DRUM CASTLE

TOWER OF DRUM MAJOR REPAIRS PROJECT

DRUMOAK

ABERDEENSHIRE

Archaeological Excavation

Carried out May-June 2014

by

Murray Archaeological Services Ltd

Report No: MAS 2014-07

by

H K Murray and J C Murray

H K Murray BA, PhD, MIFA, FSA Scot
J C Murray BA, MIFA, FSA Scot, FMA
Hill of Belnagoak, Methlick, Ellon, Aberdeenshire AB41 7JN
Telephone: (01651) 806394 e-mail: cmurray@btinternet.com

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-Archaeological excavation -

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1. Background

1.1 The archaeological excavation was part of a major conservation project undertaken by the National Trust for Scotland in 2013-2014. The work on the 14th-century tower included re-pointing, or replacement of the mortar, using traditional, lime-based materials. This revealed blocked openings which indicated the position of earlier doorways, stairs and windows. Differences in the mortar suggested where buildings, since demolished, may once have abutted the tower. A detailed survey of the building and its historical documentation has been undertaken by Jonathon Clark (FAS Ltd) to begin to outline the changes to both the tower and the other buildings that formed part of the castle. Tree-ring analysis by Anne Crone (AOC Ltd) has dated re-used roof timbers to the early 15th century, giving a construction date for some of the lost buildings relating to earlier phases in the development of the castle.

1.2 Geophysical survey of the ground around the tower by Rose Geophysics (Ovenden, 2014) has been used to try and trace the plan of former buildings and other structures associated with the tower.

1.3 Murray Archaeological Services Ltd was commissioned by the National Trust for Scotland to undertake a series of excavations based on the results of both the geophysical survey and the standing building survey of the tower.

1.4 The excavations were undertaken between 10th May and 6th June 2014.

2. The Site

2.1 The site was focussed in three areas around the base of the tower at Drum Castle, Drumoak, Aberdeenshire.

Parish: Drumoak

NGR NJ 7962 0050

NMRS No: NJ70SE 4.00

3 Methodology

3.1 Topsoil, the gravel and tarmac yard surfaces were removed by mechanical digger. All further excavation was undertaken by hand.

3.2 All features were planned, photographed (Appendix 1) and recorded (Appendix 2).

4 The Excavation

The excavation focussed on three areas around the tower:

Area 1: In the NE corner of the courtyard to the W of the tower. The aim of this area was to identify and excavate the presumed cess pit related to the garderobes in the NW side of the tower.

Area 2: To the N of the tower, in the angle between the tower and the Brewhouse. The aim of this area was to reveal any surviving foundations of a building thought to have abutted the Brewhouse on this side. An early 19th-century engraving indicates a possible building here which does not appear on subsequent depictions, suggesting that it was demolished in the mid 19th century. A corbel in the face of the tower had also been interpreted as a possible roof support for the building (Clark, 2011, 29: F11).

Area 3: To the S of the tower, in the gravelled area between the tower and the Cross Wing. Differences in the mortar on the S face of the tower and a number of internal details (Clark, 2011, 34, fig 6) had been interpreted as indicating the former presence of a building, possibly a hall, abutting the tower on this side prior to it demolition when the Cross Range was built in c. 1615-20. It was hoped that excavation might reveal the plan

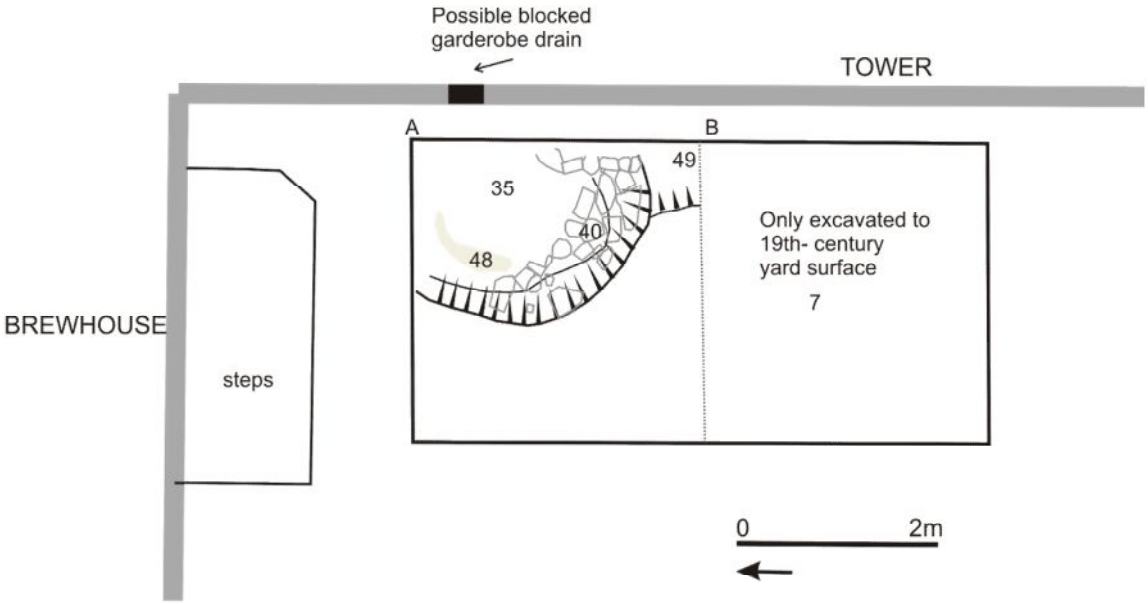
of this possible building. There was also some possibility of additional information regarding the earlier form and position of the stair to the tower.

Area 1

Dimensions: 5.8m N/S by 3m E/W

Geophysical survey

The geophysical survey of this area showed possible structural remains within the S part of Area 1 at 0.25-0.50m depth (D: Ovenden, 2014, 4.1.4, fig 21). At 1-1.25m there were curvilinear trends (H: Ovenden, 2014, 4.1.11, fig 27) in the NE part of Area 1 where the cess pit was excavated.



Illus 1 Plan of Area 1

Earlier yard surface

The existing tarmac, replaced in November 2014, which was c.80mm thick over c. 20mm gritty sub-base, was laid in 1947.

When the tarmac and sub-base of the existing yard surface was removed, it rapidly became clear that the geophysical anomaly encountered at 0.25-0.50m depth on the GPR plots (Ovenden, 2014, figs 20-21) was derived from a very hard earlier yard surface directly below the tarmac (7). As a result no further excavation was undertaken on the S 3m of the Area. This yard surface was an extremely hard compact yellow clay matrix incorporating numerous small angular stones. In places where it had been more eroded, for example in puddles, the stones were more prominent but it was not in any sense a cobbled surface. A small patch of burning, 1.2 x 0.7m (3), with numerous unidentifiable

iron fragments in it, lay on the yard surface and may have been incidental or deliberate small scale burning of rubbish on the yard surface.

This earlier yard surface was c 100mm thick and lay 100-120mm below the surface of the tarmac. It can probably be identified as a pale sandy-coloured surface visible on 1920s photographs of the courtyard (pers. comm. Alison Burke). There was no positive evidence to suggest when it was laid, but it is assumed to be of 19th-century date with only 3 sherds of 19th/20th C china from the layer directly below (16, 30).

This yard surface had been cut by a drain (18) running ENE/WSW across the N end of the area; it had been cut through 17 and across the top of the pit fills. The W end of the drain had been destroyed but at the E end it retained stone sides and stone caps with a base of red tiles set in 20mm sticky clay. This appeared to be heading towards the down-pipe in the corner of the Brewhouse. The cut was 750mm wide.

Disturbance along the extreme N end of the Area incorporated gritty brown earth (20) which appeared to cut the edge of the drain; this was overlain by orange gravel below the tarmac – none of the earlier yard surface (7) surviving in this area. This has most likely been caused by a later replacement drain to the down-pipe although one photograph dated to 1942 (www.scran.ac.uk/000-000-596-048-R) shows what may be a garden border/shrub- or possibly low plant such as periwinkle growing on the surface in this position.

Another later cut (49) c. 400mm wide in the excavated area and 1.05m wide if it extended from the face of the tower wall, extended alongside the wall of the tower and had cut through all layers below the tarmac. It is probable that this was related to an earlier examination of the base of the tower wall; the backfill (49/1) was a mixture of the layers it had cut through having been redeposited back into the Area.

After the excavation, a watching brief in the courtyard in November 2014 showed that this 19th -century yard surface survived in patches elsewhere in the courtyard (Appendix 6).

Illus 2 Area 1 looking S. 19th-century yard surface (7). Cut 49 visible as darker band along LHS.

Below the 19th century yard surface

Below the 19th century surfacing there was a series of layers which extended over most of the excavated area and may be regarded as informal yard surfaces reflecting activity around the yard including episodes of building and demolition and spreads of domestic rubbish. Many of these layers extended over and sunk into an earlier pit (35) where they have been given different numbers. A grey gritty layer (16, 21), c. 120mm thick, with fragments of bone, flower pot and two sherds of 19th /E 20th C china lay over a layer (17) of what appeared to be patches of redeposited natural clay mixed with some stone in a grey gritty matrix. Layer 17 (=30 in pit), which was 100-120mm thick, contained large quantities of animal bone suggesting general dumping of domestic waste. Below this, layer 32 (=34 in pit), which contained slate, mortar and small stones in a grey gritty matrix, extended over most of the Area, with a concentration of mortar towards the N end of the Area possibly indicating that it was related to the building or subsequent re-structuring of the Brewhouse. Below this, 47, another grey gritty layer, c.80mm thick with occasional charcoal but lacking the building associated debris of 32, lay above natural- this can probably be interpreted as the original topsoil.

Cess pit

The cess pit (35) associated with the garderobes on the tower was probably cut from layer 47 but due to the later disturbance of the pit edge this was unclear. The pit was directly in line with the uppermost garderobe. It was assumed that an outlet from the lower garderobes ran through the wall thickness to an outlet into the pit; unfortunately the outlet could not be revealed during the excavation without extending the Area to the face of the tower wall which would potentially have damaged the new harling. However, when the yard levels were reduced in advance of laying new tarmac in November 2014, a blocking was recorded directly below the small window of the lowest garderobe (Appendix 6).

As excavated the upper external diameter of the pit was 1.8m E/W by 2.4m N/S; assuming the pit extended to near the wall face, the original outer top diameter would have been c 2.4-2.5m. The internal diameter was c 1.5m and the depth c 1m cut into yellow natural clay. The natural at the base of the pit had been loosened, probably by earlier cleaning out of the pit contents (39).

Illus 3 Area 1. Cess pit fully excavated. Looking S

Sadly the original pit appears to have been regularly emptied with only patchy traces of possible original fill (38) remaining as a light fawn residue with a maximum thickness of 200mm at the base and part of the side of the pit. Environmental analysis of a bulk

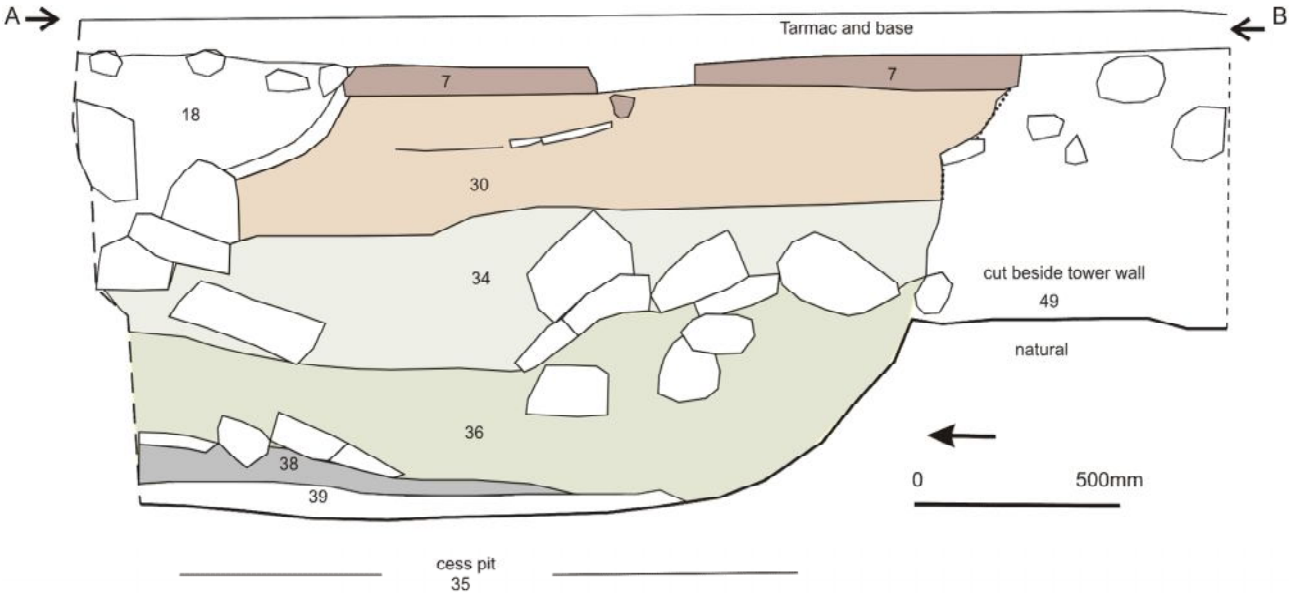
sample from this layer was disappointing as it indicated traces of general domestic waste such as charcoal, burnt grains and bone fragments- rather than human excrement (Sample 01. See Environmental Analysis: Timpany below). This was partly overlaid by a large lump of clean natural (48) that appeared to have sheared off the W face of the pit during use or cleaning. The main secondary fill (36), which overlay both 48 and 38, was a grey gritty wettish soil with charcoal fragments. This may also have been domestic waste used to fill in the pit when it was no longer used for the garderobes.

