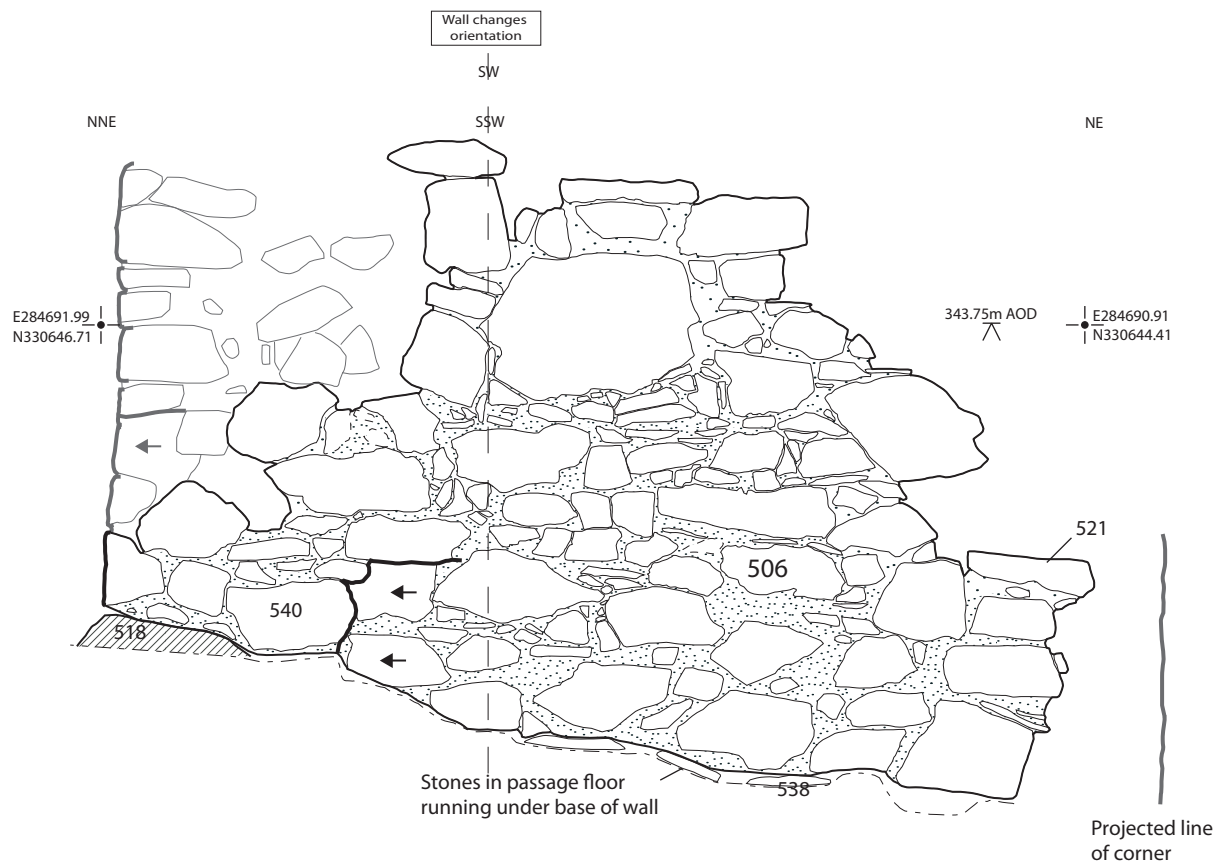


Fig. 14 E side of entrance passage (506 and 540), W facing elevation

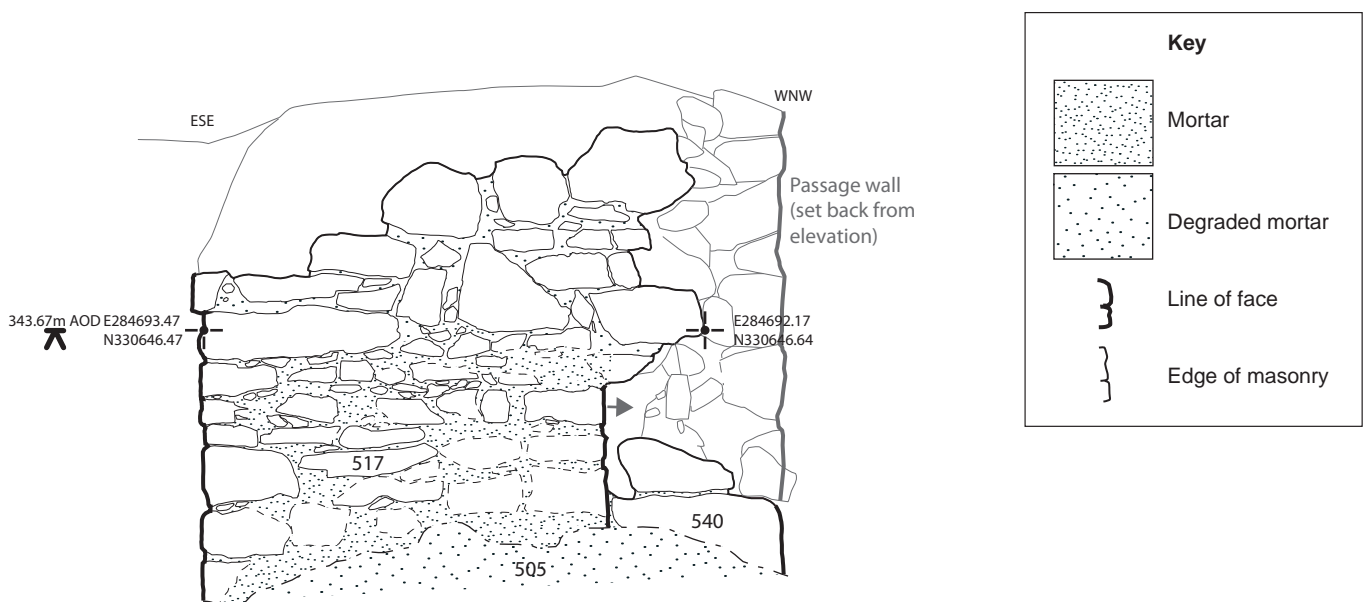
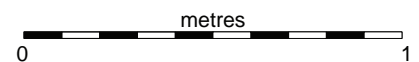


Fig. 15 Curtain wall on E side of entrance (517 and 540), N facing elevation

6.1.2 Bedrock and natural deposits

Bedrock (518) was encountered in two parts of the excavated area. The most extensive area was to the west of the inner end of the entrance and was a continuation of the bedrock encountered in trench 1a in the 2015 excavation (see compilation plan Fig. 4). The bedrock comprised rounded slabs of tuff at varying levels separated by natural fissures.

