

An Archaeological Evaluation of Phases A and B at Lochinver Quarry, Moray



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Executive Summary

In November 2012 Archaeological Research Services Ltd was commissioned by Tarmac Ltd to undertake an archaeological evaluation on land forming Phases A and B of a phased extension to Lochinver Quarry, near Elgin, Moray. The archaeological evaluation comprised four 50 by 2m trenches.

Each of the trenches was dug through topsoil and subsoil to reveal the glacio-fluvial sand and gravel deposits. Trench 1 uncovered a shallow, ovoid pit that contained large stones towards its base and produced sherds of prehistoric pottery. A sample of the fill was taken from the pit and was found to contain charcoal, cereal grain, and other gathered wild resources indicating the potential for understanding the diet, economy and land use practices of the first farming communities in the region. Trench 2 contained a large pit which cut through a probable palisade enclosure slot, the two of which are thought to be associated. A palisade enclosure such as the one evidenced here is considered most likely to be late prehistoric, dating from sometime between the Late Bronze Age and early medieval periods. Trench 3 also contained a small pit, however it did not produce any artefacts or ecofacts and it was not possible to ascribe it a date or function.

The archaeological features encountered in the small number of evaluation trenches demonstrate the potential and type of multi-period archaeological remains that survive on the site as heavily truncated buried features cut into the upper layer of the sand and gravel substratum. This archaeology is relatively rare and its ability to aid understanding of early farming groups as well as later prehistoric groups in the region means it is of moderate significance. A strip, map and sample approach to subsequent phases of work is recommended as an appropriate methodology for dealing with the site as this would allow for accurate mapping of all surviving archaeological features within each phase combined with a targeted approach to archaeological sampling in order to achieve cost-effective recording and understanding and to answer key questions in relation to form, function, date and significance.

1. Introduction

1.1 In November 2012 Archaeological Research Services Ltd were commissioned by Tarmac Ltd to undertake an archaeological evaluation on land forming Phases A and B of a planned extension to Lochinver Quarry, near Elgin in Moray.

1.2 A Cultural Heritage Statement was carried out by SLR Consulting (SLR 2011). ARS Ltd were subsequently contracted to produce a transcription of aerial photographic sources, which identified a high potential for buried prehistoric archaeological remains to exist. Following on from this, ARS Ltd were commissioned to undertake staged evaluation trenching within the site. The purpose of the evaluation trenching was to determine whether archaeological remains survive within the planned extension area and also to characterise their nature, importance and likely extent.

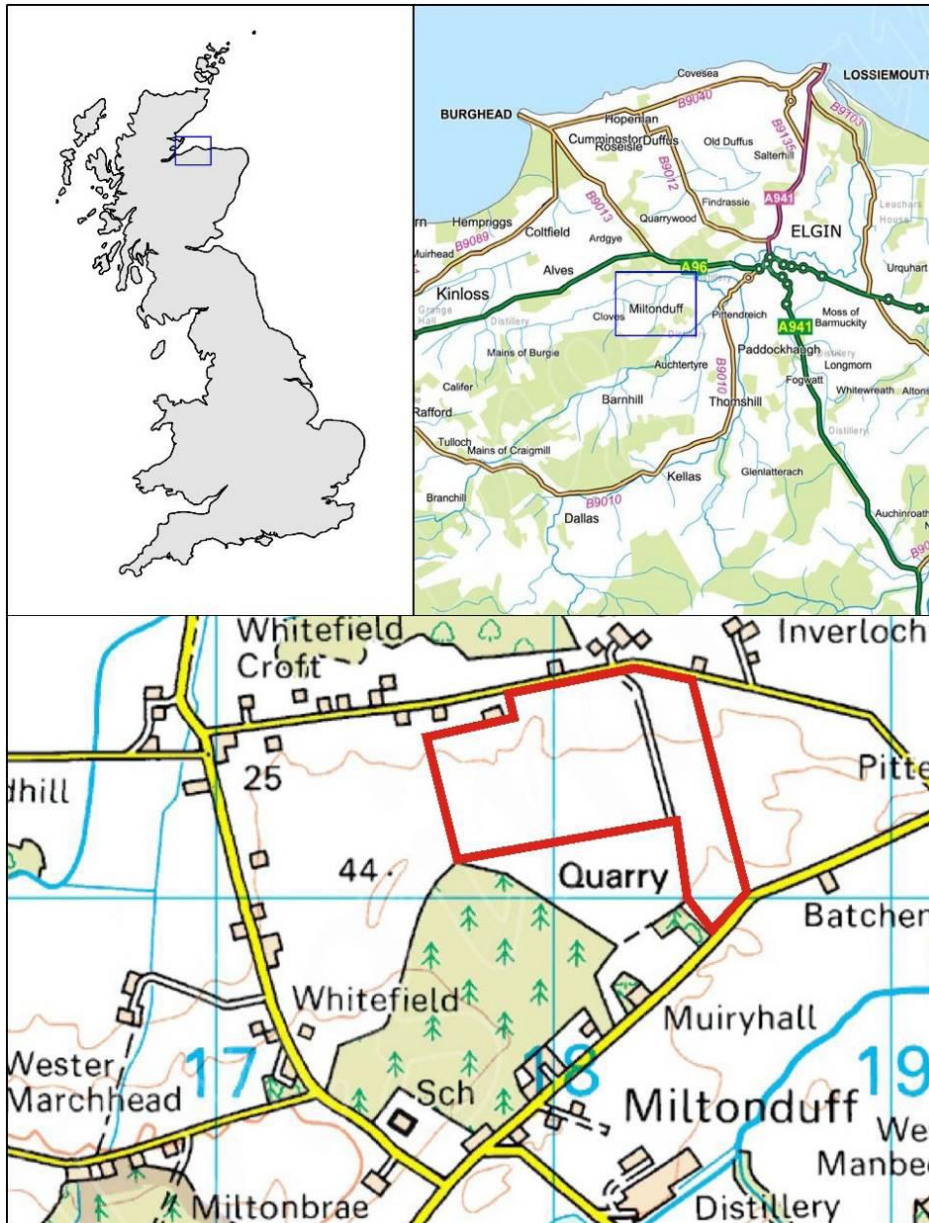


Figure 1: Site location Ordnance Survey data copyright OS, reproduced by permission, Licence no. 100045420

2. Location and Geology

2.1 The planned extension site comprises two large arable fields to the north of the hamlet of Miltonduff, immediately to the north and east of the existing Lochinver Quarry site, just to the west of Elgin. The site covers an area of approximately 34ha and is centred on NJ18136125.