Above and partially sunken into 36 there were a number of large field stones (40), many focusing around the edges of the pit but not structured. These seem to have been tipped in from the sides directly before the deposition of another grey gritty layer which contained large amounts of mortar (34) – this being part of the general yard layer (32) sunken in over the earlier pit fills as they compacted. It can be postulated that the stones (40) may originally have formed a kerb around the top of the pit; they were not a lining.

Illus 4 Area 1. Cess pit partially excavated showing stones (40) in edge fill. Looking S.

It would appear the kerb was pushed in as part of a final leveling of this part of the yard at a time when building work was being undertaken. Five sherds of 14th-15th century pottery from contexts 34 and 40 showed little sign of re-deposition wear and suggest that this deliberate sealing of the pit occurred in the 14th or 15th century.

Subsequent 'fill' in the pit (30) comprised another grey gritty layer with stones which incorporated some animal bone and a fragment of 19th C china; this was a continuation of general layers 16 and 17, sunken into the dip of the pit as underlying layers compacted.



Illus 5 Section of cess pit 35

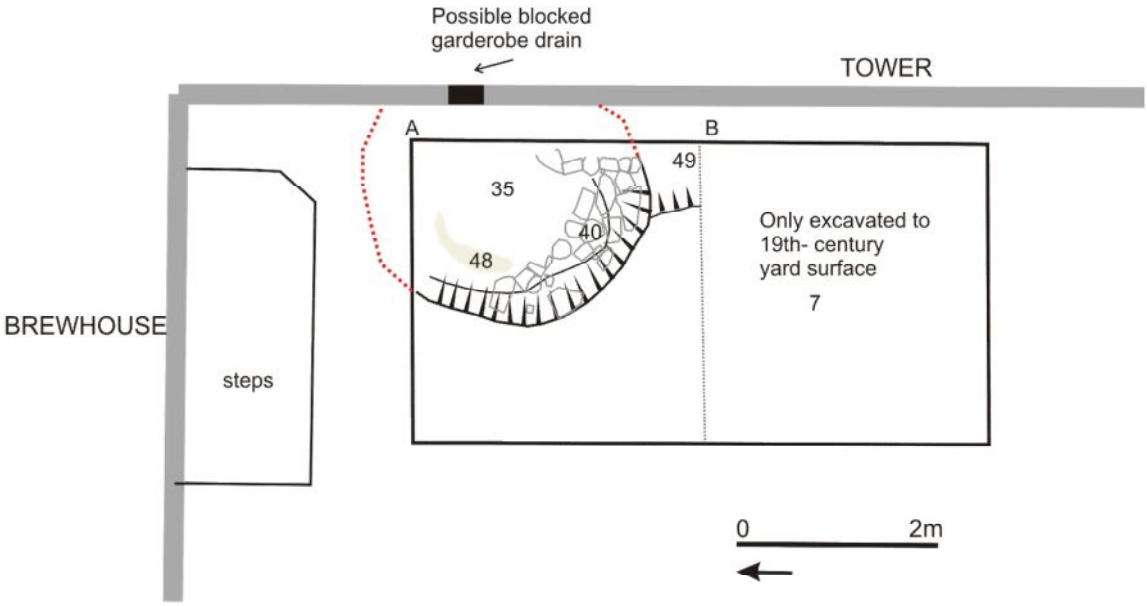
Illus 6 Area 1. Section of cess pit

Discussion of Area 1

The cess pit is identified as such by its position in relation to the garderobes in the tower as the original contents had been cleaned out and no human excrement was identified. The analysis of the bulk sample from context 38 suggests that after use as a cess pit it was initially used for disposal of general domestic waste prior to being filled in. It can be assumed to have been dug around the time that the tower was constructed in the late 13th or 14th century (Clark, 2011, 11). The deliberate infilling of the pit with stones from the kerb in a matrix incorporating mortar and slate fragments in a general spread over the N part of the site can reasonably be interpreted as associated with the construction of the Brewhouse. The five 14th/15th century sherds from these contexts suggest a 15th century date.

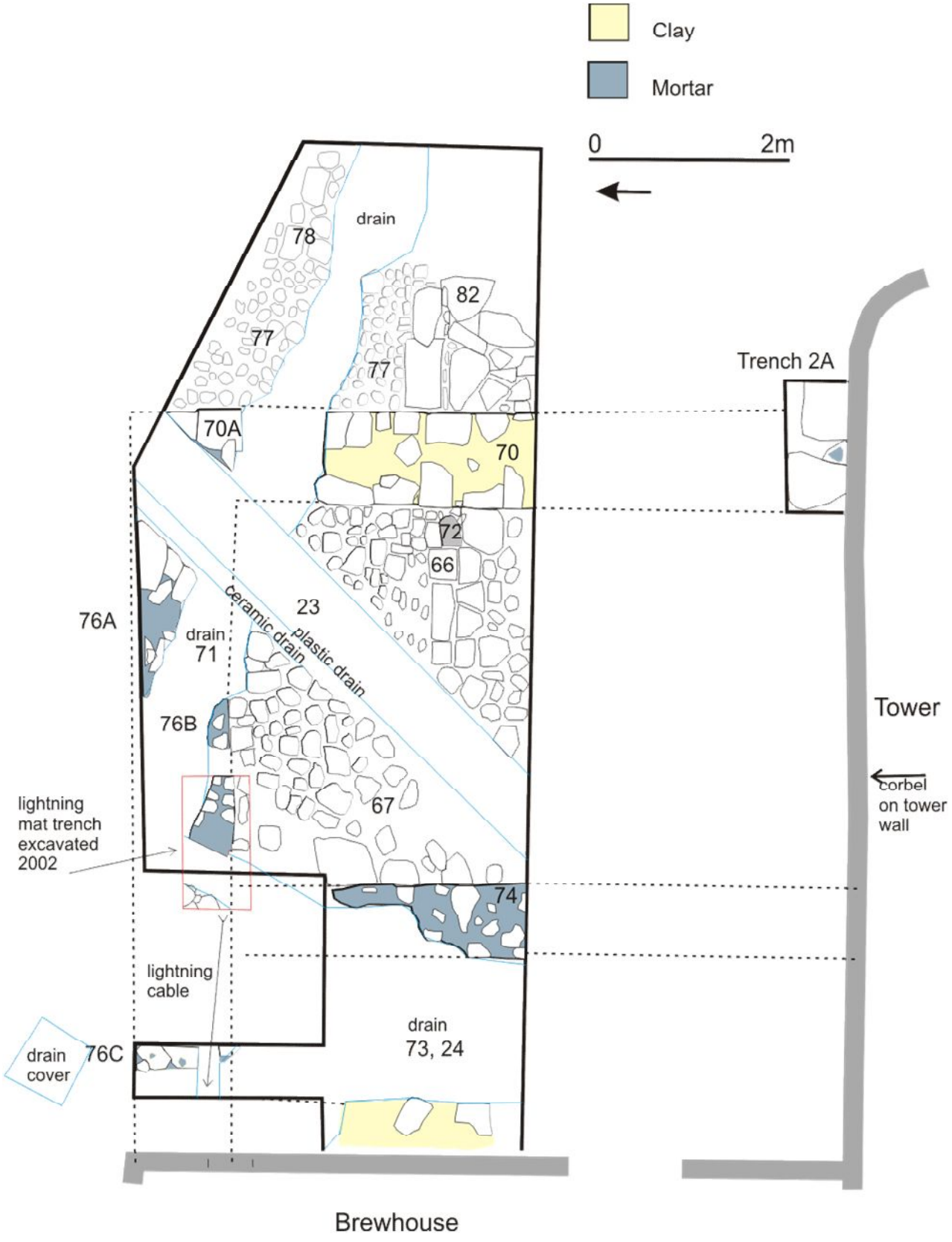
Illus 7 View of W wall of tower with garderobe at NW/ Ranging rods mark position of cess pit in Area 1.

Illus 8 View of pit in Area 1 through hole of garderobe



Illus 9 Area 1. Reconstructed plan of cess pit

Area 2



Illus 10 Area 2 showing drains

Geophysical survey

The resistivity survey of this area showed anomalies that probably reflect the excavated rubble, which effectively masked any detail of the wall lines (Ovenden, 2014, 3.2.6, fig 4, 12).

Dimensions 2-4m N/S by 10m E/W

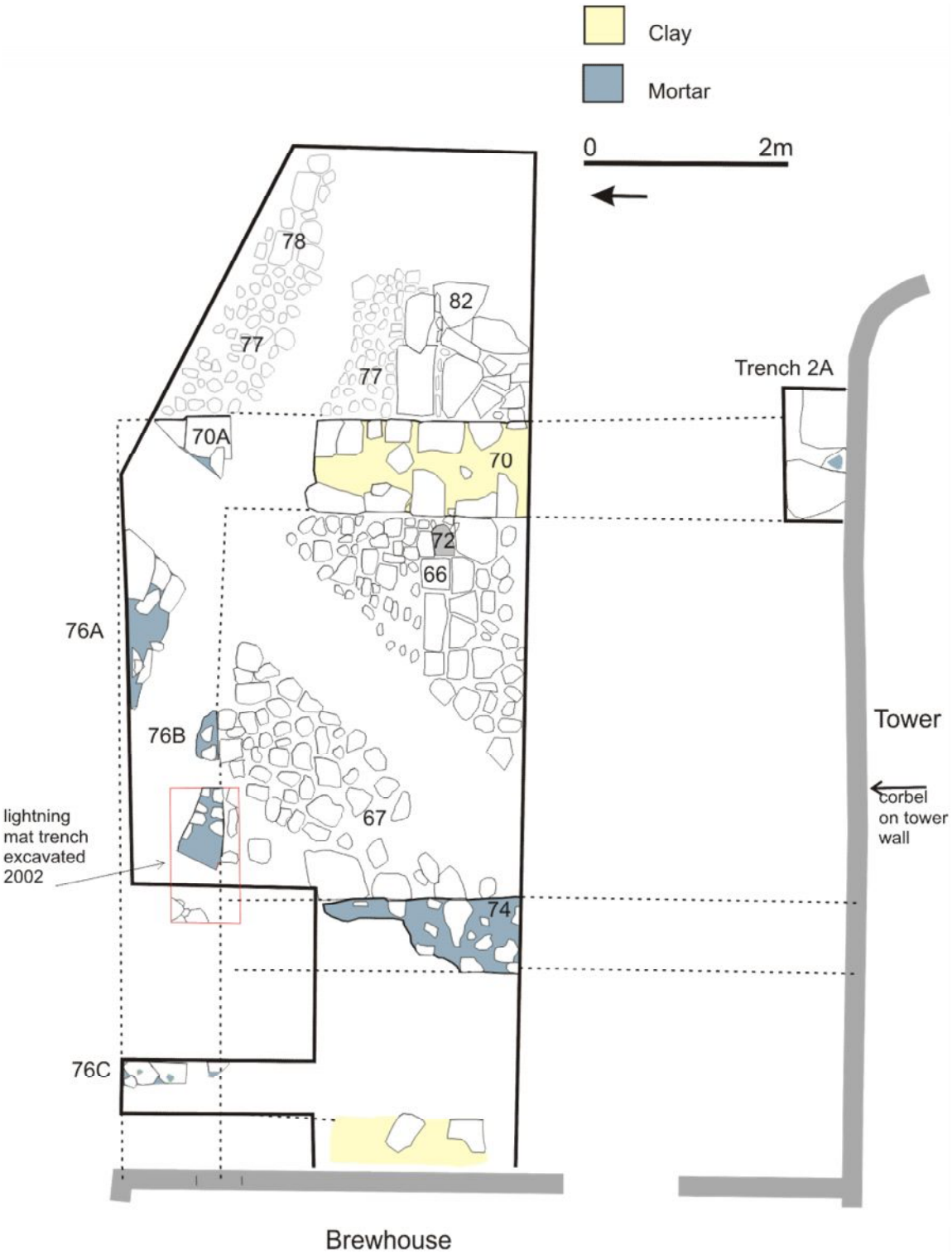
When the topsoil was removed, Area 2 was revealed as a large area of unstructured rubble cut by three modern drains (24=73, 23, 71) and a lightning mat (Murray 2002).

The rubble covered all of Area 2 (illus 11) and overlay the floors and wall foundations of an earlier, destroyed, building. Most of the area was 'inside' the building, with only some 2.5m at the E end of the area being 'outside' the building. Directly over the internal floor, which was partly burnt (see below), there was a thin layer (68), 2-3mm deep, of burnt material with tiny laminated slate fragments and frequent nails or nail fragments. Externally, there were some burnt fragments in a layer, 8mm deep, with slate and mortar fragments (80). Both internally (65) and externally (79) this burnt horizon was sealed by grey gritty silt with mortar and slate fragments through it. The rubble of small to medium sized angular stones (22, 26) and spreads of gritty clay and stones (10) lay over these earlier horizons and together all these layers can be interpreted as stages in the demolition process. There was a total depth of between c.300 and 500mm of debris, which had been used to level up within the foundations of the building to provide a relatively level surface for the grass.

Illus 11 Area 2 from the Tower, showing rubble spread

Illus 12 Area 2 from the Tower, after excavation of rubble

The building itself appears to have been almost square in plan with its slightly longer axis running E/W; being 7.4m E/W and c.7.1m N/S externally and 6.5m x 6.2m internally. It abutted both the N wall of the tower and the E wall of the Brewhouse.