6.1.3 Pre construction levelling layers and passage floor

Each stretch of wall was assigned a separate context number during the 2015 excavation (504, 506-8 and 517). Upon investigation it was shown that 506, 507 and 517 were all bonded together and these were grouped together in context group 519. Two additional wall contexts, 529 and 540, were allocated during the 2016 excavation.

Most of the trench was excavated down to the level of the entrance passage floor and wall foundations (Figs 7, 8 and 11). Parts of the wall at the inner end of the entrance passage were built directly onto the bedrock (518). This formed two small parts of the passage floor and elements of a surface in the interior of the castle to the eastern side of the entrance. The top of the bedrock was found to consist of flat slabs at varying levels in this area. The 2015 excavations encountered bedrock beneath the outer face of the curtain wall at a level 0.9m below that at the inside of the entrance. This suggests that the defences had been built against a natural break of slope and that the level of the bedrock drops away steeply across the line of the curtain wall.

The dips and crevices in the bedrock in the interior had been infilled with a mixture of clean gravel and small stones (523). This was markedly different from the overlying contexts in that it contained no crumbs of mortar. This appeared to be an initial levelling layer using the same type of gravel that was used in the mortar in the walls. This was directly overlaid by a build-up of set mortar (505) against the base of the curtain wall. This had also been identified in the 2015 excavation and interpreted as material dropped during the construction or pointing of the masonry. The levelling layer was at the same level as the floor of the entrance passage (538) and appeared to blend into it in the small area that was examined. The floor of the entrance passage also consisted of gravel and small stones along with some flat stone slabs but also contained crushed mortar. It is possible that this was continuous with the levelling layer (523) and the mortar was introduced into the floor (538) by trampling or other disturbance during the use or destruction of the passage. Several of the stones on the east side of the floor could be seen to run beneath the passage wall (Figs. 12 and 14). It is therefore likely that the levelling layer (523) and at least parts of the passage floor (538), which also comprised levelling up to the top of the bedrock at its inner end, were laid in advance of the construction of the curtain wall and entrance. This may have performed a dual function, acting both as a working surface and a base for the wall. The passage floor was somewhat uneven with slabs of both slate and local tuff laid at varying angles along with areas of gravel (Figs 9 and 10). No clearly-defined well-laid surface was identified and it is likely that the floor was damaged by the collapse of the surrounding masonry.

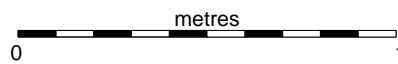
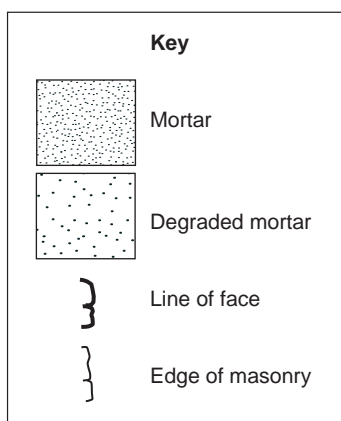
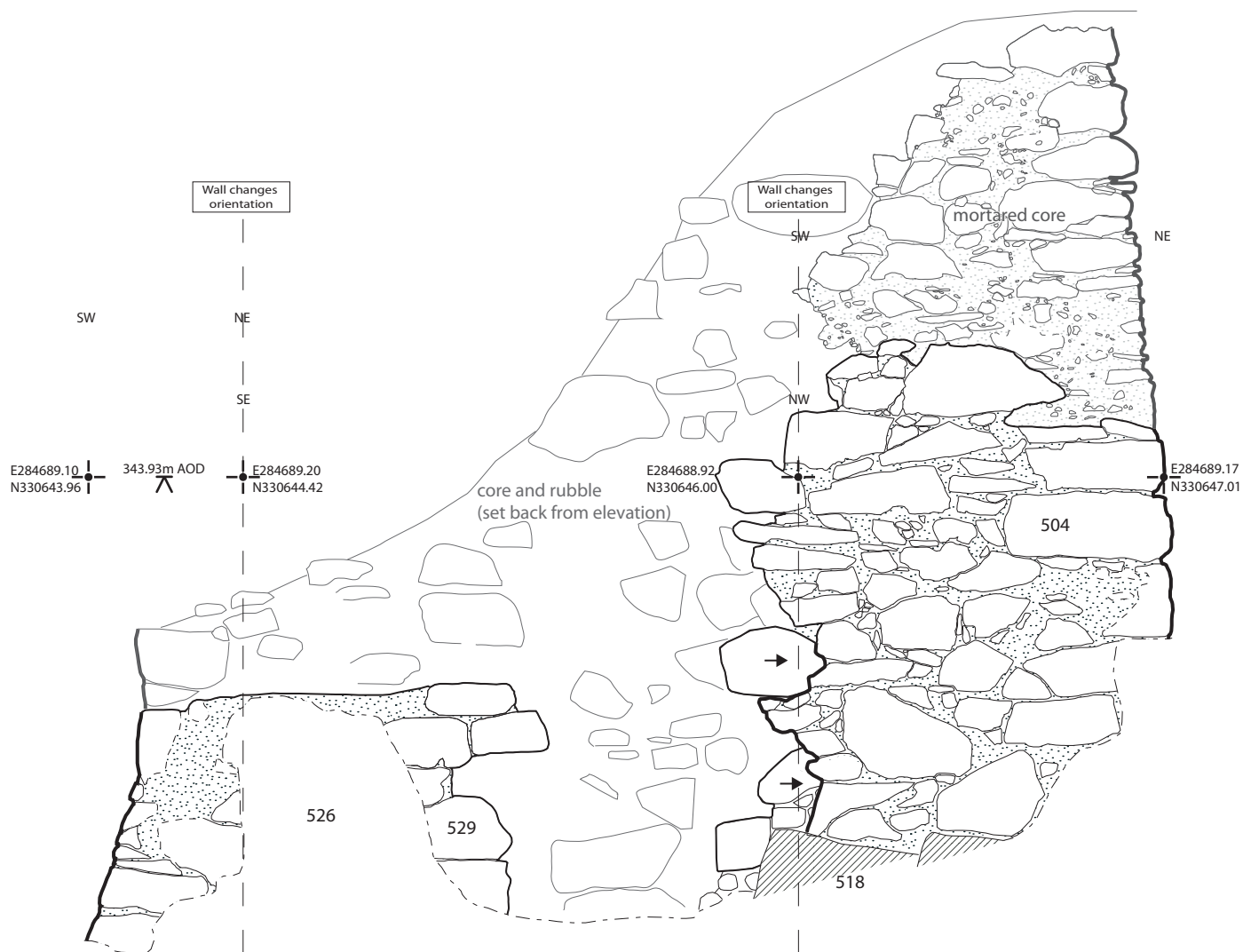