2.2 The solid geology of the area comprises pebbly sandstones from the Alves Beds formations across most of the site although the south-east corner of the extension area is underlain by pebbly sandstone from the Kingsteps sandstone formation with a fault line, running north-east to south-west, separating the two. The bedrock geology is overlain by glacio-fluvial ice-contact deposits comprised of gravels, sands and silts which have the potential to contain peat-filled ice wastage features such as kettle holes which may contain palaeoenvironmental information, as well as being areas that are attractive to past human activity from the prehistoric periods onwards (BGS 2012).

3. Historical and Archaeological Background

3.1 The initial cultural heritage statement (SLR 2011) has shown that significant, buried archaeological remains are likely to survive within the proposed extraction area. These comprise cropmark evidence of Iron Age ring ditches and associated enclosures within the northern extent of the site. Other cropmark evidence for Iron Age settlement and farming activity has also been identified within the wider study area around the development area. A number of other significant heritage sites have also been identified outside the proposed extraction area but within the wider landscape setting. These include the henge monument at Quarrywood, a Scheduled Ancient Monument and historic buildings of national and regional significance, including a unique 16th century dovecote.

4. Aims and Objectives

4.1 The aim of the archaeological evaluation was to gather sufficient information to establish the extent, condition, character and date of any archaeological features and deposits within the area of proposed development, and to record any features or deposits at an appropriate level.

5. Methodology

5.1 The archaeological evaluation comprised four 50 by 2m trenches (Fig. 2).

5.2 The trenches were opened by machine using a toothless ditching bucket in level spits until the natural level was reached, at which point the trenches were examined and cleaned by hand. All machine excavation was carried out under careful archaeological supervision.

5.5 The deposits were recorded according to the normal principles of stratigraphic excavation. Each context was recorded on pro-forma records which included the following: character and contextual relationships; detailed description (dimensions and shape; soil components, colour, texture and consistency); interpretation and phasing as well as cross-references to the drawn, photographic and finds registers.

5.6 Each trench was planned at 1:50, except where blank. Trench sides were also drawn in section at a scale of 1:50. All deposits and the base of each trench were levelled and heights are expressed in metres above Ordnance Datum.

5.7 A photographic record was maintained including photographs of each trench. All images were taken in monochrome and colour print film as well as digital format, and contain a graduated photographic scale.

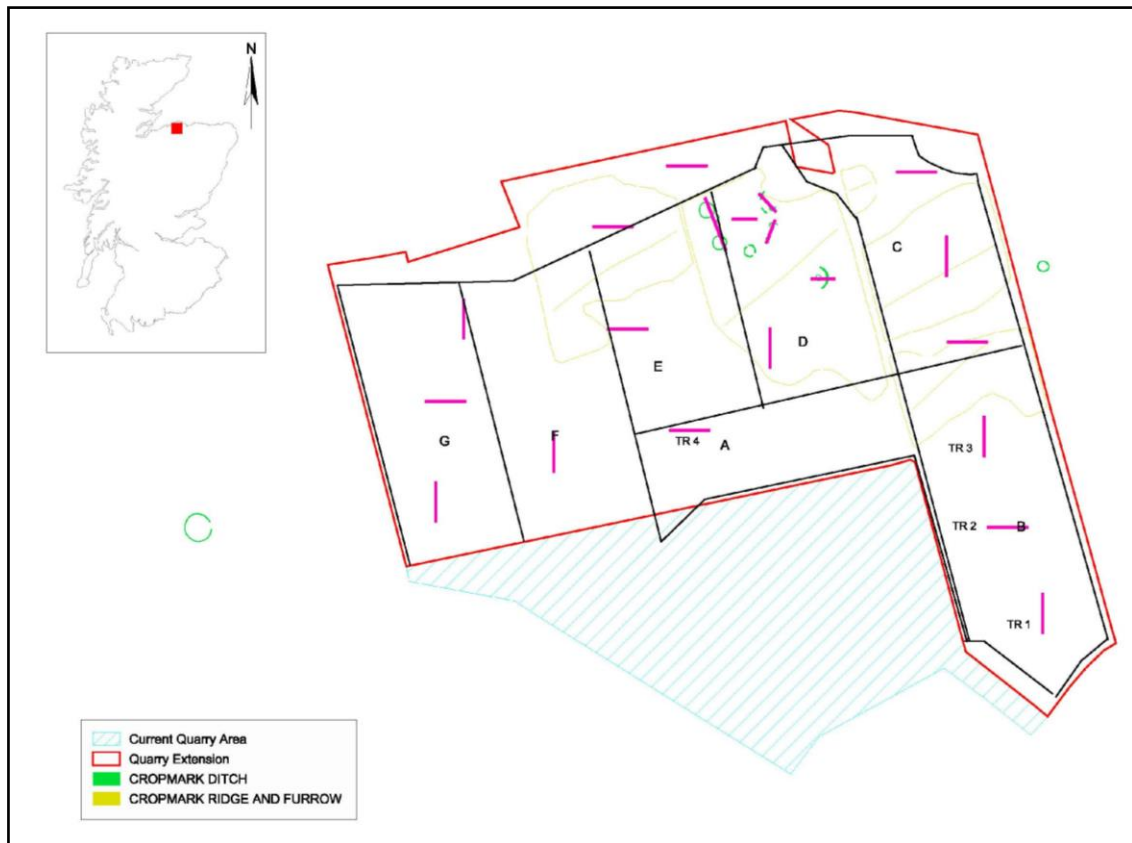


Figure 2: Phasing of Quarry extension with trench locations and aerial photographic transcription of cropmarks.