Illus 13 Area 2. Plan without modern drains

Illus 14 Area 2. Detail of building

The E wall (70: illus 15) was of field stone bonded with gritty yellow clay, it was level with the internal floor but on the outside, where the ground was lower it survived to 2 courses and c260mm in height. A small additional Area (2A: illus 16) was excavated in line with this wall adjacent to the N wall of the tower. This revealed two large boulders and some smaller stones with traces of mortar between them, abutting the base of the tower wall. This can be regarded as the continuation of the E wall of the building and was sealed by 200-300mm of small rubble and grey gritty silt which equate to demolition layers 65, 79, 22 and 26 in the main Area. The N end of this E wall had been cut by two modern drains (illus 10) but the line is continued by a block of surviving masonry between the two drains (70A), which appears to include part of the internal corner with the N wall. Unlike the central part of the E wall, this fragment and the rest of the E wall were bonded with a white gritty mortar rather than clay. The N wall had been largely removed by drains 71 and 23 but was identified in three areas (76A, B, C); it was also identified in 2002 when the lightning mat was put in here and this section of the wall has been traced and added to the present plan. Both it and wall fragment 76B give an inner face up to the edge of the internal cobbled floor. The outer edge was not identified but the N wall was at least 850mm wide. The W end of the N wall was excavated to within 900mm of the Brewhouse wall and it is assumed that it abutted it,

but this can not be proven as the area is disturbed by the drains associated with the down-pipe at this point.

Illus 15 Area 2. Outer face of E wall (70)

Illus 16 Area 2A. Wall 70 beside Tower, looking S

Illus 17 Area 2. Detail of internal wall (74) looking S

Internally the building was divided into two rooms by wall 74 (illus 17), a mortar bonded stone wall 660mm wide, surviving to a height of 250mm above the internal floor. The W room, which was 2.05m wide, had been almost totally destroyed by the cutting and re-cutting of drains; only a linear patch of clay may be a relict of an original floor. The E room, which was 3.7m wide, retained much of its original floor (67) of flattish angular stones (average 100 x 150mm to 250 x 300mm but with some larger stones) set in a clay base.

In the NW corner of the room the tops of the stones had been burnt black and red and some were heat crazed (illus 22); in one area where a couple of stones were lifted, the heat had been sufficiently intense to burn the clay beneath the stones red. A distinct area of the flooring (66), formed a rectilinear setting against the inner face of the E wall (illus 18). It was formed of larger stones (c. 280 x 300mm to 200 x 550mm) and was c.50mm higher than the rest of the flooring (67). It measured c.1.5m E/W and c. 1m width was in the excavated area. If this had been a square setting at 1.5m it would have been exactly central along the inner face of the N wall. A small rectangular slot (72: 200 x 300mm, Depth: 390mm) in the NE corner of paving 66 may have been nothing more than the socket of a removed stone or could have held an upright stone or timber; it was filled with demolition rubble 65.

Outside the E end of the building there was a band of paving of small wear-worn cobbles (77: c.50 x 50mm to 200 x 200mm) some 1.4m wide between the outside of the building and a surface of larger, not so smooth stones (78). The cobbles were bordered to the S by a roughly square setting of large natural boulders set in thick clay (82). This was built on a thin layer of the original topsoil above natural. It should be noted that the position of this external feature coincided with the position of the square setting on the inside of the building.

Illus 18 Area 2. Detail of paving 66 to LHS of wall and stone setting 82 to RHS of wall. Looking N

Discussion of Area 2

Although very disturbed by the later drains, significant detail has survived of a building between the Tower and the Brewhouse. The standing building analysis (Clark, 2011, 29: F11) has argued that a corbel on the N wall of the tower at 3.7m above existing ground level (2014 level- so some 4m above the internal floor of the excavated building) may have supported a midpoint of the S side of the roof of such a building; this appears to be almost exactly at the midpoint in a line between the centre of the E wall of the building and the outer (E) face of the Brewhouse wall (illus 20). The excavation additionally proved that the E wall of the building had abutted the Tower wall. The standing building

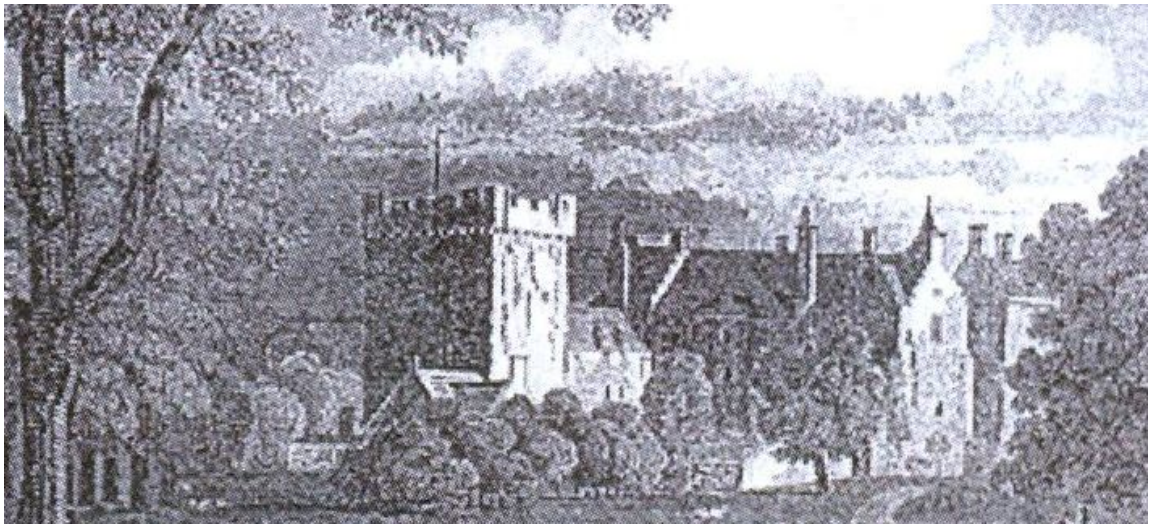
analysis also argued (Clark, 2011, 52, fig 17) that the blocked arch in the E wall of the Brewhouse (illus 19) represents an earlier door opening into a 'lost' building.

Illus 19 Area 2 looking W. Building in relation to Brewhouse. Red arrow marks arch. Vertical ranging rod marks the possible hearth

Illus 20 Area 2 looking S. Building in relation to Tower. Red circle around corbel. Vertical ranging rods mark the E and W ends of the excavated building.

Documentary evidence for the building is scant and its identification with a 'winehouse' can only be regarded as tentative (Clark, 2011, 20). It has been suggested that an

engraving by S Lacey dated 1831 shows this building (illus 21). It does not appear on the oil painting by Anna Forbes Irvine dated to the 1850s (illus 35). The present authors would argue that what is depicted on the 1831 engraving is, at the most, the building as a roofless shell. While the proportions of most of the castle buildings are fairly good, the top line of the possible building is shown as lower than the base of the Brewhouse roof. If the corbel on the Tower is accepted as the base line of the roof support of the building it can be estimated that the ridge line for a slate roof should have been something in the range of 6-7m above contemporary ground level – or roughly halfway up the line of the Brewhouse roof.



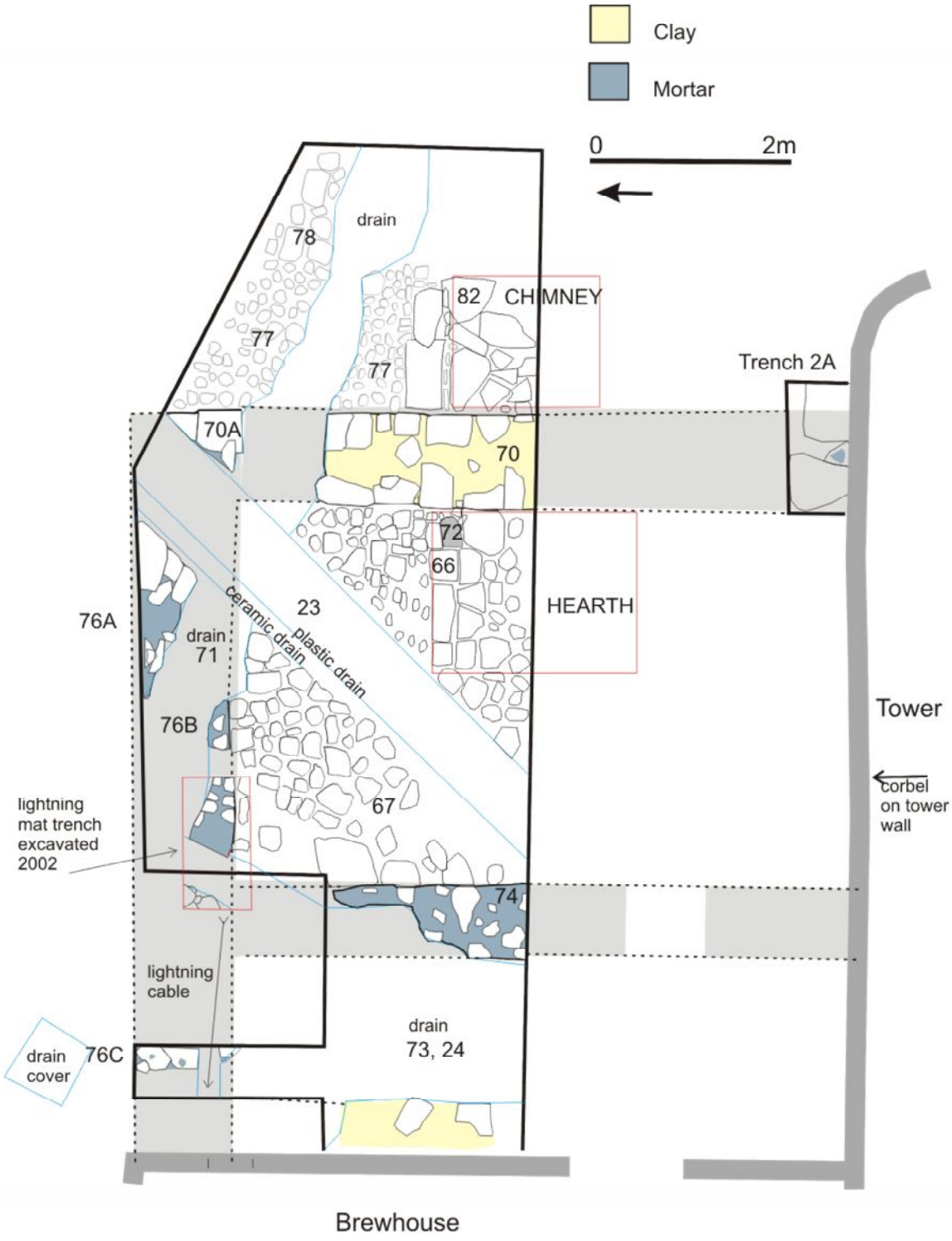
Illus 21 Detail of engraving by S Lacey dated 1831

It is possible therefore that the building was a roofless ruin by 1831 and was cleared away by the 1850s prior to the later 19th century building works. Examination of the sequence of demolition layers within and outside the E end of the building suggests that, prior to its final demolition and leveling and the removal of re-usable stone (rubble 22, 26,10), there had been a period when a substantial layer of grey gritty silt with mortar and slate fragments (65, 79) accumulated. This can convincingly be interpreted as the accumulation derived from slow processes of dereliction within a roofless ruin – possibly over many years. In this context the burnt layers (68, 80) may well represent a roof fire which resulted in the deposition of laminated sherds of burnt slate and slate nails – and probably in the severe fire damage on the flooring in the NW corner of the E room.

Illus 22 Area 2. Detail of burnt paving in foreground

The construction of the building may be contemporary to the construction of the Brewhouse or soon thereafter. Finds from the floor within the building include 16th century pottery from among the paving stones.

The excavated results also give a tantalising suggestion about the function of this building. The square setting against the inside of the E wall (66) can be interpreted as the base for a hearth with the external setting (82) supporting an external chimney (illus 23). Medieval brewing needed a number of structures: among them a kiln to dry the sprouted grain and a furnace over which the vat containing the final product was brewed – both potentially using the same heat source (Hagen 1995). The interior of the surviving Brewhouse, albeit much restructured, does not contain evidence of any large fireplace or kiln. Could the excavated building, therefore, be the actual brewing room of the Brewhouse?