Fig. 16. W side of entrance passage (504 and 529), E facing elevation

6.1.4 Walls and construction contexts

The eastern wall of the entrance

The upper part of the masonry on the east side of the entrance was uncovered in the 2015 and was fully excavated in the 2016 phase. The masonry survived to a height of 1.5m and there were collapses at both the inner and outer corners of the passage (Fig. 14). The wall was built from irregular stones with flat sides set to form a vertical face. The facing and core were bonded with lime mortar and gaps between the facing stones were packed with galetting stones.

The lower 0.4m to 0.6m of the inner corner of the passage contained two phases of masonry (Fig. 13). The alignment of the south-western part of the wall continued in a straight line and extended as far as the inner face of the thickened curtain wall adjacent to the entrance (Fig. 15). A separate section of masonry, triangular in plan (540), had been added, but not bonded into the corner (Fig. 7). This produced a change of direction in the wall, and a right-angled inner corner. Only the base of the added masonry had been built on bedrock and was *in situ*; the rest had collapsed presumably because it had not been tied into the adjacent wall. The upper part of the wall, in contrast, consisted of continuously bonded masonry following the change of direction produced by the additional masonry (540) and appeared to have been built in a single operation. There are two possible interpretations of the structural sequences. In the first, the lower part of the wall was constructed in a straight line and modified during the initial construction process i.e. the line of the inner end of the passage was corrected by the additional triangle of masonry (540) and the upper wall then followed the revised line. In the second the wall was built to full-height in a straight line and subsequently collapsed or was partly demolished. The additional triangular section of masonry was then added to the surviving wall and the upper wall rebuilt in one section. See discussion below (6.1.5, p. 20) for further details

The outer corner of the passage had collapsed from the base. A stone (521) containing two holes that served as mounts for an iron hinge or strap was identified during the 2015 excavation. This was set into the wall 0.4m from the projected corner of the wall. A large stone was lying among the rubble in the passage that had clearly fallen from the corner. A line of thick slate slabs extending across the passage were the remains of an arch that had sprung from the outer corner of the passage. This is described below.

The western wall of the entrance

The western wall was only partially excavated during the previous year's work. Clearance had been halted when a serious collapse was encountered. The masonry on this side of the entrance was buried beneath a considerable amount of rubble from both the large apsidal tower and the entrance passage itself. Between 1.5m and 2.2m of rubble was cleared from the western side of the passage (522 see below). The majority of the 3.0m length of the passage wall had survived although there was a 0.5m wide collapse in the centre (Fig.16). The wall at the inner (northern) end of the passage was revealed to its full surviving height. The outer face of the curtain wall at the corner survived to a height of 2.43m and was built to a slight batter (c. 5 degrees). Where the base of the wall could be seen, it was standing on bedrock. The upper 0.96m of masonry in the inner end of the passage

comprised stable mortared core material with no facing. The lack of facing in this area could be the result of it being the end of a collapsed arch. The uppermost stone in the surviving facing was tilted slightly forward, perhaps marking the beginning of the arch although this may have been a chance occurrence as slightly lower adjacent stones were vertical. It is perhaps more likely that a segmental arch similar to those found at Castell y Bere would have been used to bridge the wide end of the passage.

The line of the western passage wall roughly reflected the eastern although the two sides were not completely symmetrical. The inner end of the western wall was roughly parallel with eastern side and changed direction after 1.2m to produce a tapering passage. A collapse had occurred where the wall changed direction and the masonry had failed from the base probably as a result of being built on sloping bedrock and a large stone that had tipped forward. A few stones had survived at the point where the wall changed direction and, as in the opposite side of the passage, there had been a modification in the alignment of the wall. The lower 0.7m of facing on the southern side of the masonry could be seen to run behind the northern end of the passage wall. This could be traced for 0.15m at the base of the wall before being obscured. It was, however, not possible to see if there was a straight joint in the inner face of the curtain wall as on the other side of the entrance because this area was buried beneath over two metres of rubble. The upper part of the wall, again like the opposite side, was all one build.

The outer end of the passage wall survived to height of at least 0.7m but was not excavated down to its base (see the arch 526 below). There was a second change of direction at its outer end where the last 0.4m turned to run at a right-angle to the outer face of the rampart. The lower part of the outer face was built to an 18 degree batter; this was exposed to a height of 0.5m but was not fully excavated. The wall above this was close to vertical.

The collapse and archway

Before the excavation the entrance was entirely hidden by collapsed masonry that was in places over two metres deep. This had originated from the large apsidal tower, the ramparts and the entrance. This was mostly an undifferentiated deposit of random stone, gravel and crushed lime mortar (522). The lime had dissolved out of the top of the deposit leaving clean gravel and there was more mortar with depth. The rubble in the entrance contained fairly frequent squared-off blocks and slabs. Two large fragments of fallen masonry survived close to the base of the rubble layer. The first was a square block of masonry that has probably fallen from the collapse in the western wall. The second, in the outer end of the passage, was the remains of an archway (Figs 17 and 18). A little over half of the eastern side of the archway had fallen into the passage and remained in one somewhat fragmented piece. A distinctive wedge-shaped keystone survived close to the western end. Most of the remaining arch consisted of voussoirs made from low quality slate slabs. Almost all of the rest of the masonry in the castle was built from local tuff so the use of stone transported onto the site was of note. It seems likely that the slate was used as an architectural feature to emphasise the entrance. A single rectangular block of stone at the eastern end of the line of slate probably marked the end of the arch. The corner of the entrance passage on the eastern side had failed from the base. The lower part of the eastern corner was well preserved and the arch probably sprang from the squared-off



Fig. 17 Semi-collapsed arch (526)