6. Evaluation Results

6.1 The archaeological evaluation comprised of four 50 by 2m trenches. One trench was excavated in Phase A and three trenches were excavated in Phase B (see Fig. 2). Generally, each trench was dug through dark brown silty loam topsoil which, in some cases, had patches of a thin sandy pale brown subsoil beneath. Each trench was excavated down to the level of the natural sand and gravel deposits. The trenches demonstrated that the area has been extensively ploughed in the past and the hummocky nature of the site has created significant variation in the depth of topsoil cover and subsoil formation. This seems to suggest that lower and flatter parts of the site are likely to hold the best potential for well-preserved archaeological remains, whilst higher points and the tops of the knolls or hummocks across the site, where the topsoil is extremely thin and no subsoil has formed, are unlikely to hold significant potential for the survival of archaeological remains. Features encountered during the evaluation include:

- Two large pit features
- One small pit feature containing pottery
- A stone-filled palisade enclosure ditch

6.2. *Trench 1*

Trench 1 was excavated at the southern extent of Phase B. The trench was excavated through dark brown silty loam topsoil (101), which had a depth of 0.37m. Mottled yellow/brown silty sand subsoil (102) underlay the topsoil to a depth of 0.38m. Beneath the subsoil (102), the natural yellow sand substrate (103) continued beyond the limit of excavation. Towards the southern end of the trench, a small sub-circular pit feature F104 was encountered. The feature had a depth of 0.17m and was 0.9m wide with a bowl-shaped profile. The fill of the pit (104) consisted of light brown silty sand with a number of large rounded stones placed at the base of the pit itself. These stones appeared to have been placed deliberately at the base of the pit. The fill of pit (104) contained a small number of ceramic pot sherds (see Section 7).

A palaeoenvironmental sample was taken from deposit (104) within pit F104 which produced charcoal, cereals and wild weed seeds. A sample of oak roundwood charcoal produced a calibrated radiocarbon date of 1481-1454 cal BC at 95.4% probability (LOCH-2 SUERC-62308) which places the pit and its contents in the mid-Bronze Age period.

Laboratory code	Sample	Material and context	$\delta^{13}\text{C}$ (‰)	Radiocarbon Age BP	Calibrated Date (95.4%)
SUERC-62308	LOCH-2	Oak roundwood charcoal from pit F104, context (104)	-24.0 (‰)	3260±30	1481-1454 cal BC

Table 1: Radiocarbon dating results for pit (104).



Figure 3: Trench 1, facing north (Scale 0.5m graduations).

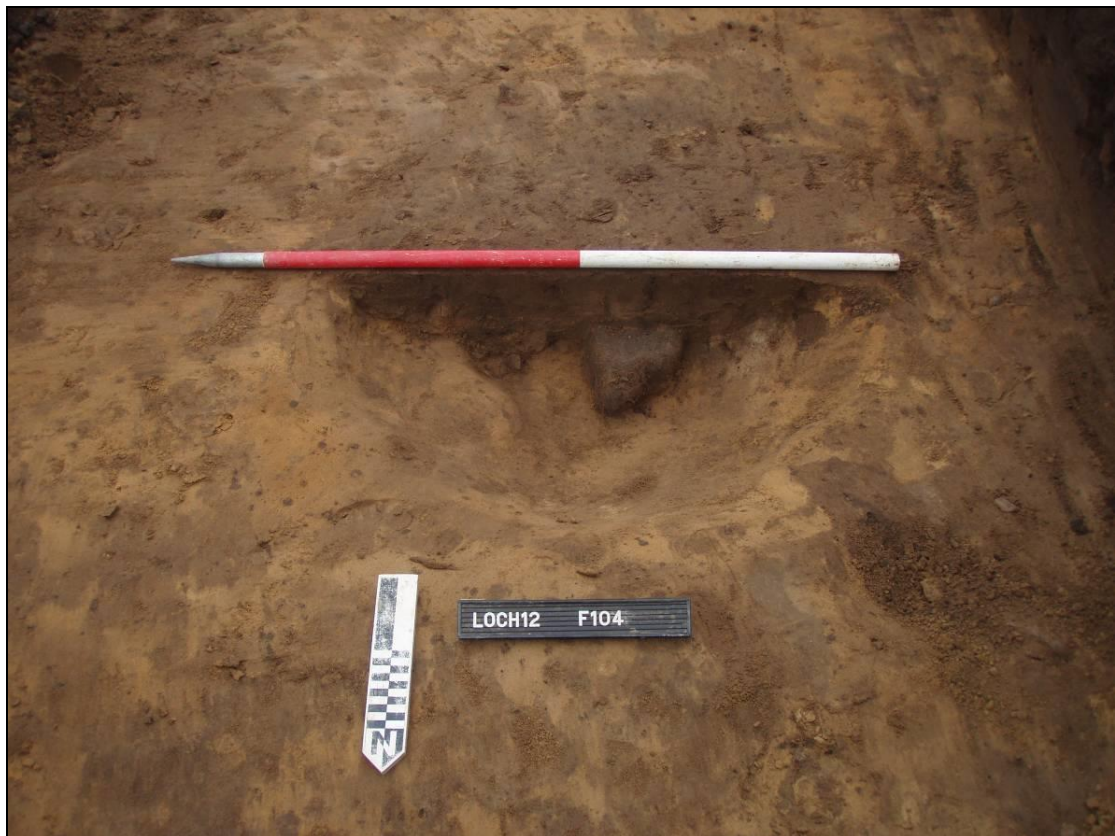


Figure 4: Trench 1, detail of Feature 104 in half-section, facing south (Scale 0.5m graduations).



Figure 5: Trench 1, detail of Feature 104 after excavation, facing south (Scale 0.5m graduations).



Figure 6: Trench 1, detail of Feature 104 during excavation, showing large stones placed at the base of the pit, facing south (Scale 0.5m graduations).

6.3 Trench 2

Trench 2 was dug towards the centre of Phase B, to the north of Trench 1. The trench was dug through dark brown silty loam (201) that had a depth of 0.3m. Beneath this was the pale mid brown silty sand subsoil (202) that had a depth of 0.53m. Towards the western end of the trench, two features were encountered. They consisted of a large irregular pit feature (F206), and a curving slot with vertical sides and a gently rounded base (F203), packed with rounded cobbles. Feature 206 truncated Feature 203 and was therefore stratigraphically later (see Fig. 9). F206 consisted of a large irregular pit measuring 1.96m by 1.36m with a maximum depth of 0.42m. F203 consisted of a curving linear slot with vertical sides and a gently rounded base, measuring 0.44m wide with a maximum depth of 0.44m. The profile of F203 and its stone packing suggest it represents a palisade slot for a timber enclosure. Palisades typically range in date from Neolithic through to Iron Age (including Roman Iron Age in Scotland), though they are also known from the early Medieval period.