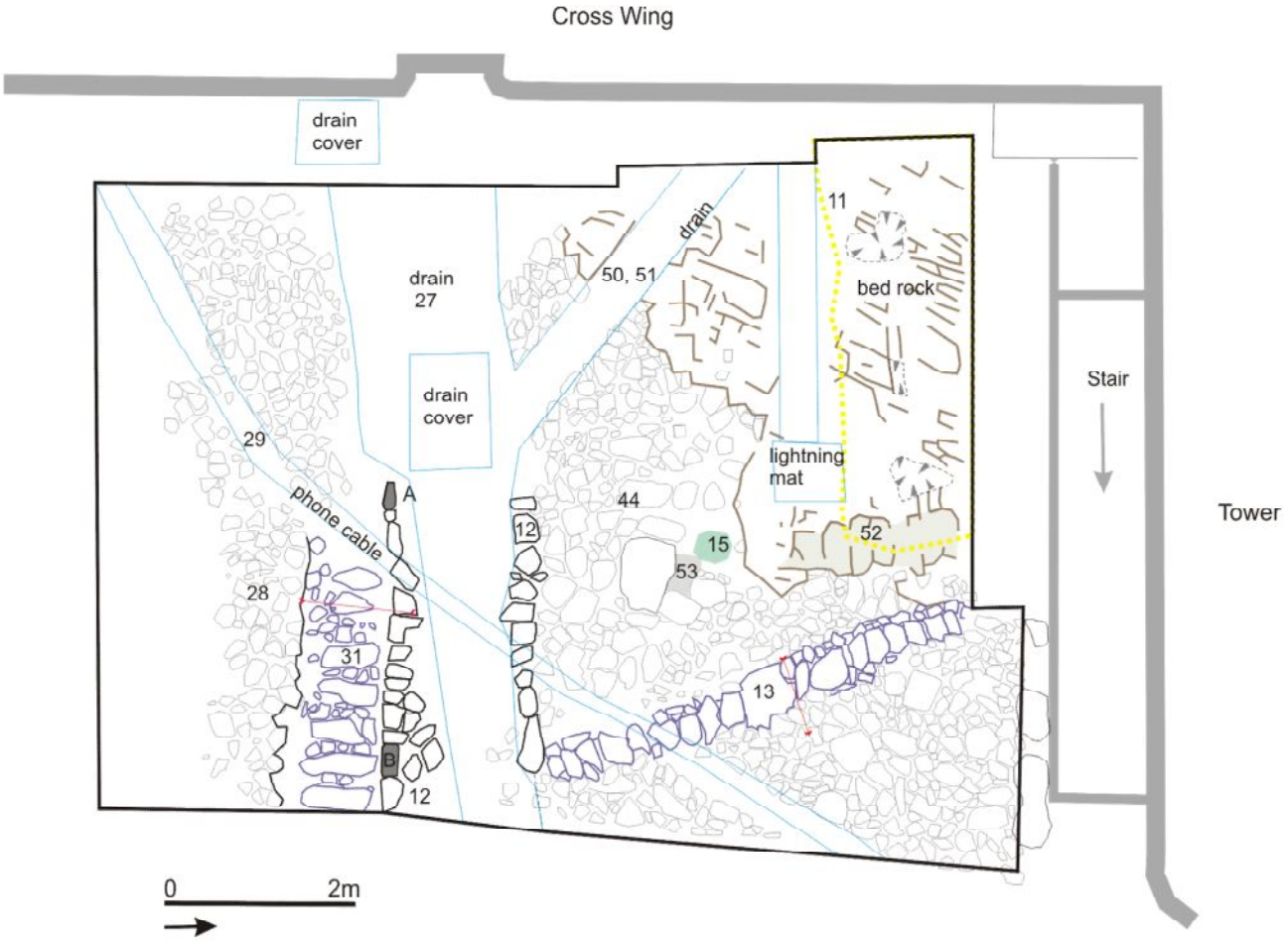
Illus 23 Area 2 with possible interpretation

Area 3

Geophysical survey

The GPR survey of this area showed a consistent E/W linear anomaly considered to be the V-sectioned drain revealed in the excavation, with other anomalies attributed to the path and general stone surfaces around it (Ovenden, 2014, 4.3.3, figs 21,23, 25, 27).

Dimensions 10m N/S x 6-7m E/W

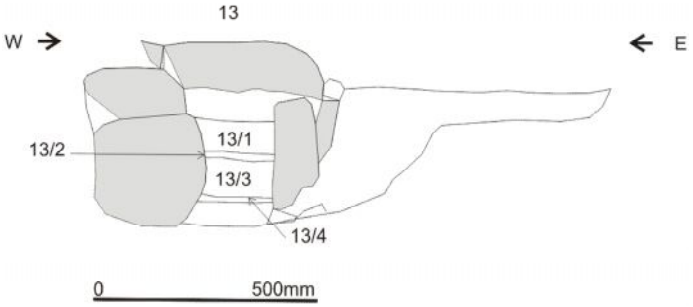


Illus 24 Area 3. Plan showing modern services in relation to the earlier features (Yellow line shows the main concentration of mortar) Dressed stones 12A, 12B shaded.

Before excavation this area was covered by gravel over a red sandy sub-base c.40mm thick, the removal of which `revealed the area to be cut by service trenches. A wide modern drain (27) cut ran E/W across the site from the drain to the S of the door into the Cross Range, joined at a Y-junction at a concrete drain cover by another drain cut (50, 51) from the downpipe to the N of the door. Additional modern intrusions were a telephone cable cut (29) running NE/SW from below the window S of the Cross Range door, a lightning mat and associated cable track running E/W from the Cross Range wall and a concrete pillar (15) possibly associated with earlier signage for the tower.
These services cut into a layer of some stones and mortar in a matrix of gritty earth containing much burnt material including frequent pieces of clinker (11, 14, 33, 45). This layer, which must include imported topsoil used to cover the paving before it was grassed over as shown in an 1850s oil painting by Anna Forbes Irvine (illus 35), was over the whole site but the mortar and clinker within it was thickest and most compact on the W side of the site, and N of the door into the Cross Range. The cut for a lightning mat in this area in 2002 also encountered this layer of mortar (Murray 2002, 4).There had also been some more general dumping of earth containing slate, glass and modern china (37), this may have been intended to level up for the gravel.

Illus 25 Area 3. Main concentration of mortar visible in bottom RHS . Drain 13 to LHS and centre

These layers overlay an area of rough stone paving (28, 44) bisected by a well-constructed stone path (12) with associated stone drain (31) running E/W from the Cross Range door. Another stone drain (13: illus 26, 27) running NNW/SSE from beside the tower steps may have co-existed with the paving but had been cut through it so was clearly built later.

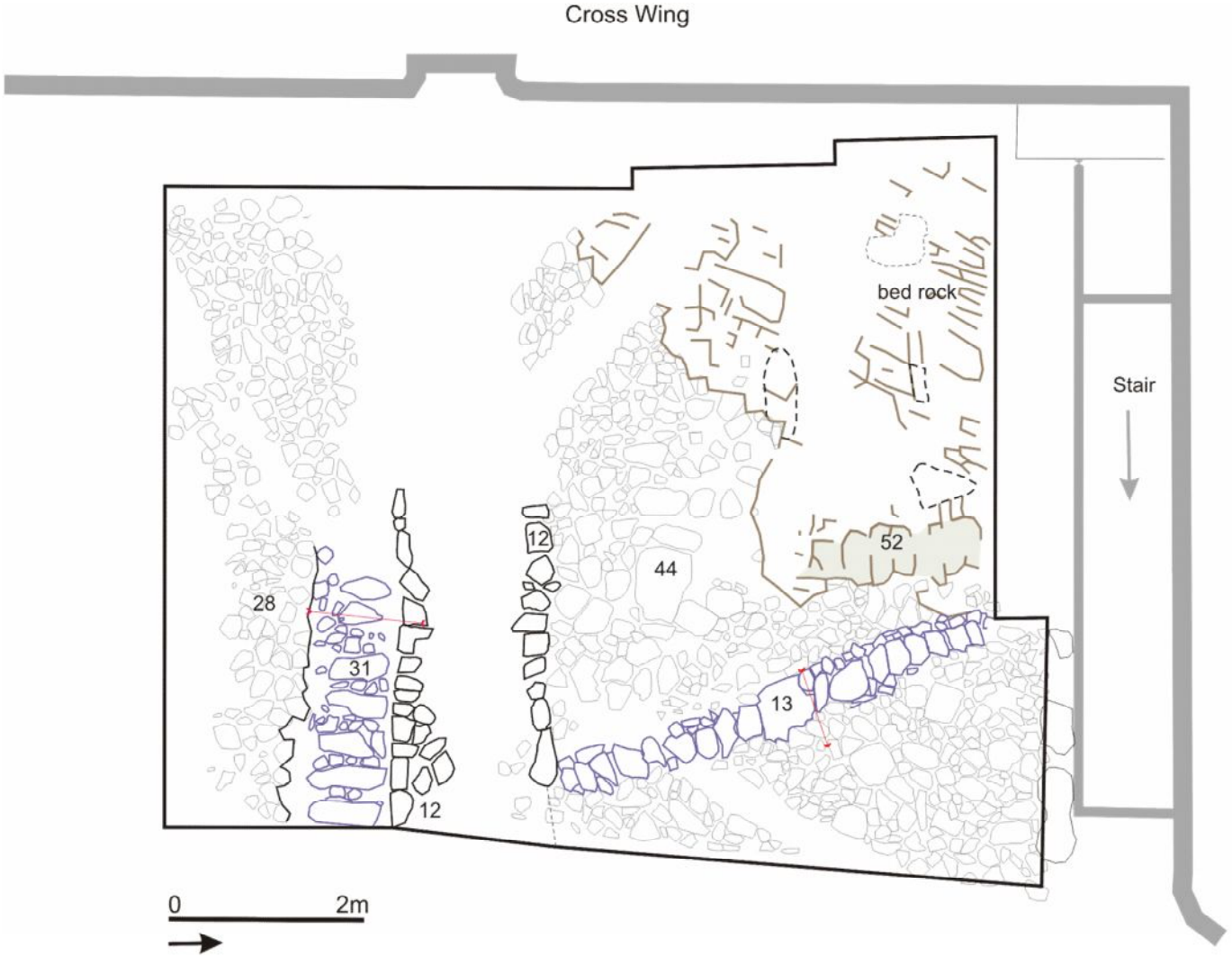


Illus 26 Area 3. Drain 13. Section

Illus 27 Area 3. Drain 13 looking N

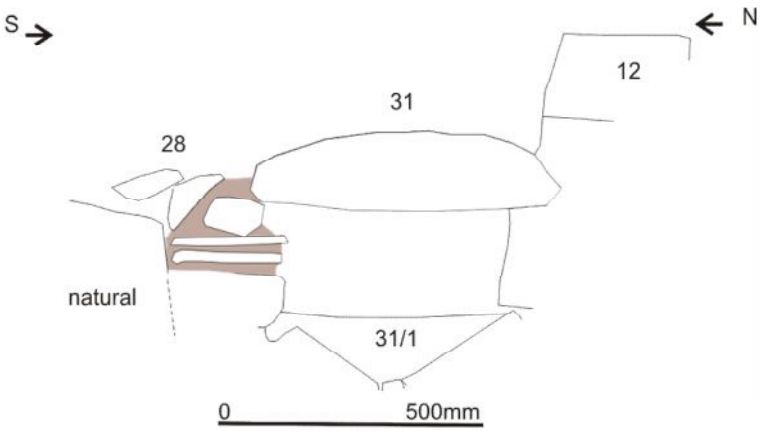
The path was 1.55-1.6m wide with a well-built stone kerb on both sides and flat paving stones. It had been badly damaged at the W end where the later drains had cut through it and one of the drains extended E between the kerbs, cutting the centre of the path. Two of the kerb stones were re-used dressed granite stones with rolled mouldings (Illus 24: A, B shaded on plan; Appendix 4: 12A, 12B. illus 41-42. These were replaced on site).

Illus 28 Path looking W towards door in Cross Range . Arrows mark 2 re-used dressed stones in kerb (stones 12A, 12B. Appendix 4).



Illus 29 Area 3. Plan

A V-sectioned stone drain (31: illus 30, 31) which ran along the S side of the path was contemporary with it, some of the capstones and the side stones on the N side of the drain lying just below the kerb stones of the path. The W end of this drain had been destroyed by modern drain 27 which re-used this earlier cut through natural.



Illus 30 Area 3. Section of drain 31

Illus 31 Area 3. Drain 31 with path 12 to RHS

The roughly paved surface (28, 44) sloped down from W to E and extended over much of the site with the exception of the NW corner where the bedrock was exposed directly below mortary debris. At the edges some stones from the paving lay directly on this outcrop and at the SW and S the paving also appeared to be directly on natural although the S paving was only removed in places. However, where the natural ground sloped down steeply to the E and NE, there were earlier underlying layers and the paving appeared to have been used to build up a more level yard surface. Most of the stones were medium to large in size (to c.400mm), but there was one much larger stone (700 x 550mm) which was incorporated into the paving but also formed one side of a possible, but not convincing slot (53: see Appendix 2. This may be a stone removal hole related to the insertion of later concrete pillar 15). Part of the paving, in the NE was removed and seven re-used dressed stones were identified and retained (Appendix 4. Nos 44/1-44/7). Much of the paving in the NE area of the site was removed and a small number of layers which pre-dated the paving were excavated lying above natural (illus 32); these were in the small areas cut by modern services 29 and 27 and also by the earlier stone drain 13 and as a result there were no direct stratigraphic links. In the NE corner nearest to the SE corner of the tower, there was an area of sandy loam below the paving and sealing an

area of earlier paving (55: illus 33) set in a dark brown gritty humic layer (56) above natural.

To the W, and separated from 55 by the drain 13, there was a patch of smaller, much rougher cobbles in a grey gritty matrix (62: illus 34).