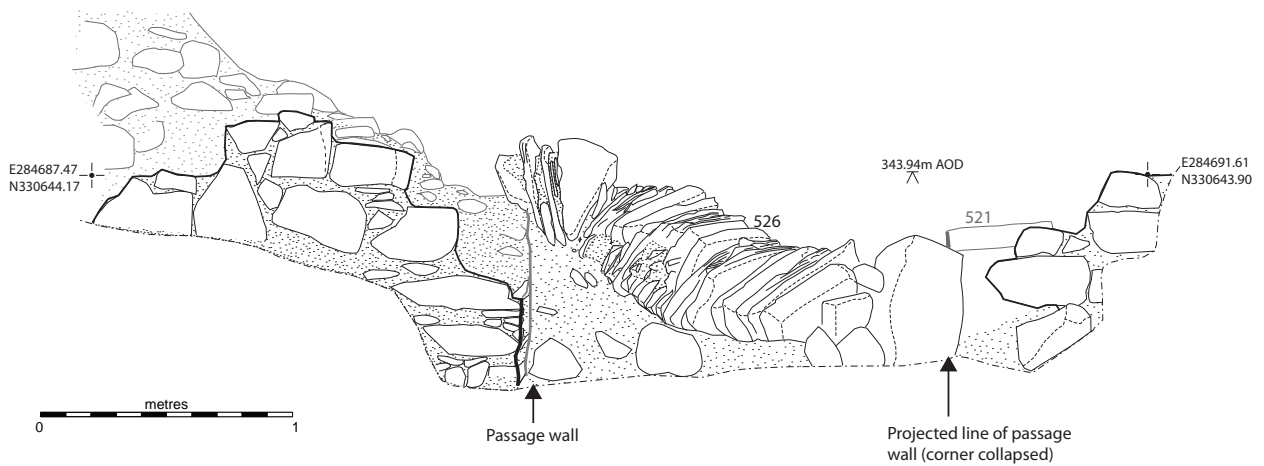


Fig.18 Arch 526, S facing elevation (arch at angle to facing)

masonry at the outer end. The stone containing the iron hinge or strap mount (521) was set back into the outer end of the passage by about 0.4m suggesting the gate was located just behind the slate archway. It was decided to leave the arch *in situ* therefore no further excavation was carried out in the entrance passage. A piece of lead sheet, possibly a fragment of roofing material from the apsidal tower was recovered from within the rubble.

6.1.5 The entrance – summary and discussion

The entrance comprised a 3m long passage, 2.75m wide at the inner end and 1.7m wide at the outer. The walls at the inner and outer ends were roughly parallel with right-angled corners. The walls in the central part were straight, running at slightly differing angles to produce a tapering passage. It appears that the inner end, at least at the base of the wall, was first built with the walls continuing in a straight line as far as the inner face of the rampart. This would have resulted in the inner end of the passage being 3.9m wide. It seems likely that there was a change of plan after the base of the wall was constructed and that the line of the end of the passage was revised in order to narrow the inner end so the wall could be carried over the entrance by a simple vaulted passage. The outer end of the passage was surmounted with an arch of slate slabs and presumably the rest of the passage was roofed with a rather irregular barrel vault. The entrance through the curtain wall into the outer courtyard at Castell y Bere is of a roughly similar design.

The asymmetrical construction of the entrance suggests that it was not carefully planned. This adds weight to the interpretation that the line of the inner end of the passage was re-modelled during its construction in order to both lessen the width of arch needed and also to provide a more stable parallel end to the passage. However, a serious collapse or demolition and rebuild cannot be discounted as an alternative interpretation.

6.2 Trench 2

A 4.5m x 2.0m assessment trench was excavated across the centre of the south-western wall of the central keep (Figs 19 and 20). This was



designed to investigate the nature and preservation of the keep wall and assess the deposits in the interior.

After removal of up to 0.6m of rubble, the wall was found to be well preserved and standing to a height of 0.9m. Stratified deposits were identified on both the inside and outside of the wall (Figs 21 and 22) These are described below:

Fig.19 Keep wall from SW prior to excavation



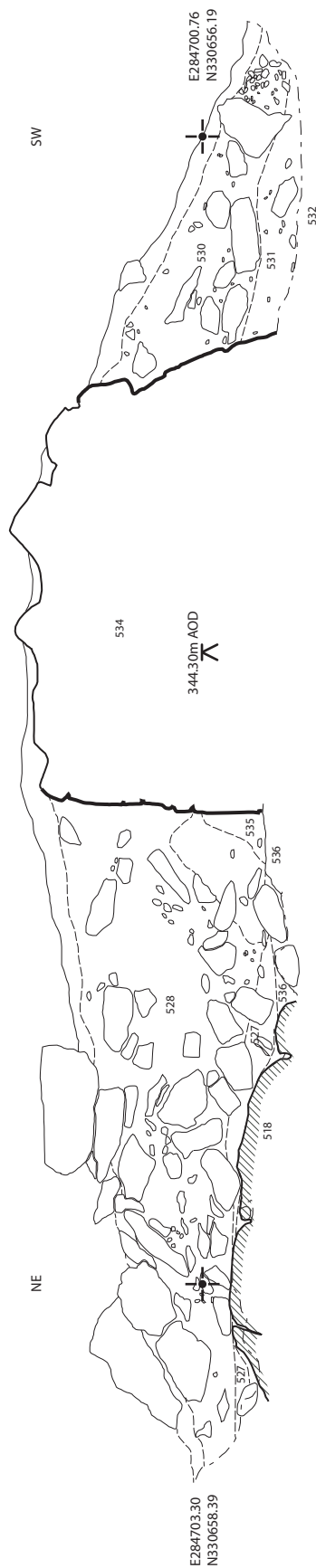


Fig. 21 Trench 2 NW facing section

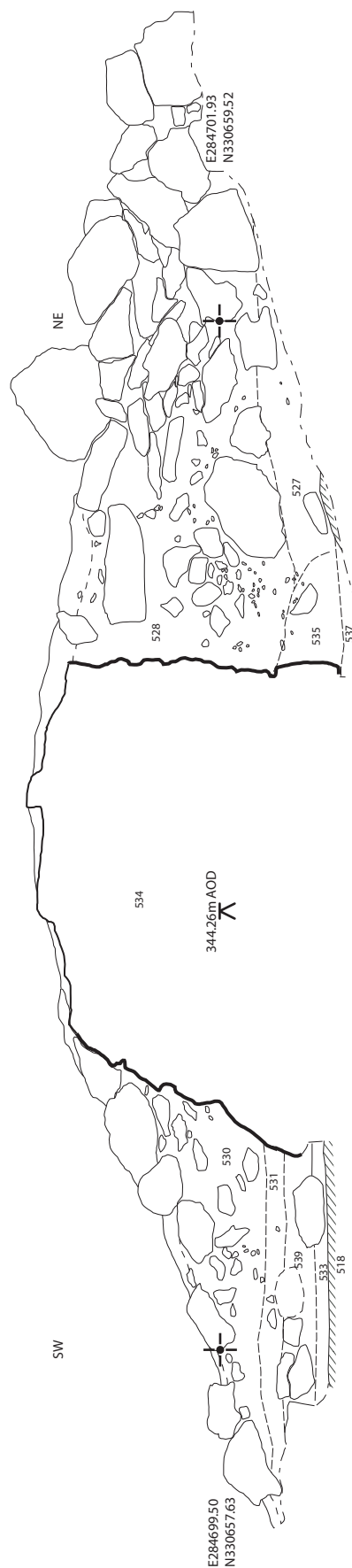


Fig. 22 Trench 2 SE facing section



Fig 23. Dark humic buried turf layer (533) running under outer face of keep on left-hand side of trench with unexcavated levelling layer (532) on the right



Fig 24. Stone levelling layer (536) running under inner face of keep wall

6.2.1 Bedrock and pre-construction levelling.

Bedrock was identified across much of the excavation but the keep wall was not generally built directly onto this. On the outside of the keep a thin (0.04m to 0.09m deep) dark grey humic layer (533) ran beneath the outer face of the wall (Fig 23). This was interpreted as a buried turf line. It contained occasional stones along the line of the wall which had probably been added as packing or levelling stones during construction. The bedrock (518) in the interior of the keep was very uneven with some detached pieces still *in situ*. The cracks and crevices were, in places, filled with dark humic material (537), again probably the remains of a turf layer. This ran under the inner face of the wall on the north-west side of the trench. Many of the larger hollows in the bedrock had been infilled with stones and gravelly soil (536). Stones in this layer ran under the inner face of the wall indicating that the hollows had been infilled prior to the construction of the wall (Fig. 24).

6.2.2 The Keep Wall.

The wall was found to be well-preserved, apart from one collapse in the inner face (Fig. 25), with the top of the surviving masonry at the current ground level. The outer face was standing to a height of 0.87m and was built to a 28 degree batter (Fig. 26). The masonry comprised irregular local stones with their flat sides laid to make a fairly level face. The facing was uncoursed with substantial voids between the larger stones that were packed with galetting. The remains of degraded mortar could



Fig.25 Inner face of keep and shattered bedrock/turf layer (518/537)

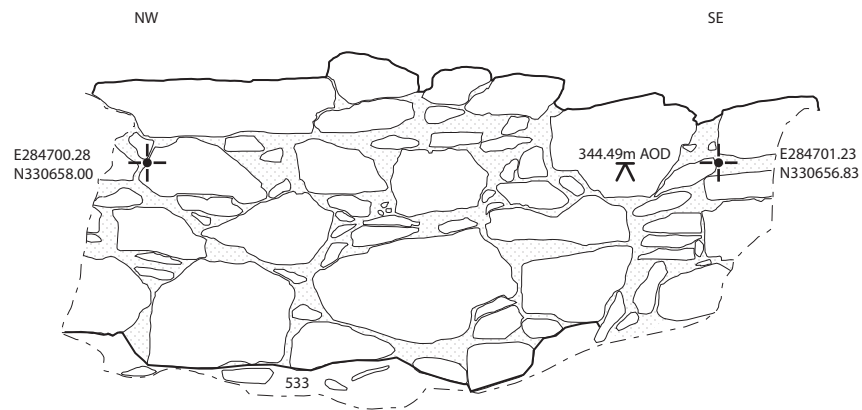


Fig. 26 Outer face of keep, SE facing elevation

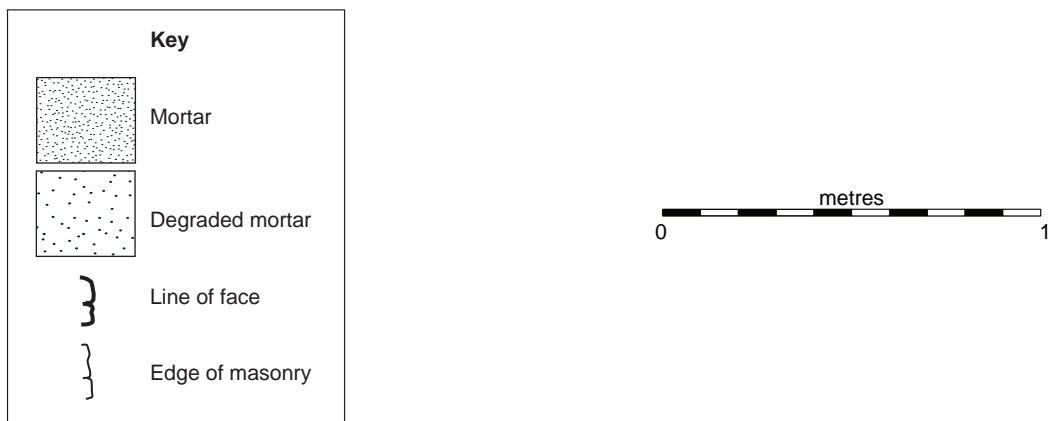


Fig. 27 Inner face of keep, NW facing elevation

be identified in the form of gravel but very little lime remained. The wall was 1.48m wide at the base and 1.10m wide at the top.

The inner face survived to a height of 0.8m and was vertical (Figs 25 ad 27). It had been built in a similar fashion to the outer face with uncoursed masonry of irregular stones. Mortar was well preserved in the lower third of the wall and as found to contain fragments of cockle shells. There was a small accumulation of hard mortar (535) overlying levelling layer 536, at the base of the wall, presumably dropped during construction.

There was a 0.45m wide collapse where the inner face had failed from the base. The stones in surviving wall to the north-west of this were reddened and in some cases fire-cracked (indicated in red on Fig. 27). There had clearly been an intense fire in the keep and this may have been the cause of the collapse. Many of the stones in the tumble in front of the wall were also heat affected on one face.