The arcing nature of this palisade slot and its form would tend to suggest a prehistoric date, particularly given the proximity of the probable ring ditches identified by aerial photographic transcription to the immediate north west of this area. It is clearly not representative of a massive palisade but rather a relatively low one with timbers perhaps 1.5m to 2m in height above ground. The large irregular pit feature (F206) associated with it may represent a later repair or alteration to the existing palisade.



Figure 7: Trench 2, facing east (Scale 0.5m graduations).



Figure 8: Trench 2, detail of Feature 203 and Feature 206, facing northeast (Scale 0.5m graduations).



Figure 9: Trench 2, detail of Feature 203 and Feature 206, facing northwest (Scale 0.5m graduations).



Figure 10: Trench 2, detail of section through Feature 203 showing stone packing of slot, facing northwest (Scale 0.5m graduations).



Figure 11: Trench 2, detail of section through Feature 206 showing stones within pit fill, facing west (Scale 0.5m graduations).

6.4 Trench 3

Trench 3 was excavated in Phase B, close to the northern edge of that Phase. The trench was excavated through dark brown silty loam topsoil (301) with a depth of 0.25m. Beneath this was pale brown coloured sandy subsoil with a depth of 0.3m. Orange sand and gravel natural was present below this subsoil and continued beyond the limit of excavation. Towards the southern end of the trench, an irregular pit feature was encountered. This feature measured approximately 1m in width, 1.62m in length and had a maximum depth of 0.13m. The pit was sub-ovoid with a relatively flat base and contained one homogenous fill of brown silty loam with common large stones, much the same as the surrounding soils (304). The feature produced no artefacts or ecofacts, and was considered most likely to represent a modern intrusion of unknown purpose.



Figure 12: Trench 3, facing north (Scale 0.5m graduations).



Figure 13: Trench 3, detail of Feature 304, facing north (Scale 0.5m graduations).

6.5 *Trench 4*

Trench 4 was excavated in Phase A, towards the north western corner of the Phase and directly adjacent to the southern boundary of Phase E. The trench was excavated through dark brown silty loam topsoil that had a depth of only 0.3m. At the eastern end of the trench, where the natural substrate was more deeply buried, subsoil (402) had accumulated which was not present at the western end of the trench. This subsoil was mottled yellow/brown silty sand and was 0.5m in depth at its maximum. At the western end of the trench, the topsoil (401) directly overlay the natural sand and gravel deposits (403) which continued beyond the limits of the excavation. This trench was blank and contained no archaeological features or deposits.

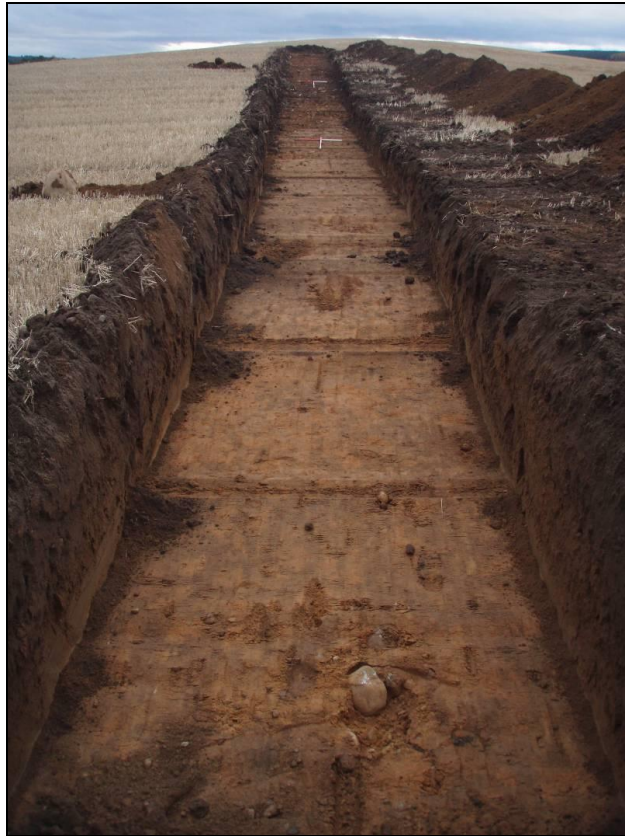
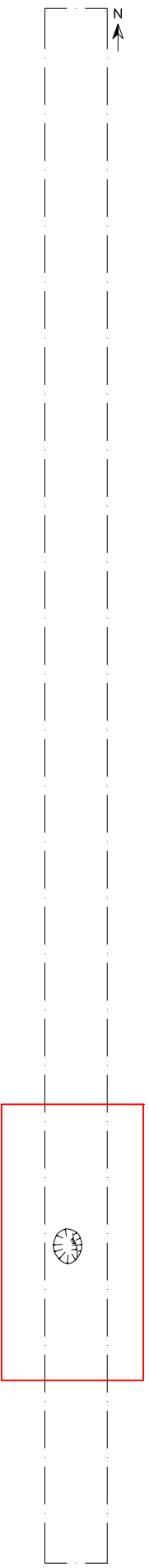


Figure 14: Trench 4, facing west (Scale 0.5m graduations).

Figure 15:

Plans and sections of Trench 1 and features within Trench 1

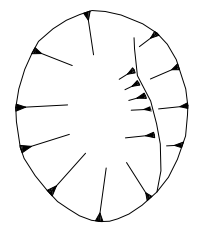
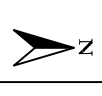
Scale = Various



Scale = 1:200



Key:

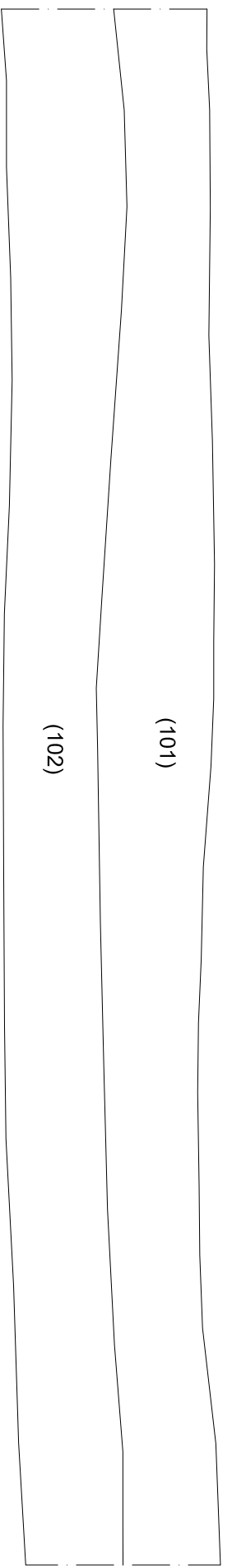


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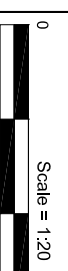
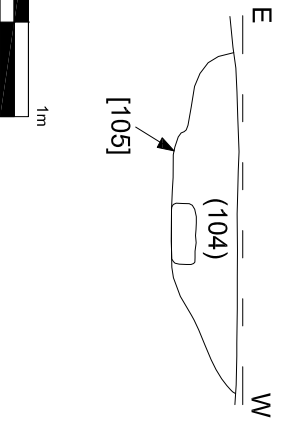
5m representative section of Trench 1

S

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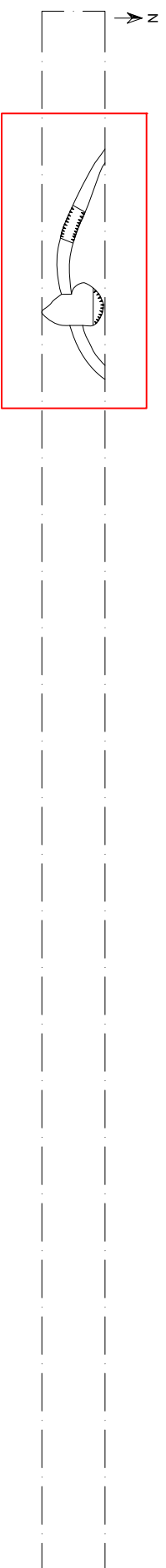


Scale = 1:20



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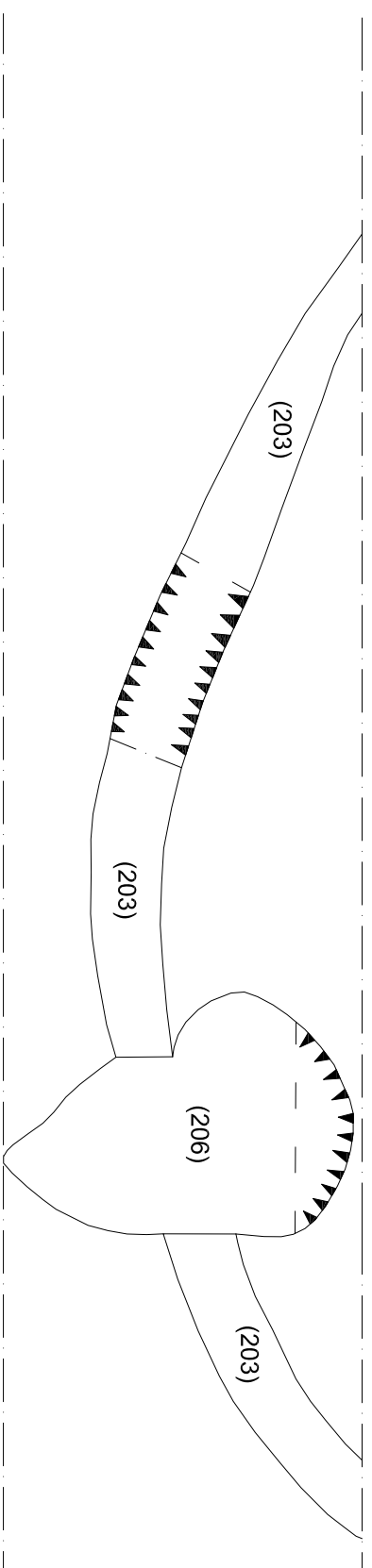
Figure 16:

Plans and sections of Trench 2 and features within Trench 2

Scale = Various



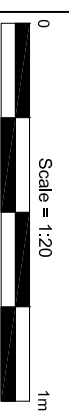
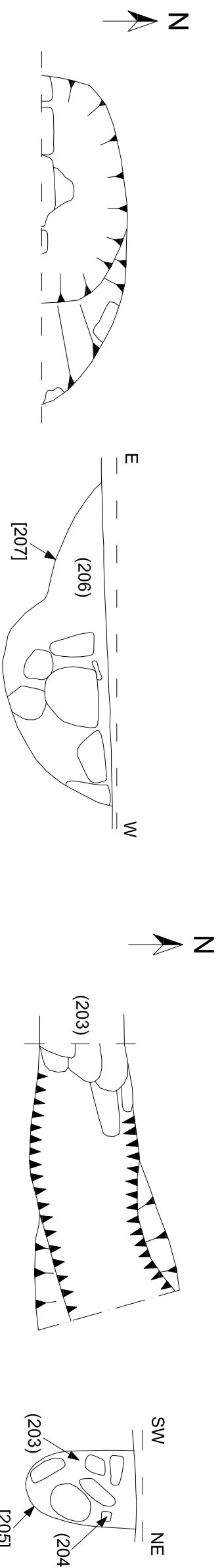
Key:



Scale = 1:40
5m representative section of Trench 2



Scale = 1:40

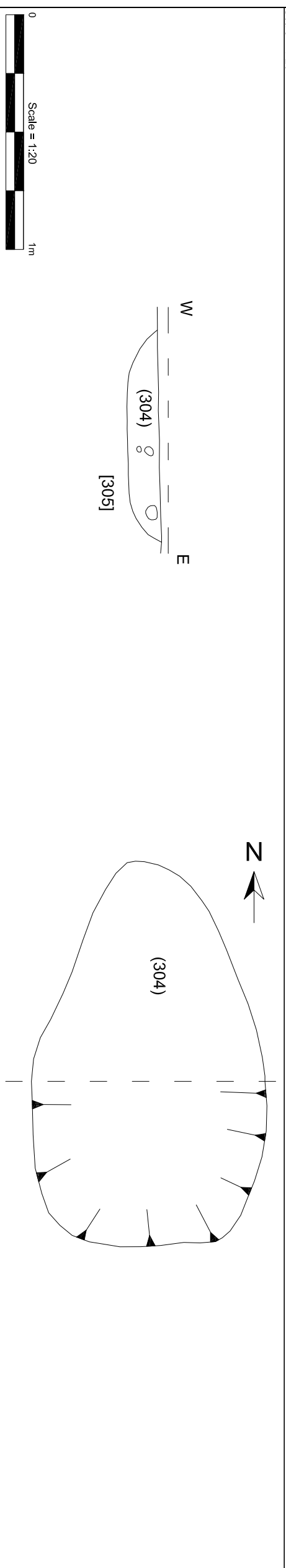
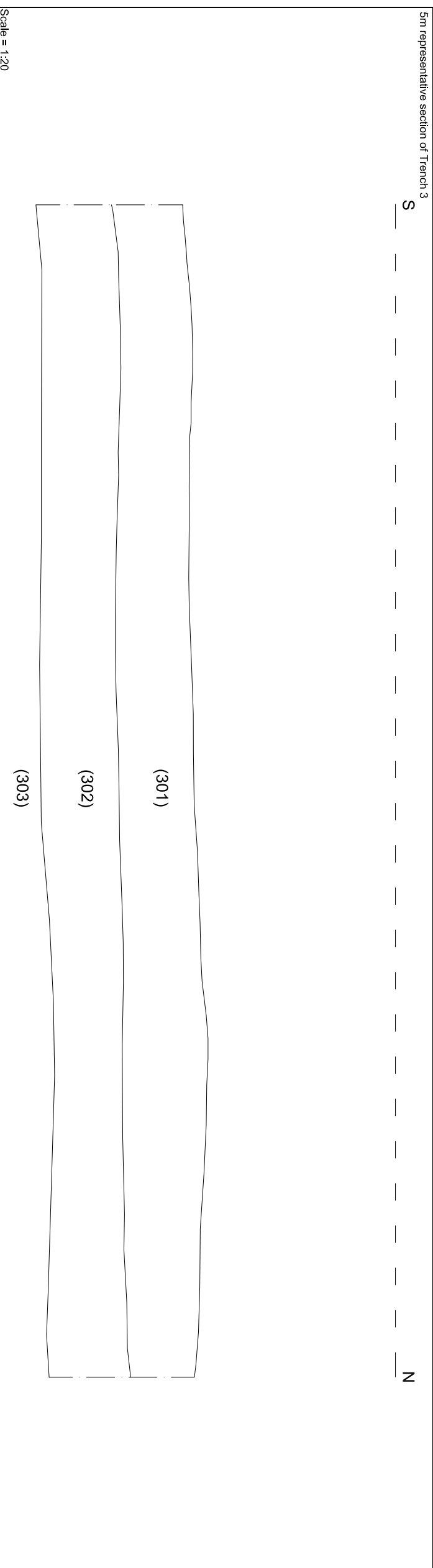
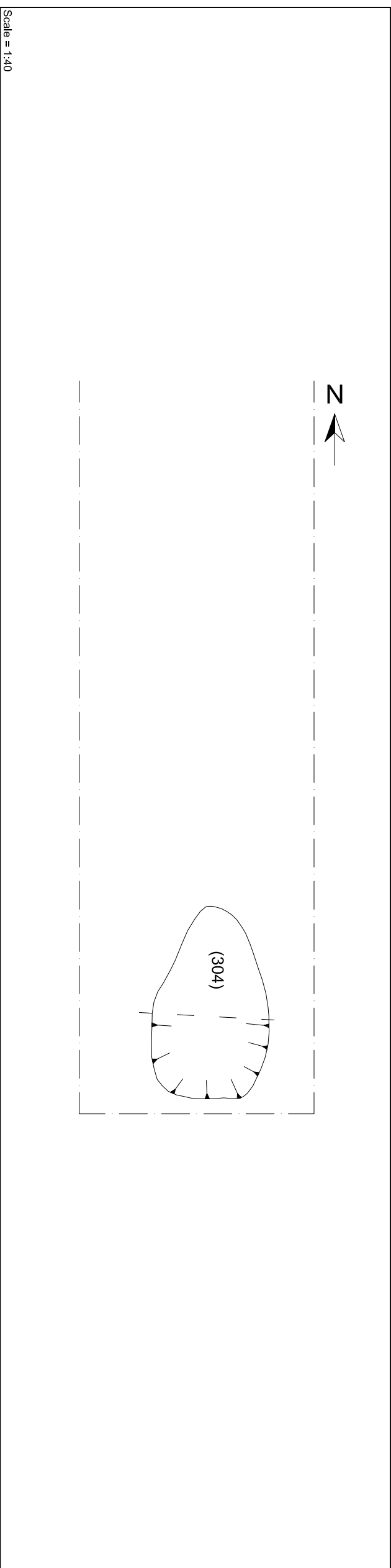
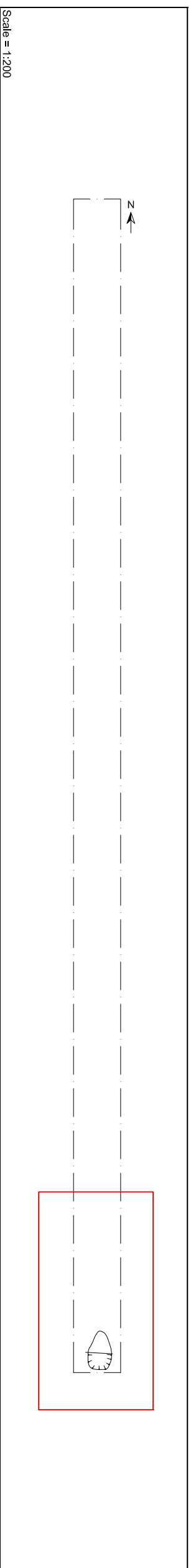


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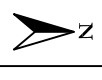
Figure 17:

Plans and sections of Trench 3 and features within Trench 3

Scale = Various



Key:

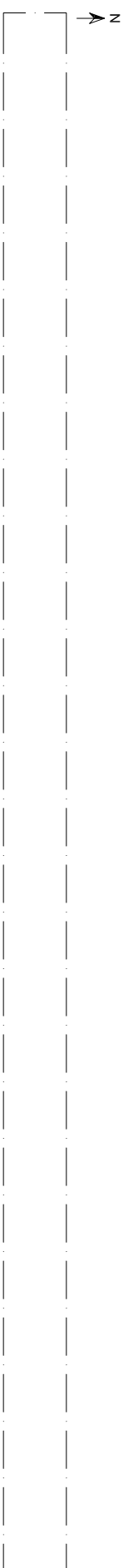


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Figure 18:

Plan and section of Trench 4

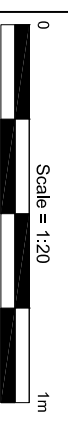
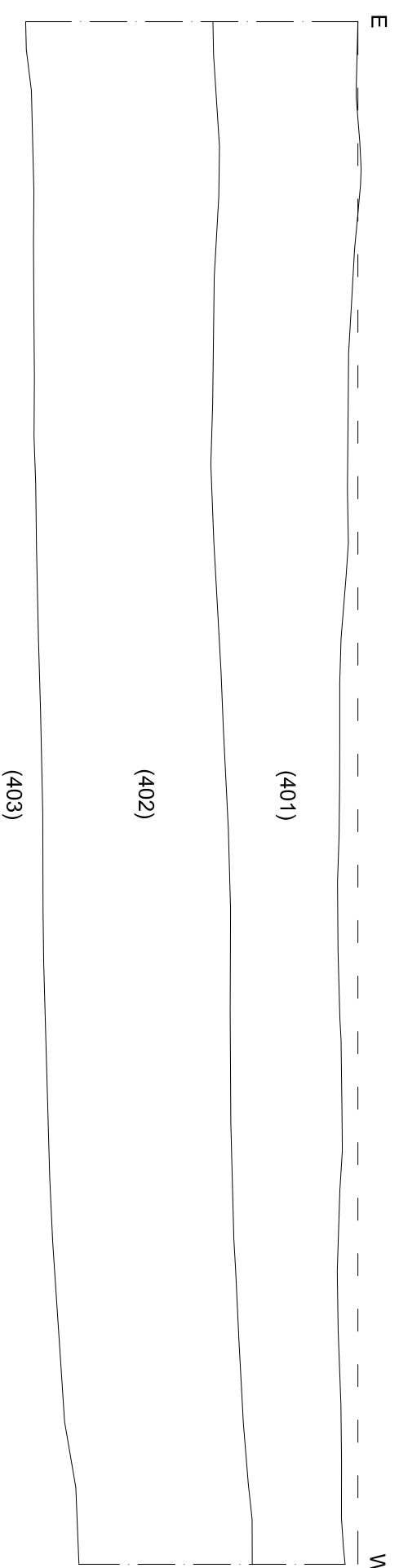
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Key:



Scale = 1:200
5m representative section of Trench 4



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7. Ceramic Analysis

Lochinver Quarry Prehistoric Pottery Assessment and Analysis

Clive Waddington

7.1 Introduction

The small assemblage of ceramic material recovered from Lochinver Quarry comprises three small sherds from context [104]. Two of the three sherds conjoin and are from the body of the same pot whilst the third sherd is a rim sherd from a different vessel. The ceramic material has been assessed based upon consideration of profile, fabric, wall thickness, colour, and depositional context.

None of the sherds have any carbonised residues adhering to their internal surface. Dating material, in the form of hazelnut shell, charred wood fragments, cereal grains and wild seeds were also recovered from the fill of pit [104] which will allow for radiocarbon dating this feature, and by association, the ceramic material.

Context [104] consisted of a small bowl-shaped pit discovered in evaluation Trench 1. It had a sandy fill with large stones placed at the base of pit with the ceramic material coming from the fill above the stones.

7.2 Method Statement

The sherds were gently finger-washed in cold water and then left to air dry. Once they had dried the remaining soil was gently brushed off with a sable shaving brush. The sherds were laid out according to context and then by fabric group and individual vessels. The pottery was examined macroscopically with the aid of a x10 hand lens. No microscopic analysis was undertaken. Two joining sherds were identified and these have been glued together.

Catalogue

No	Context	Description
Vessel 1	104	Vessel 1 is represented by a single rim sherd of undecorated hand-made ceramic. It has a slightly everted and bevelled rim and a slight carination is evident in the sherd's profile indicating a slack-shouldered vessel. The fabric is hard and well-fired though slightly crumbly, with a medium-brown outer and inner surface and core. The fabric is on average 11mm thick although it thins at the rim. It contains angular crushed stone inclusions up to 3mm across, most of which appears to be quartzite. The outer and inner surfaces have been well burnished. A join break is visible along the carination of the largest sherd showing the way it was made using slabs of clay. It is difficult to gauge the outer rim diameter because of the small size of the sherd but it is likely to have had a diameter in the order of 180mm.

Vessel 104
2 This vessel is represented by two small conjoining body sherds. The fabric is hard and slightly crumbly. It has a very smooth, burnished outer surface and rougher burnished inner surface. The outer and inner edge are a medium brown colour whilst the core is black. It contains angular crushed stone inclusions up to 3mm across, although many of the inclusions are much finer than this. The vessel wall ranges between 12.5mm and 15mm thick indicating a thick-walled and substantial vessel. With no further pieces surviving it is not possible to accurately reconstruct the dimensions or form of this vessel.

7.3 *Form*

Vessel 1 is part of a vessel with an everted rim and slack profile. Vessel 2 is of unknown shape and form but is clearly from a substantial thick-walled vessel.

7.4 *Decoration*

None of the sherds exhibit any decoration.

7.5 *Numbers and size*

A total of two vessels are present within the assemblage. The vessels are represented by one only one or two sherds and it is not possible to accurately reconstruct their diameters or size, with the exception of Vessel 1 which has an external rim diameter of around 180mm.

7.6 *Discussion*

Vessel 1 has similarities to Early Neolithic Carinated Bowl ceramics, although given the small size of the sherds and quantity of material this attribution cannot be certain and it is also possible that it could date to later prehistory when shouldered vessels are also known to occur. Being located on the sand and gravel terraces south of Elgin on the southern coastal plain of the Moray Firth suggests that the area of Lochinver Quarry may have formed an attractive locale for prehistoric farming groups, enticed by the relatively level ground, free-draining and fertile soils and the avoidance of flood risk. It is likely that more remains of a similar nature survive on the site. The potential to record a cohesive assemblage of prehistoric ceramics from this site will contribute to understanding the prehistoric communities in the region. The presence of cereal grains in the same context provides the potential to obtain radiocarbon dates on this small ceramic assemblage.