Illus 32 Area 3. Early surfaces 55 and 62

Illus 33 Area 3. Stone paving 55

Illus 34 Area 3. Early surface 62

Discussion of Area 3

External chimney

The mortary spread with clinker (11, 14, 33, 45) spreading from a concentration thickest N of the door into the Cross Range, can be identified as the demolition rubble from an external chimney that had been built against the E wall of the cross Range, about halfway between the Cross Range door and the Tower. This is depicted on an oil

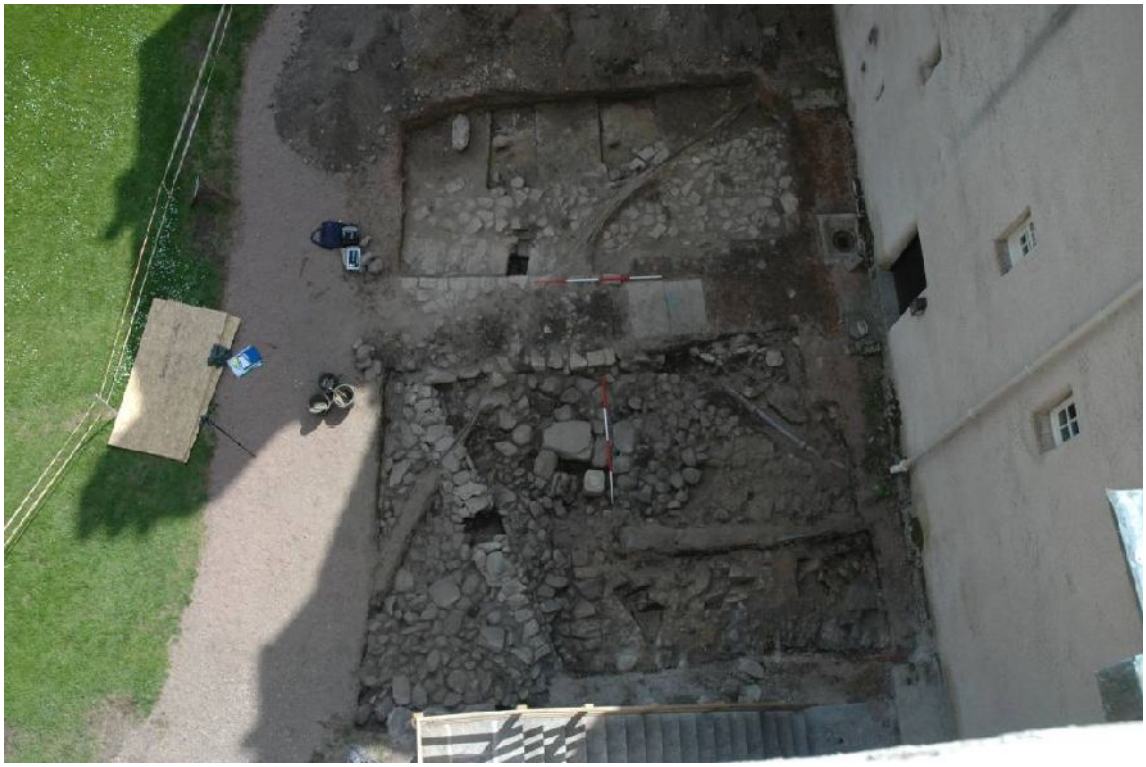
painting by Anna Forbes Irvine dated to the 1850s (illus 35). It is thought to have been demolished in the 1970s (Clark, 2011, 64). There appears to be no record of its date of construction. The demolition rubble appears to have been trodden into the existing ground surface, incorporating earlier domestic rubbish in the process. It can be postulated that some topsoil had been used to cover the rough paving 44 prior to the 1850s when it appears to have been in grass.

Illus 35 Oil painting by Anna Forbes Irvine dated to the 1850s

Path and courtyard

The path is also depicted on the Anna Forbes Irvine painting of the 1850s and appears to extend E across the grass. This E extension of the path is also shown on the 1930s drawing of the Golf Course and was visible on the geophysical survey (Ovenden, 2014, 4.3.3, figs 21, 23, 25, 27). However, the path, drain 31 and the rougher paving (28, 44) are all focused on the Cross Range and the door into it and it would seem probable that they may be of early 17th –century date. They are similar to some of the areas of paving within the 17th –century gardens below the S lawn and would have formed a fairly formal courtyard outside the Cross Range. A number of small domestic or personal items such as dress pins, tobacco pipe fragments and fragments of vessel glass range in date from 16th-18th century and may reflect the use of the path and courtyard.

Illus 36 Area 3. Path in relation to Cross Range, looking W



Illus 37 Area 3. Path in relation to Cross Range from above, looking S

Illus 38 Area 3. Detailed view from above, looking S

Earlier hall

One of the aims of the excavation in this area had been to determine if there was any evidence on the ground of the former presence of a building, possibly a hall, abutting the tower on this side. It is argued (Clark, 2011, 76) that an earlier building may have existed here from the mid 14th/early 15th century to c.1615 when it would have been demolished prior to the building of the Cross Range in c.1615-20. The possible position and approximate width of such a building is indicated in differences in the mortar on the S face of the tower (Clark, 2011, 34, fig 7).

The excavation did not reveal any foundations for such a building. However this is perhaps not surprising given the very high ridge of natural bedrock- especially in the NW corner of the site. Elsewhere over much of the site, with the exception of the lower ground at the NE, the later paving had been built almost directly or directly on the natural. The only slight indication of a possible earlier foundation was a very regular line of possible notches in the surface of the bed rock (52) in a N/S band c. 500mm wide and c. 2.5m long, 4.5 to 5.0m E of the wall of the Cross Range (illus 39, 40). There is no further evidence that this had been used as a key-in for a wall, but it was noticeable and did coincide with the difference in mortar on the S wall of the tower.

Illus 39 Line of notched bedrock (52) c. 500mm to LHS of ranging rod and to RHS of the red pegs

Illus 40 Area 3. Notched rock (52) in relation to tower (position of ranging rod is same as preceding illustration)

Further S there was no other evidence of a wall on this line, but the area had been disturbed by the concrete pillar (15), the path and later drains. However it does appear to terminate near the rather indefinite slot (53) and the earlier roughly cobbled surface (62) extended across this line. It might be more convincing to argue that a wall may have existed between the two apparently broadly contemporary but very different surfaces 62 (? inside) and 55 (? outside), although an alternative explanation might be that 62 was a general early surface in the area and 55 was a path/paving outside an original stair to the tower. This is perhaps a somewhat circular argument as there would only need to have been a more southerly stair to the tower if there was an earlier building across the position of the present stair.

Evidence of a stone building or buildings of some sophistication which had been demolished in the early 17th century is however provided by the re-use of a number of pieces of dressed stone in the 17th-century path and courtyard which appear to be associated with the Cross range (Dressed Stones 12A-12B and 44/1-44/7 : Appendix 4. Illus 41-48). It is reasonable to suggest that these may have come from a building that preceded the Cross Range and abutted the tower. One piece (Illus 43. Appendix 4. No 44/1) appeared to have been from a stair newel stone, indicating a building of at least two storeys. Glazed floor tiles of possible 15th/16th century date found in the S Lawn excavation (Murray & Murray 2008, 33) could also have been from such a building. The finds however give little indication of medieval activity in this area, the earliest datable ceramics are of 15th-16th century date, but with the exception of a few sherds from context 54, below the paving, are from mixed contexts.

5 The Finds

All the material has been catalogued in the database (Appendix 3). Building materials, bone and modern ceramic were recorded but not retained.

Coin

A decimal ½ penny (SF 1) was found in Area 2 topsoil (5); the decimal ½ penny was in circulation between 1971 and 1984.

Pins

Six straight pins were found, ranging in length between 28 and 35mm (SF 3, 11-12, 15-17) and one larger but technically similar pin 55mm long (SF10). They were all of copper alloy, with silvering present on three examples. These all had heads of coiled wire soldered into place and are typical of hand made pins from the 16th-18th centuries. They were not only used in dress-making but were themselves used to fasten clothing and attach accessories such as ruffs. Parallels can be seen in the Victoria and Albert Museum online collections (http://collections.vam.ac.uk/item/O11107/pin-unknown/). Four other pins appear to be of machine manufacture with smaller heads and would therefore be dated to after c 1820 when mechanisation of pin making began (Cox, 2005). The context of such tiny artefacts must be treated with some caution. However all the 19th/20th century machine made pins were found in Area 2 in demolition debris/dump (9) and in a drain cut (73) and in Area 2 in the demolition debris from the external chimney (14).

The earlier hand-made pins were all found in Area 3, four in contexts associated with the chimney (11, 14) or the sub-base of the gravel (6). However three, including the larger pin (SF 10) were found in or below the paving (contexts 28, 54) across the area.

Cu-alloy buttons

Three cu-alloy buttons with soldered shanks were found (SF 5, 8, 9). They ranged in size between 13mm and 18mm in diameter and are probably of 19th/E20th century date. They were found in Area 3, in a context associated with the chimney (14) and in Area 2 in demolition debris/dump (9).

Iron objects

A number of unidentifiable iron fragments and nails in very poor condition were found; these are all catalogued in Appendix 3 but were not retained.

Flat- tanged knife/ architectural ironwork? L: 90mm. Width: 18mm, tapering to c.10mm Condition poor. SF 20

Knife/ architectural ironwork? L: 85mm W: 15mm tapering to c. 12mm. Condition very poor. SF 21

Both objects were in Area 2, context 22 which was demolition rubble and may in fact be parts of small architectural ironwork such as door or window catches but the condition of the objects precludes firm identification.

Lead

SF 19. Irregular piece of lead which had clearly been used to fill or join two surfaces at right angles to one another. Not a window kame. L:50mm. Found in drain trench backfill (Area 1, context 10)

Slate

Two slate discs were found in Area 1, context 36, the secondary deliberate back-fill of the earlier cess pit. As pieces of roof slate were found sunk into the same context both objects may relate to roofing or be re-use of roofing slate. There is no wear to suggest that the perforated disc had been used as a spindle whorl.

SF 6 Perforated slate disc 65-67mm diameter.

SF 7 Rough slate disc 57-60mm diameter.

Flint

Flint scraper SF 2 was found in a residual context in Area 2 topsoil.

Clay tobacco pipes

All the tobacco pipe fragments are in late or disturbed contexts. With the exception of the rouletting (Gretton, nd) which may be 17th/18th century, nothing is diagnostic.

Area 2

Context 5 7 stem fragments, 2 with rouletted decoration. 17th/18th century

Context 22 1 stem fragment with rouletted decoration. 17th/18th century

Context 27 1 stem fragment

Context 71 1 stem fragment with mouthpiece

Area 3

Context 6 1 stem fragment

Context 14 3 stem fragments

Context 33 2 plain stem fragments, 1 glazed stem with mouthpiece, stem with junction of lower portion bowl and pointed spur.

Context 44 Bowl fragment with initials on sides of heel, possibly I T

Bowl fragment decorated with possible Prince of Wales feathers cf. Gretton (nd, 30, fig 37 : also from Drum)

Context 45 1 stem fragment

Context 54 1 stem fragment

Bottle glass

Bottle glass was found in a number of contexts (Appendix 3). Where identifiable the bottles appeared to be straight-sided and likely to date to the late 18th/19th century. Only neck and basal sherds have been retained.

Vessel glass

Area 3 All the vessel glass was from Area 3.

Context 6

- 2 sherds clear vessel glass

Context 14

- 7 sherds fine green vessel glass

Context 33

- 3 sherds clear vessel glass

Context 37

- Sherd clear vessel glass

Context 43

- Clear and white glass bottle or vase. 2 neck and 2 body sherds.

Context 44

- Base sherd of clear glass vessel, possibly bottle
- Foot ring of clear drinking glass
- Sherd clear vessel glass
- 17 sherds fine green vessel glass

Context 45

- Cut glass stem of drinking glass
- Foot ring of clear drinking glass with white glass border
- 3 sherds clear vessel glass
- 5 sherds pale green vessel glass

Context 54

- 2 sherds clear vessel glass

Window glass

Area 1 1 edge sherd of window glass was found in context 32.

Area 2 Window glass was found in topsoil (5), two drain cuts (71, 73) and a late dump of building rubble (25). The only context that may relate to the demolished building is the rubble (22) where there were 3 glass fragments.

Area 3 Window glass was found in contexts 6, 14, 33, 37,41, 43, 44, 45, 54, 57/1, and 61. All of these contexts, including two (54, 61) which were below the paving 44, contained some 19th/20th century material so it is difficult to associate the glass with any specific building.

Pottery/Ceramic

All the ceramic was sorted and recorded (Appendix 3) but the L 19th and 20th century material was disposed.

Medieval and post medieval.

In Area 1 a small number of medieval sherds (14th-15th century) appear to relate to the final filling of the cess pit, possibly at the time of the construction of the Brewhouse.

In Area 2 the 13th/14th century sherd from context 25 must be regarded as unrelated to the Area 2 structures as this was a leveling dump layer just below topsoil, including a modern screw, coal and glass and appeared to be imported from elsewhere at Drum.

However, the 16th-century sherds from among the stones of paving 67 can be regarded as in a primary context, dating to within the lifetime of the building; there was no later material from this context.

In Area 3 all the contexts containing early ceramic also yielded 19th/20th century material, underlying the degree of disturbance of the area by service trenches and the

open nature of the stonework of paving 44 which allowed later material to filter into lower contexts.

16th/17th century ceramics were found in contexts 14 and 33 and 15th-16th century ceramics in context 45- all layers which relate to the debris from the demolition of the chimney, presumably being mixed up with underlying earth containing earlier domestic rubbish. The 15th-17th-century pottery from contexts 41 and 43, the fill of fissures in bedrock may be in a primary context but this context also included later material and in the NW corner of the site the very high bedrock was only sealed by context 14, relating to the chimney debris.

15th-16th-century pottery in context 54, below paving 44 may be in a primary context.

Area 1, 34

- Two body sherds of jug, external olive green glaze. Fairly fine micaceous fabric red interior with reduced grey core. Not abraded. 14th century.
- Fragment of small rod handle. Fine sandy red fabric with splashes of olive green glaze. Very slightly abraded. 14th century

Area 1, 40

- One sherd jug shoulder. Hard fine grey fabric oxidised interior with thick exterior olive green glaze on grey core. Not abraded. 14th/15th century
- One small body sherd. Not abraded. Olive green glaze on fine grey fabric. 14th/15th century

Area 2, 25

- Jug body sherd. Hard coarse red fabric with gritty inclusions. Grey core. External olive green and yellow splash glaze. Not abraded. 13th/14th century

Area 2, 67

- 3 conjoining sherds comprising the shoulder and neck of a thick walled jug. Hard red micaceous fabric with some quartz inclusions. Decorated with cordon at junction between neck and shoulder. Thick drab olive green glaze on exterior and interior portion of neck. Not abraded. c.16th century
- 1 body sherd as above
- Spalled sherd micaceous redware.