6.2.3 Post-construction levelling layers

A layer of redeposited natural glacial substrate, (Figs 21 to 23) along with a patch of flat stones in gravel, formed a variable but distinct level surface (532) that abutted the outer face of the keep. This was directly overlying the buried turf horizon 533. A 0.05m deep layer of clean gravel (531) overlaid



Fig. 28 Nuremberg jeton (2x life size)

the level surface. This could be interpreted as either being a laid gravel surface or the remains of mortar with the lime dissolved out dating from the initial weathering of the keep. A single find was retrieved from this context in the form of a Nuremberg Jeton (Fig.28).

The obverse showed a sailing ship in profile view, the reverse an imperial orb within a tressure of three arches and three angles. This is a somewhat unusual combination of two of the more common designs and may be an anonymous issue from 1525-50.

There was no surviving surface within the keep apart from the roughly levelled bedrock (536, see above)

6.2.4. Destruction horizon

A deposit of black gritty silt with a high charcoal content (527) overlaid the levelled bedrock and mortar deposits in the interior of the keep (Fig.29). The charcoal ranged from small flakes to pieces a few centimetres long. The deposit also contained frequent pieces of fire-cracked and shattered stone and a collection of iron nails (Fig. 30). This deposit along with the heat affected stones within the wall suggests that there had been an intense fire within the keep. The burnt material was beneath the main collapse horizons so it is likely that the structure was destroyed by fire, when it still retained

structural timbers as opposed to the fire being a result of later activity. The burnt horizon was sampled and processed and is being assessed for material that could be used for dating purposes. The larger pieces of charcoal are probably the remains of larger structural timbers and would therefore be



Fig. 29 Destruction horizon 527 in keep

unlikely to be of use for accurate dating of the structure. There may be more short-lived material such as grains or other occupation residues that could provide a date for the destruction or later use of the keep.

6.2.5 Collapse

The interior of the keep was filled with rubble and the degraded remnants of mortar. The latter comprised gravel with occasional pieces of partly calcined limestone and cockle shell at the surface with greater proportions of lime with depth. Many of the stones were strongly heat affected on one surface demonstrating that the fire had been extensive. The heat affected stones were distributed throughout the rubble and there were lenses of brown sandy clay that were probably the result of the formation of turf horizons between episodes of collapse. This shows that the majority of the masonry in the keep remained standing after the fire and the walls decayed naturally over a long period of time. The presence of the 16th century jeton in context 531 beneath the rubble outside the keep provides a *terminus post quem* for the main collapse. The smashed remains of what appeared to be a single brick were found in the rubble. The earliest use of post-Roman brick in Wales is thought to have been that by Sir Richard Clough in the construction of Plas Clough, Denbigh, in 1567 (Hankinson, Britnell and Silvester 2012, 10) so a medieval origin is unlikely. The brick did however resemble Roman examples from the auxiliary fort at Caer Gai, which stands 3km from the castle, and it is suggested that this was its origin.



Fig. 30 Iron nails from destruction layer 527

6.2.7 Trench 2 summary and discussion

The lower part of the keep wall, in the area under examination, was stable and well preserved up to a height of 0.87m with the top of the masonry at the current ground level. The keep had been built either on an old ground surface or on levelling layers that were a few centimetres above the bedrock. A levelled surface was identified immediately outside the wall but the interior appeared to have been roughly levelled at best. Here the bedrock was very uneven and outcrops in the south- east side of the keep can be seen to outcrop at the current ground level i.e. about 0.7m above the level in the excavation. It is therefore likely that the lower part of the keep had limited functionality and the main occupation level was close to the current ground level. The battered masonry is similar to the base of some of the towers found in other Castles of the Princes (e.g. Castell y Bere, Dobadarn and Dolwyddelan). The perpendicular wall of the keep would have extended upwards from this base. There is not a large amount of rubble around the keep suggesting that it was not a particularly substantial structure. The deposits in the interior and the heat affected masonry indicate that the timber components of the keep were destroyed by fire. The reddened stone close to the base of the wall indicates that the fire burnt through the floors as far as the foot of the tower. The masonry

remained standing; a 16th century jeton beneath the rubble and turf horizons in the collapsed masonry indicate that the masonry collapsed gradually over a long period of time. This is also supported by the earliest references to the castell as compiled in the Merioneth Inventory (RCAHMMW 1921, 140). The earliest mention of the name is roughly contemporary with the date of the jeton. This is dated 12 October 1522 and is an indenture of partition of inheritance between three sisters, one of whom is to have “the stone house, late her father’s, situate beside the place called ‘Kastell Karn Doghen,’ with its appurtenances as it lies there within a certain close.” Another sister is to have “a house beside a brook called Gwen ffrwd running from one part of ‘Kastell Karn Doghen,’ with its appurtenances in the mountains” (*Ancient Deeds*, C. 5233; *Calendar*, vol. vi). It is noted that “From this document it is impossible to draw any conclusion as to the history or condition of the castle, though it may perhaps be assumed from the reference that it was not then a ruin.” The evidence from the excavations supports this statement. In a second reference, also quoted in the Inventory, Robert Vaughan also mentions the castle in the mid 17th century “In the parish of Llannuwchlllyn upon the south bank of the river Lliw on a high craggy rock are seen the walls of an old castle called Castell Corn Dochan” (*Arch. Camb.*, 1850, III, 204). This and other references from around this date indicate that standing walls were visible, in contrast to the currently visible mound of stones. This again indicates a gradual deterioration. The presence of a post-medieval jeton on the site does not fit with any known history of the site. The most obvious potential post-medieval re-use of the site could have been during the Civil War. The prominent royalist Rowland Vaughan lived at Caer Gai which is about 3km to the east of Castell Carndochan. The house was burnt down by parliamentary troops in 1645 and it could be suggested that the upstanding remains of the castle would have provided a point of refuge. This putative reuse of the site would have occurred almost a hundred years after the manufacture of the jeton so further dating evidence would be required before the presence of the artefact could be interpreted as anything more than a casual loss.