8. Palaeoenvironmental Assessment

Laura Strafford

8.1 *Introduction*

One sample was taken from the excavation at Lochinver Quarry, which produced a flot for assessment. The sample was taken from pit F104 which also produced sherds of prehistoric pottery.

8.2 *Method*

The flot was examined at up to x40 magnification for charred botanical remains using a binocular microscope. Plant nomenclature follows Stace (1997).

8.3 *Results*

The charred plant macrofossil assemblage comprised remains of charcoal, cereals and wild weed seeds, indicating the likelihood that both cultivated crops and wild-gathered foods formed an important part of the diet.

Charcoal was abundant in the flot. Although most fragments were <4mm, there were larger fragments present in the flot that should be suitable for ID if required, and also two large fragments hand collected from site that should also prove adequate ID material.

Cereal grains were present in the sample, although in small quantity. In many cases the highly fragmented and abraded nature of the grain rendered identification difficult and as such are currently unidentified. Approximately 25 grains were noted in total.

Many of the samples contained unidentified small rounded weed seeds (approximately 50 in total), some of which have been tentatively identified to vetch (*Vicia* spp.), wild plant varieties such as cabbage/mustard (*Brassica* spp.), and other species which may, amongst other varieties, represent wild weeds from the **Ranunculaceae** family such as Buttercup.

The sample produced evidence of modern intrusion in the form of modern uncharred seeds.

8.4 *Conclusions*

The assemblage of charred plant remains suggests exploitation of both cultivated crops and wild-collected foods. The results indicate that grain was utilised, although the low number of grains and lack of diagnostic features and chaff hinder identification of the species present.

Analysis of the botanical macrofossils obtained through flotation has shown the presence of charcoal, cereal grain, and other gathered wild resources in a prehistoric context, indicating the potential of the site to inform on prehistoric agricultural practices, economy and diet as well as the exploitation of natural resources.

8.5 *Recommendations*

No further analysis is recommended for the plant macrofossils at this stage due to their low numbers and poor preservation. Archaeological recording and mitigation work undertaken at the site should consider the results of this assessment in combination with the results from such excavation.

SITE CODE	SAMPLE NUMBER	CONTEXT NUMBER	FEATURE	DATE	FLOT VOL.	ASSESSED VOL.	Charcoal	Grain	Seeds	Weed seeds	Chaff	Other	Notes	ANALYSIS?
LOCH 12	1	104	?	?	?	100%	++++ +	++ +		++ +			100% of flot scanned. Abundant charcoal, should be some identifiable fragments if required. Fragmented and abraded unidentified cereal grain, ~25 examples noted. Common various weed seeds, ~50 examples in total, many highly fragmented and difficult to determine ID - possibly including vetch (<i>Vicia</i> spp.), seeds of the Brassicaceae family (wild mustard, etc.), and other seeds that may represent meadow species such as buttercup. Also associated with this context is a bag of hand collected charcoal containing 2x large fragments, which should be suitable for ID.	N
LOCH 12	-	203	?	?	-		+						3x fragments of charcoal hand collected from site. Likely to be large enough for ID	N
LOCH 12	-	204	?	?	-		+						3x fragments of charcoal hand collected from site. Likely to be large enough for ID	N

Table 2: Palaeoenvironmental samples analysis

9. Discussion

9.1 The archaeological evaluation has shown that the quarry site at Lochinver has the potential to contain substantial prehistoric remains. Glacio-fluvial ice-contact deposits comprising gravels, sands and silts, such as those encountered across the site, have proven to have been very attractive to prehistoric settlers and the site at Lochinver appears to be no exception. One of the pits excavated in Trench 1 produced prehistoric pottery while a large pit and associated possible palisade enclosure slot, were discovered in Trench 2. The number of significant features encountered in the small number of evaluation trenches, combined with the undisturbed nature of the landscape, indicates that there is great potential for the remainder of the site to contain important archaeological remains.

9.2 The presence of well preserved early prehistoric remains are potentially regionally significant and a controlled strip of the evaluated phases may reveal substantial information regarding the prehistoric landscape. Evidence of potential settlement, land-use and identifying the scale, date and function of the palisade are all key targets for further work at the site.

10. Conclusions

10.1 Archaeological Research Services Ltd undertook an archaeological evaluation on land forming Phases A and B of a phased extension to Lochinver Quarry, near Elgin, Moray. The archaeological evaluation comprised four 50 by 2m trenches with significant archaeological remains revealed in three of the four trenches.

10.2 Trench 1 uncovered a shallow, ovoid pit that contained large stones towards its base and produced sherds of prehistoric pottery. A flotation sample was taken from the pit and was found to contain charcoal, cereal grain, and other gathered wild resources typical of early prehistoric contexts. Trench 2 contained a large pit which cut through a probable palisade enclosure slot, the two of which are thought to be associated. Trench 3 also contained a small pit; however it did not produce any artefacts or ecofacts and it was not possible to ascribe it a date or function.

10.3 The archaeological features encountered in the small number of evaluation trenches demonstrate the potential and type of multi-period archaeological remains that survive on the site as heavily truncated buried features cut into the upper layer of the sand and gravel substratum. This archaeology is relatively rare and its ability to aid understanding of early farming groups as well as later prehistoric groups in the region means it is of moderate significance.

11. Recommendations

11.1 A strip, map and sample approach to subsequent phases of work is recommended as an appropriate methodology for dealing with the site as this would allow for accurate mapping of all surviving archaeological features within each phase combined with a targeted approach to archaeological sampling in order to achieve cost-effective recording and understanding and to answer key questions in relation to form, function, date and significance

12. Publicity, Confidentiality and Copyright

12.1. Any publicity will be handled by the client.

12.2. Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

13. Statement of Indemnity

13.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

14. Acknowledgements

14.1 Archaeological Research Services Ltd would like to thank all those involved with this work, in particular Niall Blair and Ronnie Towns of Tarmac Ltd.

15. References

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SLR 2011. *A Cultural Heritage Statement of Lochinver Quarry, Moray.*