Area 3, 14

- 1 body sherd shoulder of jug/pitcher. Hard red fabric. Dark olive green glaze externally and internally. 16th-17th century
- 1 body sherd. Thick red fabric. External clear honey glaze. 16th-17th century

Area 3, 33

- 1 rim, 3 base and 1 body sherd. Sandy micaceous red fabric. External and internal brownish thick glaze. 16th-17th century

Area 3, 41

- 1 rim sherd. Sandy micaceous red fabric. External and internal brownish thick glaze. 16th-17th century. Possibly same vessel as Area 3, 33.
- 1 basal sherd, 1 body sherd. Reduced Grey Ware. Thick external and internal drab olive green glaze. 15th-16th century.
- 2 conjoining body sherds. Hard sandy fabric. Thick external drab olive glaze and traces of internal glaze. 15th-16th century.
- Small fragment as above. Possible spout.
- 1 body sherd. Hard gritty grey fabric. Drab external olive glaze. 15th-16th century.

Area 3, 43

- 1 rim sherd. Reduced Grey Ware jug. External and internal drab olive glaze. 15th-16th century.

Area 3, 45

- 3 conjoining sherds of rim and shoulder of bowl, 2 additional body sherds. Hard sandy red micaceous fabric. Yellow/brown glaze on interior and patches on exterior. 15th-16th century.
- 1 everted rim and conjoining body sherd of bowl. Hard red sandy fabric. Thick external and internal bright olive green glaze. 15th-16th century.
- 1 body sherd as above. 15th-16th century.
- 1 rim, 1 base sherd of bowl. Hard red fine micaceous fabric. Internal greenish brown lustrous glaze. 15th-16th century.
- 1 small body fragment as above.

Area 3, 54

- 1 basal portion of ? bowl. Hard red fine micaceous fabric. Thick internal olive green glaze. 15th-16th century.

- 1 body sherd of thick bowl or jug. Fabric as above. Internal and external thin olive green glaze. 15th-16th century.
- 1 small fragment thin walled vessel. Hard red sandy micaceous fabric. External and internal thin drab olive green/brown glaze. 15th-16th century.

6 Palaeoenvironmental Assessment of Bulk Sample

S. Timpany
ORCA Marine

6.1 Introduction

Murray Archaeological Services Ltd undertook an excavation of probable medieval to late medieval features at Drum Castle, Aberdeenshire. During the course of the excavation a single bulk soil sample was taken from the basal layer of a cess pit at Drum Tower, which had been backfilled in the late medieval period, in order to retrieve palaeoenvironmental and archaeological materials. Environmental remains recovered from the sample may provide evidence of the activities, economy and diet of people who inhabited the castle in the medieval and later medieval periods.

This report presents the results of the one bulk sample assessment from the cess pit feature. The aims of the assessment were to:

- Assess the presence, preservation and abundance of any palaeoenvironmental materials within the samples.
- Assess the potential of the material to inform on activities associated with Drum Tower, together with economy, wood fuels, arable farming, cultivation methods and diet.
- Assess whether there is any suitable material present to provide radiocarbon dating materials.

6.2 Method

Bulk Sample Processing

The sample was processed in laboratory conditions using a standard floatation method (*cf* Kenward *et al*, 1980). The sample was assessed using a stereo-microscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers *et al* (2006).

6.3 Results

The results of the sample processing are provided in Appendix 5: Tables 1 (Retent finds) and 2 (Floatation finds). Suitable material for Accelerator Mass Spectrometry (AMS) dating is also identified within each table, with an overview of all materials suitable in Table 3. All plant remains were preserved through charring.

6.4 Charred Plant Remains (CPR)

Charred cereal grain is present in both the floatation and retent parts of the sample taken from the cess pit (Appendix 5: Tables 1 and 2). The overall assemblage contained small quantities of oat sp. (*Avena* sp.) and six-row hulled barley (*Hordeum vulgare var vulgare*), which was observed to have either an asymmetrical shape and/or a twisted central groove. Probable oat sp. (cf. *Avena* sp.) and probable hulled barley (cf. *Hordeum vulgare*) were also recovered in small quantities from the retent part of the sample. Preservation of the cereal grain was found to be moderate to poor with signs of abrasion and breakage present on the grains, in particular those of the probable oat and hulled barley, the latter being only a fragment of the grain. The damage to the grains appears to be mainly mechanical damage suggesting the grain was exposed and moving around on the surface for some time prior to their inclusion within the cess pit or has been damaged due to movement or mixing of materials within the pit itself.

Two seeds were also present within the floatation sample but were too poorly preserved to be able to identify successfully (Appendix 5: Table 1.)

A small quantity of wood charcoal was present in the sample, with a maximum fragment size of 1.4cm (Appendix 5: Table 1 and 2). Wood charcoal fragments of suitable size and condition for identification/dating purposes have been identified in the sample with visual inspection of the charcoal fragments suggests the assemblage consists of predominantly non-oak species and also includes fragments of probably heather.

6.5 Other finds

The only other material to be recovered from the sample was a small quantity of burnt mammal bone fragments (Appendix 5: Table 1).

6.6 Discussion

The small quantity and range of materials recovered from Sample 01 taken from the fill (38) of the cess pit provides only limited information on diet and economy for the site. The main cultivars retrieved from the sample were oat and hulled 6-row barley, both of which have been found in medieval deposits across Scotland (e.g. Boyd, 1988; Kenward and Hall, 2001; Power and Timpany, 2012); with the other fragmented remains recovered likely being of the same species. The small quantity of grain within the sample means it is not possible to identify which cereal was the greatest cultivar, with five grains of barley and three grains of oat present (including the probable grains). The small quantity of burnt bone retrieved from the sample is probable discarded food waste, which together with the charred grain and fuel remains indicates that the material within the basal layer of the pit fill is likely to represent domestic debris.

The charcoal assemblage indicates that non-oak taxa were the main wood fuels used, while the presence of probable heather fragments suggests that turf or peats are also likely to have been collected for use as fuel. The evidence for potential peat burning also raises the possibility that the wood charcoal fragments recovered may represent older wood present within the peat. Thus there is a risk that an older miscellaneous date may be acquired should the wood charcoal material be chosen for radiocarbon dating.

6.7 Conclusion

- The sample assessment recovered only small quantities of charred plant remains, charcoal fragments and burnt bone.
- The main cultivars recovered within the cereal grain assemblage were oat and 6-row hulled barley.
- The charcoal assemblage consisted of non-oak wood fragments and probable heather fragments suggesting possible turf/peat burning also took place.
- The overall assemblage from the pit suggests it represents discarded domestic waste.

6.8 Statement of potential

Only a limited amount of material was retrieved from the assessed sample. The small quantities of charred cereal grain, charcoal and burnt bone can provide little further information on diet, economy, fuel use and the activities taking place in the vicinity of

Drum Castle. There is sufficient charred grain of 6-row hulled barley to obtain a radiocarbon date for the pit feature should one be required. A small number of the non-oak charcoal fragments (2-3) could be identified to species level in order to gain some further information on the wood fuels being exploited; however, these could also relate to older wood fragments present in peat being used for fuel.

7 Discussion

All three areas of the excavation have added significant detail to the understanding of the structures surrounding the tower at Drum Castle. In Area 1, the position of the cess pit has been confirmed and it can be argued with some confidence that it was filled in during the 15th century, around the time that the Brewhouse was constructed. In Area 2, the 'lost' building between the Brewhouse and the tower has been located with internal details suggesting the possibility that some of the brewing processes may have taken place in it.

In Area 3, there is tentative evidence to support the hypothesis of an earlier 2-storied hall building on or near the site of the Cross Range. The path and paving associated with the Cross range suggest a new, more sophisticated, approach to this range in the 17th/18th centuries

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Appendices

Appendix 1: Catalogue of digital photographic record (on CD)

Digital frame number	**Content**
Drum Castle (2014)	
1-4	Area 1 contexts 3,4 looking S
5-7	Area 1, general views in relation to tower, looking E
8	Area 2. Work beginning
9-10	Area 3 after gravel stripped, looking W
11-13	Area 1, context 7, looking S
14-15	Area 2. Work in progress
16-19	Area 3. Work in progress
20-23	Area 1, contexts 17, 18. Looking S
24-28	Area 2, context 26 looking W
29-30	Area 3 from tower looking S
31-33	Area 3. Path 12 looking S
34-38	Area 2, Path 12 looking W to Cross Range
39-48	Area 2. Detail of re-used dressed stones from kerb of path 12
49-52	Area 2. Path 12 looking W to Cross Range
53-54	Area 2 looking N to tower
55-57	Area 1 context 32
58-63	Area 3. Path 12. Paving to S exposed (28) but to N still in mortar/burn 14/33/45 Looking S
64-72	Area 3. Path 12 and paving to S (28) looking W
73-85	Area 3. Drain 13, looking N at section and general
86-89	Area 1. Cess pit fill 39. Looking S

90-93	Area 1. Section of cess pit looking E
94-97	Area 1. Cess pit 39. Looking N
98-100	Area 2, rubble context 22 Looking W
101-105	Area 2, rubble context 22, looking N
106-117	Area 3. People working
118-122	Area 2. Planning
123-126	Area 3. People excavating close up
127-143	Area 3. Drain 31. Looking W and section
144-149	Area 3. General views with people working
150-161	Area 1. Cess pit. Context 35. Looking S
162- 164	Area 1. Cess pit. Context 35 Looking E
165-168	Area 1. Cess pit. Context 35. Looking N
169-179	Area 1. Cess pit in relation to tower.
180-182	Area 1. Cess pit 35 looking S. With stone rubble removed
183-187	Area 1. Cess pit 35 looking E. Final.
188-195	Area 1. Cess pit 35. Looking N. Final
196-198	Area 1. Cess pit 35. Natural at base.
199-212	Area 3 from tower with path and related paving and drains
213	General view from tower
214-216	Garderobe in tower
217-220	Looking down garderobe chute to cess pit in Area 1
221-224	Area 2. Rubble from tower
225	Tower garderobe
227-231	Area 3. Paving 44
232-237	Area 3. Possible notched bedrock 52 Looking S
238-245	Area 3. Possible notched bedrock 52 Looking N (N arrow wrong)
246-250	Area 3. View of S wall of tower in relation to 52 (to LHS of ranging rod)
251-259	Area 3. Views of bedrock at NW corner.
260-263	Area 3. Drain cut (50, 51) through bedrock
264-282	Re-used dressed stones from paving 44 in Area 3.

283-288	Area 3. Looking N
289-300	Area 3. Earlier paving 55
301	Area 3. Planning
302-303	Area 3. Bedrock 52/42
304-309	Area 3. Paving 55 partially removed
310-311	Area 3. People working
312-315	Area 3, context 57, looking N
316-319	Area 3. Context 60
320-323	Area 3, context 59
324-326	Area 3, context 62
327-332	Area 3, context 63
333-335	Area 3, context 64
336	Talking to visitors
337-338	Area 3 as backfilled
339-343	Area 2. Planning (from tower)
344-349	Area 2 Building from tower
350-351	Area 2, wall 70 and paving 66 looking N
352-354	Area 2 wall 70 and external stone setting 82 looking NW
355-367	Area 2 Building from tower
368-372	Area 2. Details of wall 70 and external stone setting 82 looking W/NW
373-375	Area 2 looking NE
376-379	Area 2. Wall 74 looking S
380-381	Area 2 looking ESE
382-383	Area 2.Wall 70, external setting 82 and cobbles 77, looking W
384-385	Area 2. Detail of wall 76A with lightning cable. Looking N
386-388	Area 2. Wall 76A in trench extension. Looking SE
389	Area 2. Wall 76A in trench extension. Looking S
390-391	Area 2. Detail of burnt area on paving 67
392-393	Area 2A Beside tower wall where wall 70 abutted, looking S.