7. DISCUSSION

7.1 Structural summary to date

The three seasons of excavation have identified the plan and some details of the features previously obscured by rubble in the southern part of the castle. The first season recovered half of the plan of a small half-round tower similar in shape and scale to the north-eastern tower at Dolforwyn Castle in Powys. Smaller towers with a distinctly D-shaped or half-round plan also occur at Caergwrle (Hope) and Castell Dinas Bran. These seem to have had a primarily military and lower status function with very restricted internal areas that are notably different to the hall-like accommodation afforded by the larger towers which are basically rectangular with an apsidal end (Avent 1983, 11 and Brodie 2015 238-40). Brodie argues that there was a move in building practice toward smaller towers although he does not include Carndochan in this sequence due to the lack of dating evidence. It seems likely that the small tower at Carndochan belongs to an earlier phase along with the curtain wall and possibly the square keep and predates the large apsidal tower. This phasing is, however, provisional and requires further confirmation. The wooden elements of the square keep were destroyed by fire but the masonry appears to have remained largely intact after this event. This suggests that the current poor condition of the castle is a result of natural decay as opposed to slighting in the medieval period.

The entrance appears to have been a somewhat asymmetrical barrel-vaulted passage through the curtain wall with a thickening to the inner face and a gate at the outer end. This probably led to a terraced path running obliquely across the slope.

8. REINSTATEMENT AND CONSOLIDATION

It was decided in consultation with Cadw, the Snowdonia National Park Authority, the land-owner and Mike Garner to consolidate the masonry around the entrance and leave it partially exposed. The area to the south-east of the large apsidal tower, containing the entrance and a small half-round tower, has proved to be crucial to the interpretation of the castle. It was decided that the retention of exposed features in this area would greatly enhance the understandability of the monument and also provide a safe entrance into the castle.

The conservation of the masonry was managed and arranged by John G. Roberts the Snowdonia National Park Archaeologist and funded by the Park and by a Cadw Ancient Monuments Grant. The works were carried out by Alwyn Ellis and his team from Stonewyrce Cyfyngedig using specifications prepared by Mike Garner. The majority of the exposed masonry was well-preserved although somewhat fragile due to loss of mortar in the upper facing. Facing had been lost in several small areas; the most serious collapse was in the central western wall of the entrance passage where the wall had failed at the base affecting both facing and parts of the core.

All exposed masonry was recorded photographically using a levelled camera with the sensor-plane parallel to the wall. These photographs were used as reference for the work. The original mortar was retained where it was still stable but it had been lost in all but the lower parts of the walls. Galetting stones were mostly still in place, even where the mortar had been lost, and the retention of these in their correct positions was seen to be a priority as they were one of the defining characteristics of the masonry style. The walls were repointed using lime mortar and the joints were left with a rough finish in order to blend in with the original masonry (Figs 31,32 and appendix). Collapses were rebuilt using the same style of masonry as the original and the edges of the new facing were marked with recessed pointing. In addition the stones around the edges of the new masonry were marked with 10mm diameter and 5-7mm-deep drill holes. It was decided to re-bury the lower part of the walls in order to make them less vulnerable to erosion and to create a level and safe surface for visitors. The outer end of the passage was carefully backfilled to just above the level of the top of the collapsed arch which was preserved *in situ*. This brought the level of backfilling to above the height of the extant facing on the outer corner of the west side of the entrance. One of the aims of the project was to provide an understandable and functional entrance so new masonry was added on top of the extant corner in order to define the outer end of the passage (Fig. 32). The backfilling and the path to the entrance used excavated material to provide a level surface (Fig. 32 and 33). Large stones were placed at the base and smaller stones were then packed in to provide a level and stable foundation. This was then covered with a mixture of gravel, mortar and other excavated deposits. This was not enough to completely fill all of the voids to the base of the backfilling but observations of re-excavated backfilled areas and rubble deposits had shown that the gravel packs tightly into the voids and provides a stable surface. It was estimated that about 30% of the excavated material (Hopewell 2015, 15) was gravel/degraded mortar. Not all the excavated stone was used in the backfilling process



Fig. 31 Trench 1 after conservation



Fig. 32 Entrance from outside showing buttress/rubble slope



Fig. 33 Entrance and path from SW

so a higher percentage of matrix was used in the production of the backfilled surface. It is anticipated that the area will eventually be colonised by vegetation which will further stabilise the surface.

One of the major concerns during the consolidation works was the difficulty of stabilising the steep rubble slope on the inside of the western side of the passage. The buried rubble was reasonably stable but vulnerable to erosion and was standing above the newly made path into the castle. During the excavation it was stabilised while the entrance was being cleared by the construction of a drystone buttress. This gave the impression of being part of the original masonry and would, particularly after it weathered, be misleading and hamper the interpretation of the site. The buttressing was, however, very effective at stabilising the slope. The area was stabilised by the removal of the temporary buttress and a small amount of additional rubble and building a new buttress set back by c. 0.5m. The top of the slope was also graded back slightly. The buttress was then buried with a carefully constructed slope of random stone. This gave the impression of a rubble slope but was stable (Fig. 32).

The wall tops were covered with biodegradable mats and soil in order to encourage regrowth of vegetation. Photographs of elevations of the masonry, both before and after conservation, are included in appendix 1 (Figs 35 to 48)

9. RECOMMENDATIONS FOR FURTHER WORK

The proposed works in 2017-18 will aim to complete the two main strands of investigation, presentation and consolidation of the site that have been the focus of the project to date.

9.1. Completion of excavation and consolidation to the east of the apsidal tower

The area to the east of the apsidal tower was previously visible as a featureless area of rubble. Excavation has shown that it contained the entrance to the castle and a small half round tower. The entrance has been excavated and the consolidated masonry left partially exposed. The half-round tower was partly excavated in 2014-15 but was backfilled and no stratified deposits were disturbed.

It is proposed that the tower should be fully excavated and consolidated following the methodology used around the entrance in 2016-17. This will complete the excavation of the area around the entrance which will provide a focus and interpretative area for visitors to the site. This area also has a high potential for the recovery of datable material and information about the phasing of the site and structural development of the defences. The relationship between the curtain wall to the west and the tower was not fully resolved in the excavation. This was highlighted by Brodie (2015, 236) who suggested that it could have been an insertion into the curtain during the reign of Llywelyn ap Gruffudd. The excavated remains will be consolidated at the end of the season's work. This work would be carried out in partnership with Snowdonia National Park Authority. As in previous years it is anticipated that the SNPA will, working with Cadw, GAT and a conservation architect, arrange the consolidation works. This would entail re-pointing the areas of exposed masonry with lime mortar where the original mortar has failed and reinstating any minor collapses. It is also anticipated that all original ground surfaces should be covered with a 0.2m deep layer of reinstated rubble and gravel.