394-398	Area 2. Building in relation to Brewhouse
399-401	Area 2. Building in relation to tower
402	Area 3. Pre-backfilling
403-409	Area 1. Position of cess pit in relation to tower and garderobe. Ranging rod in centre of pit. Looking E
410-412	Dressed stone 44/1
413-414	Dressed stone 44/2
415-417	Dressed stone 44/3
418-420	Dressed stone 44/4
421-422	Dressed stone 44/5
423-427	Dressed stone 44/6
428-432	Dressed stone 44/7

Appendix 2: Context data

Context No	Area	Description	Interpretation
1	1	Tar and sub-base. c.80mm	C 1947
2	1	Light grey/yellow gritty. Softer beside tower (cut 49)	? Sub-base or earlier yard surface
3	1	Irregular patch burning/charcoal with frequent iron frags. 1.2 x 0.7m.1mm deep	
4	1	Stones in 7. Stones to 50mm.	Patch of yard surface 7 where clay eroded out- possibly in puddle, leaving stones more exposed
5	2	Humic topsoil below grass. Depth:100mm	
6	3	Gravel yard surface with red sandy sub-base	
7	1	V hard compact yellow/buff clay	Earlier pre-1947 yard surface.

		matrix with small stones (4). Over most of area, sunken and wetter over pit. Depth: 100mm	Possibly identified in 19th cent photograph
8	1	Tumble stones in NE over pit	Leveling over sunken pit fills
9	2	NE & E of Area. Dump of pantile, brick, mortar and some slate in dip. Cut by drain.	Possible demolition debris leveling slope to E of building
10	2	Yellow clay with stones	Demolition debris?
11	3	Crumbled plaster and mortar with occasional stones – thickest to W towards Cross Range.	Rubble from external chimney which was against E wall of Cross Range. Demolished after 1831
12	3	E/W path at right angles to door in Cross Range. Much of path removed by later drains but at E end kerb stones survive on both sides and some of paving stones. W:1.55-1.6m including kerb. Some of kerb stones are re-used dressed stone mouldings	Path from 1619 Range. Still visible on 1930s plan of golf course.
13	3	NNW/SSE stone drain. Cut W: c.700mm Depth from top of capstones: c.400mm. Internal W: 150mm; H: 280mm. Stone sides and capstones. Some slates on top of side stones to level up for capstones. Base to natural gravel. Cut by drain 27.	Drain silted up.
13/1	3	Clean yellow silty sand 60mm. Top fill in drain	
13/2	3	Grey fine silt 3mm. Fill in drain	
13/3	3	Black, charcoal-stained v fine greasy silt. 50mm. Fill in drain	
13/4	3	Fine grey silt. 4mm Fill in drain	

13/5	3	Cut of drain	
14	3	Black gritty layer with frequent clinkers, tiny frags of laminated slate, small bits of pantile. Over most of N side of Area. Below 11 and with mortar from 11 mixed through it	Debris from external chimney built against Cross Range and demolished post 1950s. =33=45
15	3	Concrete base Octagonal c. 320x300mm. Set in hole c.400mm diameter. On top a cut iron vertical bar c10x20mm.	Possible base for sign?
16	1	Grey gritty soil over most of area below yard surface 7. Not in pit.. c.120mm	Earlier informal yard surface with some domestic rubbish trodden in
17	1	Mixture of hard yellow redeposited clay mixed with some stone and grey gritty. Very patchy. <200mm deep.	Informal yard surface?
18	1	Drain. ENE/WSW stone filled drain. W:750mm. Depth:250mm.. Cut across N end of filled pit 35.	? drain from down-pipe in corner of Brewhouse
18/1	1	Small stones along top	Backfill over disturbed W end of drain
18/2	1	Wet grey gritty soil with tile frags infilling broken part of drain	Backfill over disturbed W end of drain
18/3	1	Undamaged E end of drain with stone sides, stone caps and red tile base	
18/4	1	c.20mm sticky clay- below tiles in base at undisturbed E end; also survived below destroyed section of drain at W	
19	1	Orange gravel below 13/4 tarmac	Backfill when W end drain dug out

		at N end only. N of13/5 but not overlapping drain 18	or infill of a service to N beside steps.
20	1	Gritty brown earth with some bone and frags china	Backfill when W end drain dug out or infill of a service to N beside steps. Photograph in 1942 shows possible border/shrub (www.scran.ac.uk/000-000-596-048-R)
21	1	Small hollow in 17 (520x490. Dpth210mm). Fill as the overlying 16.	
22	2	Spread of unstructured stones through and below 10.	Demolition rubble
23	2	Plastic drain pipe NE/SW from down-pipe in corner between tower and Brewhouse. Width of cut: 500mm. At NE end part of an earlier ceramic pipe lies alongside- presumably replaced by the plastic pipe	To avoid contamination a width of c 700-800mm left not excavated
24	2	Drain cut. Also possibly to down-pipe in corner. Cuts demolition layer 10	
25	2	Irregular hollow (1.1 x 2.2m Depth 30mm) filled with dark charcoal stained gritty soil including coal fragments, small stones, brick and tile frags.	Dump to level wet patch?
26	2	Stones- Rubble- equivalent of 22 but disturbed by drain 24	
27	3	Drain Approx E/W from door of Cross Range . Part of drain re-used line of stone drain 31 and part dug	

		through path 12. W: c.800mm. A second drain (50) runs into this from down-pipe N of door in Cross Range. Backfilled with stones (from path)	
28	3	Rough paving sloping down to E. S of path 12 and appears contemporary. =44. At edge stones appear set directly on natural	
29	3	Telephone cable NE/SE across site.	
30	1	Layer sunk into pit 35. Depth:200-300mm. Grey brown gritty, some stones. Wettish. Some slates and mortar in fill	Possibly= general layers 16 & 17 where sunken over pit fills.
31	3	E/W stone drain. Parallel to path 12 with some of capstones below edge of path kerb. Capstones of irregular field stones 550-700mm long and c.250mm wide. With some smaller stones filling gaps. Base V-shaped with angled stones on both sides. Depth to base of capstones:320mm, to top of caps c.450mm. Width internally: 400mm at top. Line of cut at W end partially re-used by modern drain.	Appears contemporary with path.
31/1	3	c.80mm sandy silt in base.	
32	1	General surface over Area, dips in to pit 35 where it is identified as 34. Grey gritty matrix with some (Scots) slates, mortar and small	Possibly construction or restructuring of Brewhouse

		stones- mortar focused in N of Area.	
33	3	Burning =14	
34	1	Layer sunk into pit 35. =32. Mortar and grey gritty through and over the large stones 40. Mortar was mostly in the top of the layer	General layer sunk into pit and mixed with demolition of pit surround (40)
35	1	Cess pit directly below the tower garderobe. Top diam as excavated: 1.8m E/W by 2.4m N/S; original top diameter : c 2.4-2.5m. The internal diameter was c 1.5m and the depth c 1m. Fills 36,38,39,40. Layers sunk in and leveling: 34,30,7,8	Cess pit
36	1	Grey wettish some charcoal. Some of stones (40) and several slates sunk into it.	
37	3	NE corner only. Disturbed black topsoily earth with much glass, slate etc.	Dump/leveling
38	1	Light grey/fawn residue at edges of pit and up to 200mm at base. Quite clayey in texture.	Sampled: See Environmental report: Timpany above)
39	1	Loosened natural at base of pit. Compact natural clay with stones	Possibly loosened by pit-emptying.
40	1	V large stones around sides of pit and in fill	Possible kerb thrown in when finally filled and out of use- or possibly levelling but seemed associated with sides.
41	3	Small patches of fine light grey silt between fissures in bedrock 42.	
42	3	NW corner and much of W side.	

		Bedrock with NNE/SSW fault lines and straight fracturing. In places the top of this has orange natural gravelly decayed stone. Quite large hollows where pieces of stone displaced. Drain 50 cut into this bedrock.	
43	3	Hollow in top of bedrock 42. Caused by stone removal? Fill loose grey gritty with modern glass and china.	
44	3	Yard surface. Overlaps edge of bedrock, levelling yard to level of bedrock. NE are removed to reveal earlier surface (55)	
45	3	Dark grey silty soil, occasional charcoal or clinker. NE corner	Top excavated as 37. = equivalent of 14.
46	3	Soft dark brown loamy silt between very large stones by side of present steps. Appears to go below the stones and below steps	Part of disturbance when present steps built. The three large stones set there after steps built.
47	1	Dark grey gritty with occasional charcoal. Merges to 32 but distinct from 17. Dpth:80mm	
48	1	Lump of bright orange natural in W side of pit 35.	Slumped natural from W edge
49	1	Cut parallel to wall face of tower. Excavated width c.55m but if extends to wall: 1.05m wide. Fill was mix of 7, 32 etc which it had cut through. Sealed by tar.	
50	3	Ceramic drain with plastic joint to down-pipe N of door in Cross	

		Range	
51	3	Clay pipe drain also from down-pipe N of door in Cross Range	
52	3	Top of natural rock that appeared possibly cut to tie in a wall. W:600-700mm wide	Possibly coincidental but is in line with scar of mortar on S face of tower. Also in line with possible slot 53
53	3	3 large stones appeared to form a slot 260 (N/S) x 470 E/W. Fill grey gritty.	May be later stone-removal hole. Not convincing. The three large stones were part of paving 44.
54	3	V fine dark brown sandy loam. Below paving 44 in NE corner	=59/1
55	3	NE corner. Below 54. Stone surface- medium stones set in underlying humic layer (56)	Earlier yard- or path to original steps
56	3	Soft gritty dark brown humic c.150mm deep on natural. Paving 55 set in this.	
57	3	Disturbed at S end area between drain 13 and phone cable	
57/1	3	150mm top fill of 57. Full of glass and modern china	
57/2	3	Lower grey gritty silt in 57 c 250mm.No finds	? = 61 Patches of pre-paving horizons surviving in isolated areas cut by modern services.
58	3	Stone scatter at N end of area between drain 13 and phone cable	= 60 Patches of pre-paving horizons surviving in isolated areas cut by modern services.
59/1	3	N end of area between drain 13 and phone cable . Above stone scatter 58	=54 Patches of pre-paving horizons surviving in isolated areas cut by modern services.?

59/2	3	N end of area between drain 13 and phone cable . Grey gritty below stone scatter 58	=61 Patches of pre-paving horizons surviving in isolated areas cut by modern services.
60	3	Below paving 44. W of phone cable and N of 12.Stone scatter	=58 Patches of pre-paving horizons surviving in isolated areas cut by modern services.
61	3	Grey gritty below stones 60	=59/2 Patches of pre-paving horizons surviving in isolated areas cut by modern services.
62	3	Area irregular cobbles c. 1.9 x 2.8m extending from edge of bedrock. Note it ran below large stone which appears to have been part of 44.	Seems contemporary with 56.
63	3	Orange gravel natural at S end of site	
64	3	Grey gritty with some stones rather random. Below 62. On to natural Slopes down to E	
65	2	Grey gritty silt with some mortar and slate frags. Over paving 66 and 67.	Demolition horizon
66	2	Paving inside building. Area excavated c. 0.90 x 2m with good straight edge on N side. v flat topped paving stones (200 x 550 to 280 x 300mm). c. 50mm higher than but contemporary with rougher cobbles 67. Paving not removed but in side of slot 72 it appeared that there was c 100mm grey gritty over natural below stones of 66- possibly	Possible hearth area although no burning.

		original topsoil)	
67	2	Floor. Rougher than 66 but angular stones carefully set in clay base (stones 100 x 150 to 250 x 300mm) Stones in NW and N of main room tops of stones burnt black-red and some heat-crazed. Greasy black (68) directly over them	Floor. Possibly fire-damaged by accidental building fire?
68	2	Burnt material and tiny slate fragments. In area W and NW of E room of building where there was evidence of intense burning. Some over E side of 66 and 67 but much less.	? Result of roof fire
69	2	E of wall 70, outside building. Grey gritty loam down to natural. Possibly cut by 9 or 9 dumped on it.	? Garden earth outside building
70	2	E wall of building. Field stones bonded with orange/yellow gritty clay. W: 900mm. Cut by drain 71. H: extant to 260mm to contemporary external cobbles (77) with 2 courses surviving. Internally survived level with floor 66, 67. i.e. ground to E lower.	
71	2	Drain. Roughly E/W across N side of Area. Cuts E and N walls of building. Probably relates to drain cover to NE of NE corner of Brewhouse.	
72	2	Hole/slot in edge of paving 66.	

		200 x 300mm. Depth:300mm from top of paving 66. Fill loose stones (22) and grey gritty (? 79)	
73	2	=24. 1.45-1.8m wide disturbed cut of drain. Rubble fill.	Probably been taken out on several occasions. Not excavated to pipe.
74	2	Internal wall. W:660mm. Surviving height above floor 67: 250mm. Rubble stones mortar bonded. Paving 67 abutts S face so put in after but in use at same time. Partially cut by drain 73	
75	2	Irregular area <200mm thick of yellow clay overlay 67 and 68	Demolition debris from wall bonding
76	2	N wall building. Cut by drain 71 but survives in three areas. Also cut by lightning mat in 2002 (Murray 2002, 11-12). Mortar bonded.	
77	2	Cobbles E of building. Extend 1.3-1.4m E/W to larger stones 78. Stones worn on upper surface (50 x 50 to 200 x 200mm). At S side edged by two large stones one flat, one on edge which form border between cobbles and stones 82.	External surface/path
78	2	Fairly level surface of stones c 400mm. Not as smooth as 77- ? less used.	External surface/path
79	2	Grey gritty with chunks of mortar and rubble stones, some slate. Over cobbles 77 and in places over wall 76. In area outside building. Many small frags slate.	Demolition layer

80	2	Mortar and small burnt lumps c 8mm thick directly on cobbles 77 and below 79	
81	2	Cut into natural SE corner. 700m+ E/W. 450mm+ N/S Cut through clay associated with 82 and into natural. Possibly associated with 9	
82	2	V large natural boulders (< 600x450x400mm) with thick clay in among them. Not removed but appear to be set on thin grey gritty layer (? Original topsoil).	Appears to be a deliberate levelling. Coincides with 66 inside building. ? base for chimney or similar?
83	2	Sandy gravel strip parallel to Brewhouse wall. C 20mm thick.	Possibly upcast from drain

Appendix 3.
Table of all Finds

Context	Slate	Worked stone	Tile	Brick	Nails	Fe unid frags	lead	Ceramic L19/20th	Ceramic 17th-mid 19th C	Ceramic med/post med	Clay tobacco pipe	Bottle glass Body sherds unless noted.	Vessel glass	Window glass	Shell	Bone	coal	Other Wire/plastic	Small finds
AREA 1																			
2			*			*		1 x 20thC china											
3						*													
2/16	*		*																
16	*		*					2x 19th/20th C china								1			
17																**			
18/3			*																
19			*					2x 19thC redware								**			
20																*			
21																1			
30/1								1x 20thC china								**			
32	*													1 edge sherd		**			
34	*									3 sherds 14th C					1 oyster	**			
36	*																		SF 6 Perforated slate disc SF7 slate disc
40										2 sherds 14th/15thC						**			
AREA 2																			
5			*		14		1	19th/20thC china 2x 19th/20th C stoneware 6 x 19th/20th C redware			7	** 1 base, 1 neck straight bottle		7			*	Wire plastic	SF1 Cu-alloy token/coin SF2 flint scraper
9			***	***				19th/20thC china 19th/20th C redware				*				4			SF5 Cu-alloy button (18mm diam) SF 18 6 x frags cu-alloy pins (34mm)
10				*	2			19th/20thC china				1				*			SF 19 1ead

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Context	Slate	Worked stone	Tile	Brick	Nails	Fe unid frags	lead	Ceramic L19/20th	Ceramic 17th-mid 19th C	Ceramic med/post med	Clay tobacco pipe	Bottle glass Body sherds unless noted.	Vessel glass	Window glass	Shell	Bone	coal	Other Wire/plastic	Small finds
								19th/20th C redware											
22	*		*	*	7	2		20 sherds 19th/20thC china, redware,	tinglaze		1	* 1 base, 1 neck straight bottle		3					SF 20 Fe knife SF21 Fe unident bar/blade
25			*				scrap	6 sherds 19th/20thC china		1			Modern jar frags	1				Modern screw	
26			*		6			19th/20thC china				*						Sewer pipe frag	
27			**					19th/20thC china, redware			1	* 1 neck			1 oyster	*	*		
67										5									
69	*		*									* 3 bases straight bottles							
71	*		*					19th/20thC china, redware			1	*		1					
72	*																		
73	*		*		2			1 sherd willow pattern china						1					SF14 Cu-alloy pin (29m)
77								1 sherd 19th/20thC china								*			
79			*																
81			*									1							
AREA 3																			
6			*	*	6			19th/20thC china,			1	*	2	3		*		Modern	SF15 Cu-alloy pin (34mm)

Appendix 3.
Table of all Finds

Context	Slate	Worked stone	Tile	Brick	Nails	Fe unid frags	lead	Ceramic L19/20th	Ceramic 17th-mid 19th C	Ceramic med/post med	Clay tobacco pipe	Bottle glass Body sherds unless noted.	Vessel glass	Window glass	Shell	Bone	coal	Other Wire/plastic	Small finds
								Redware, 2 sherds willow pattern, 1sherd 19th C stoneware										heel tap	silvered SF16 Cu-alloy pin (broken) silvered
11			*	*	17	4		19th/20thC china				1				*		Sewer pipe frag	SF11 Cu-alloy pin (28mm)
12	*	2		*				9 sherds 19th/20thC china, redware				2				3			
13					2			19th/20thC china, redware				1				*			
13/5	*		*		4			19th/20thC china, redware				3				2	*		
14			*	*	16	2		19th/20thC china, redware	1 sherd tinglaze	2	3	** 5 bases, 1 neck straight bottles	7	5		*			SF 8, 9 cu-alloy buttons (16mm, 13mm diam) SF 12 Cu-alloy pin (30mm) SF 13 Modern pin (20mm)
15								3 sherds 19th/20thC china				3				4			
27																1			
28																			SF3 Cu-alloy pin (35mm)
31	*															Mouse			
33					1	1		19th/20thC china, redware		4	4	*	3	2		*			
37	*		*	*	1			19th/20thC china, Redware **				** 2 necks, 1 base straight bottle		1		2			

Appendix 3.
Table of all Finds

Context	Slate	Worked stone	Tile	Brick	Nails	Fe unid frags	lead	Ceramic L19/20th	Ceramic 17th-mid 19th C	Ceramic med/post med	Clay tobacco pipe	Bottle glass Body sherds unless noted.	Vessel glass	Window glass	Shell	Bone	coal	Other Wire/plastic	Small finds
41								1 sherd 19th/20thC redware		6			1	1					
43								1 sherd 19th/20thC china		1		3	4	1					
44		7						19th/20thC china, Redware **, 1 x willow pattern,	1 x tin glaze		2	* 1 neck, 1 neck frag, 2 base	20	1					
45				*	1			19th/20thC china, Redware **		11	1	* 2 neck frags, 1 base straight bottle	10	4		*			
46																4			
50					1			2 sherds19th/20thC china,				2				3			
54	*		*	*	1	2		19th/20thC china, Redware	1 sherd tinglaze 1 sherd porcelain 1 sherd salt glazed	3	1	** 2 bases, 3 necks, 2 neck frags straight bottles	2	10		**			SF 10 Large cu-alloy pin (55mm) SF 17 Cu-alloy pin (24mm) silvered
56																3 frags			
57/1									1 sherd porcelain			*		5		*			
59/1												2							
59/2																4			
61								19th/20thC china *, 3 sherds Redware	1 sherd tinglaze			*		4		*			
62																Small			

Appendix 3.
Table of all Finds

Context	Slate	Worked stone	Tile	Brick	Nails	Fe unid frags	lead	Ceramic L19/20th	Ceramic 17th-mid 19th C	Ceramic med/post med	Clay tobacco pipe	Bottle glass Body sherds unless noted.	Vessel glass	Window glass	Shell	Bone	coal	Other Wire/plastic	Small finds
																frags			
64																3 Small frags			

* present < 10
** significant quantity > 10
Red numbers denote retained material.

Appendix 4.

Dressed stones from path 12 and paving 44.

Illus 41 Stone 12 A. Replaced in path kerb.

Illus 42 Stone 12 B. Replaced in path kerb.

Illus 43 Stone 44/1 from paving. Retained.

Illus 44 stone 44/2 from paving. Retained.

Illus 45 Stone 44/3 from paving. Retained.

Illus 46 Stone 44/4 from paving. Retained.

Illus 47 Stone 44/5 from paving. Retained.

Illus 48 Stone 44/6 from paving. Retained.

Illus 49 Stone 44/7 from paving. Retained.

Stones 12A and 12B were replaced in the kerb of path 12 which was preserved below the present surface.
Stone 44/1 – 44/7 were retained by NTS when this part of paving 44 was excavated to examine underlying layers.

Appendix 5. Environmental tables

Table 1: 514, Drum Castle, Aberdeenshire Retent Sample Results

Context Number	Sample Number	Feature	Sample Vol (l)	Burnt bone	Charred Cereal Grain	Charcoal		Material available for AMS Dating	Comments
				Mammal		Quantity	Max Size (cm)		
38	1	Basal fill of cess pit	5	+	+	++	1.4	Charcoal +, Charred grain +	Charcoal is non-oak and includes probably heather fragments. Charred cereal grain is *Hordeum vulgare* +, cf. *Hordeum vulgare* + and cf. *Avena* sp. +
Key: + = rare (0-10), ++ = occasional (11-50), +++ = common (51-100) and ++++ = abundant (>100) **NB** charcoal over 0.5cm^3 is suitable for identification and AMS dating									

Table 2: 514, Drum Castle, Aberdeenshire, Flotation Sample Results

Context Number	Sample Number	Feature	Total flot Vol (ml)	Cereal grain	Other plant remains	Charcoal		Material available for AMS	Comments
				Avena sp.		Charcoal Quantity	Charcoal Max size (cm)		
38	1	Basal fill of cess pit	15	+	Seeds indet. +	++	0.4	-	Charcoal is non-oak and includes probable heather fragments.
Key: + = rare (1-10), ++ = occasional (11-50), +++ = common (51-100) and ++++ = abundant (>100) **NB** charcoal over 0.5cm^3 is suitable for identification and AMS dating									

Table 3: 514, Drum Castle, Aberdeenshire, material suitable for radiocarbon dating

Sample	Context	Short-lived material	Medium-lived material	Long-lived material
1	38	Hulled barley grain	Non-oak charcoal	-

Appendix : 6 Watching Brief on courtyard re-surfacing. November 2014.

As a final part of the Drum Tower project, the much-patched 1947 tarmac surface in the yard was removed by machine in November 2014 and a new tarmac surface laid. An archaeological watching brief was undertaken (30th October, 3rd-5th November, 11th November and 15th November 2014) during the removal of the old tarmac and the leveling of the underlying surfaces in the courtyard and through the archway. The results have been incorporated into the main report as applicable and a short summary is included here.

The tar was c.50mm thick. Below it there were patches of the hard 19th-century yard surface observed in the excavation of Area 1 (see above. Context 7); this was least disturbed in the NW corner and on the E side. Otherwise the tarmac lay over a variety of stoney and sand make-up. Much of this was infill in the backfill of the many service trenches which criss-crossed the courtyard and through the archway. Roughly in the centre of the S half of the courtyard, the contractors, while digging a trench for new drainage, encountered a large outcrop of natural bedrock. This appeared to be in line with and part of the same outcrop encountered in the N half of the excavation Area 3 (see above).

Illus 50 General view of courtyard after removal of tarmac

Illus 51 SE area of courtyard with natural cut for inserting drains. Note bedrock.

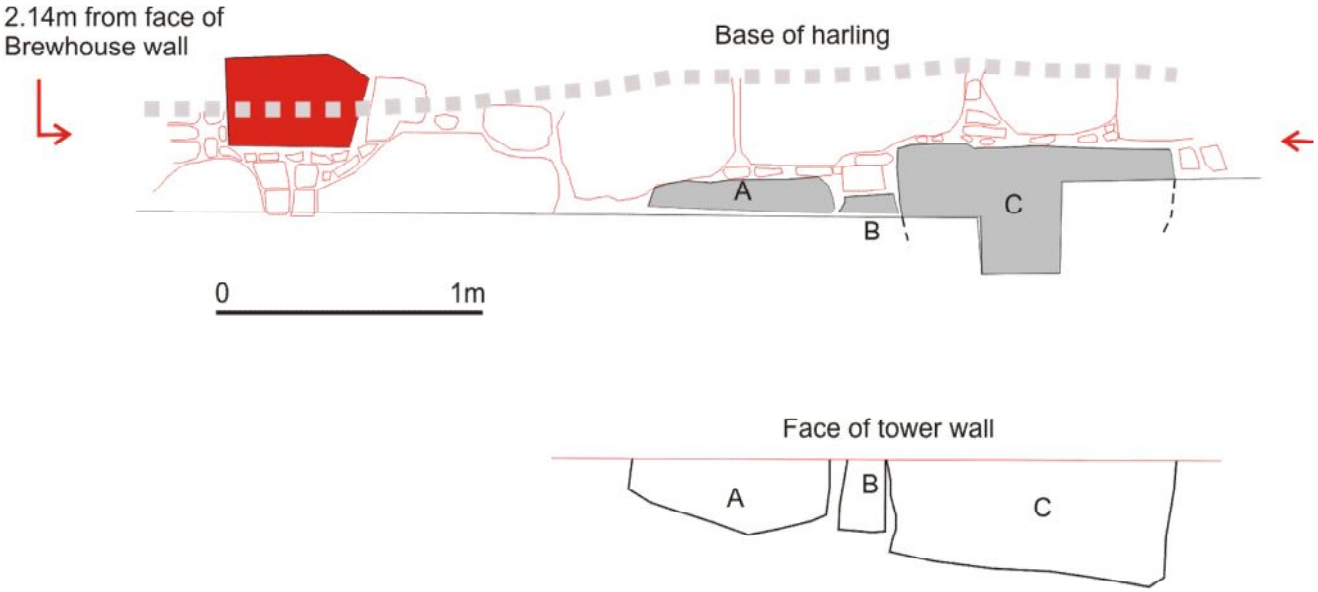
As the yard surface was reduced right up to the face of the walls of the tower and the Cross Range, some additional details of the foundations were recorded.

- *Possible garderobe drain outlet blocking*. At 2.7m from the S face of the Brewhouse wall a block stone 470mm N/S by c. 400mm height appeared to be

much flatter than the adjacent wall stones and roughly dressed. Its position is directly below the small window of the intra-mural garderobe and it is suggested that this was a blocking of an intra-mural drain leading into the cess pit. It has been added to the plans of the Area 1 excavation of the cess pit (illus 1, 9).

Illus 52 W wall of tower. The two vertical ranging rods flank the possible blocking of drain outlet from intra-mural garderobe

Illus 53 W wall of tower. The two vertical ranging rods flank the possible blocking of drain outlet from intra-mural garderobe. Detail of blocking



Illus 54 Detail of W wall of tower with possible blocking of drain outlet (red) and natural boulders incorporated into wall (grey)

- *Tower foundation.* To the S of the possible garderobe drain outlet, three large natural boulders projected out from the face of the base of the wall by 300-

450mm over a N/S distance of c. 2m. Small infill stones had been used between these boulders to level up for the basal course of the tower wall.

Illus 55 Tower W wall. Ranging rod indicates position of projecting natural boulders.

Illus 56 Tower W wall. Detail of projecting natural boulders incorporated into base of wall.

- *Cross chamber foundations* At the base of the W wall of the Cross Range, between the disturbance of a down-pipe at the N and of a drain and down-pipe at the S, there was c. 1.50m of the foundations of the wall exposed. This comprised

fairly small mortared stones (100-400mm wide) projecting c. 200mm out from the wall face.

Illus 57 Cross Range W wall. Detail of exposed foundation

Illus 58 Cross range W wall. Ranging rod indicates the position of exposed foundation.

- *Archway.* Observation of the pipe trench cut through the archway and out towards the drive revealed that this area was cut by the sewers from the toilets as well as a water pipe and a number of drains. Backfill included some bits of coal, a fragment of bone and slate and in places some rounded stones; this possibly suggests that the services had cut through construction levels associated with the 19th-century additions to the Brewhouse. No foundations or undisturbed layers were observed.

Illus 59 Backfill of pipe cut showing dark fill, possibly backfill of 19th-century layers.

Illus 60 View S through archway showing some of pipes.

There was no further evidence of surviving archaeological contexts and there is no potential for any further archaeological work within the courtyard or in the archway.