9.2. Overall site assessment

The areas of rubble clearance and small-scale excavation have produced a considerable amount of information about the preservation of the site. Cathcart King and Kenyon had suggested that there were no significant remains beneath the rubble but the project has demonstrated that this is not the case. The information recovered is allowing conservation and management strategies to be developed and is also providing valuable information about the structure and phasing of the castle. It is proposed that further small assessment excavations should be carried out in order to answer specific questions about the deposits within the monument. These will adopt the minimalist approach that has been used to date and will be restricted to clearance of rubble and overburden unless further excavation is essential to the interpretation of the archaeology. All excavations will be fully reinstated. The following investigations are proposed.

Trench a) A small trench/area of clearance investigating the relationship between the masonry of the round tower and the curtain wall at the north-east of the site. The level of preservation is unknown in this area which has been disturbed in the recent past in order to build a dry-stone shelter. The existence of a tower has also been questioned, Hogg noted that there was very little rubble in this area and it could be suggested that the "tower" is merely a continuation of the curtain wall that follows the natural break of slope around the narrow end of the hilltop.

Trench b) An investigation of the relationship between the curtain wall and large apsidal tower at the south-west of the site. This would ideally investigate the wall between the entrance and the tower. The top of the wall uncovered in the 2016 excavation is just below current ground level but its level of preservation and method of joining the tower are unknown. There is only limited scope for clearance here and an alternative or additional are of clearance could be carried out at the junction with the curtain wall at the north of the tower (trench b1)

Trench c) An investigation of the feature (PRN 4978) to the west of the castle, variously described as a mineshaft, the castle well, a sheepfold and a robbed-out cairn. This is outside the scheduled area and is currently visible as a partially overgrown, circular, slightly sunken, stone feature. Clearance of random surface stone may be able to ascertain if there is any surviving structure to the feature.

Trench d) A careful examination of a sample of fallen rubble within the large apsidal tower. Preliminary observations during the clearance during the conservation works suggested that the mortar did not contain shells showing that it came from a different source to elsewhere in the castle and therefore suggesting that it belongs to a different phase of construction. A more detailed and careful study of the mortar is required before this can be confirmed.

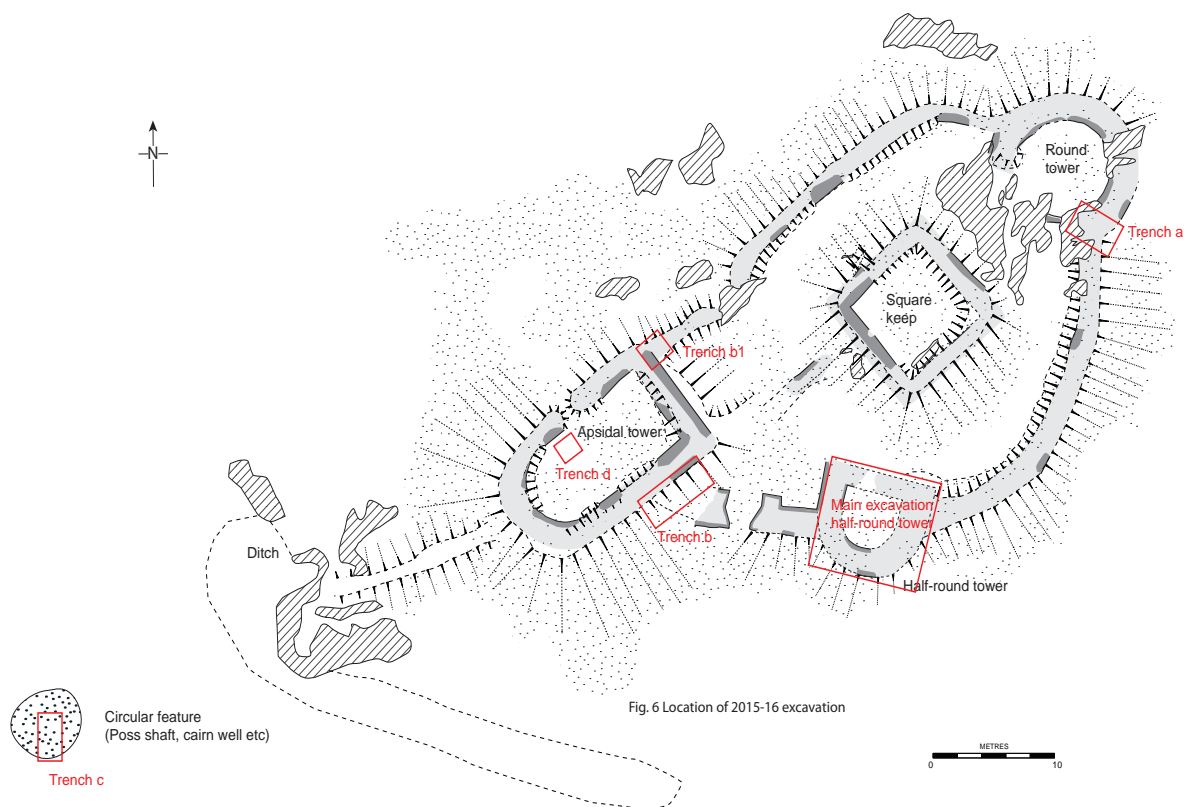


Fig. 34 Proposed further work

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APPENDIX

Photographic elevations, before and after conservation



Fig. 35 Wall 508 before conservation.
Outer face of half-round tower



Fig. 36 Wall 508 after conservation.
Outer face of half-round tower



Fig. 37 Wall 507 before conservation.
Inner face of curtain wall



Fig. 38 Wall 507 after conservation.
Inner face of curtain wall



Fig. 39 Wall 517, E facing, before conservation.
Curtain wall thickening



Fig. 40 Wall 517, E facing, after conservation.
Curtain wall thickening



Fig. 41 Wall 517, E facing, before conservation.
Curtain wall thickening



Fig. 42 Wall 517, E facing, after conservation.
Curtain wall thickening



Fig. 43 Wall 506/504 before conservation.
Eastern passage wall



Fig. 44 Wall 506/504 after conservation.
Eastern passage wall



Fig. 45 Wall 529/504 before conservation.
Western passage wall



Fig. 46 Wall 529/504 after conservation
Western passage wall. N end part buried; stone A marked as common
reference point in Fig.53



Fig. 47 Wall 529 before conservation.
Outer face curtain wall



Fig. 48 Wall 529 after conservation.
Outer face curtain wall. No original facing visible at this level



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