Keltie Bridge, Callander: Archaeological Excavation and Geophysical Survey Data Structure Report

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Keltie Bridge, Callander: Archaeological Excavation and Geophysical Survey Report

On Behalf of:	**Loch Lomond and The Trossachs National Park Authority**
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Table of Contents

List of Figures

List of Plates

List of Appendices

Summary

A geophysical survey and archaeological test pit investigation was carried out at the site of Keltie Bridge, Callander. This was undertaken as a community project with the Callander Landscape Trust Initiative to investigate cropmarks identified through aerial photographs.

The archaeological test pitting revealed part of a large pit that may form part of the wider monument. The geophysical results showed several archaeological features including possible pits and a potential large bank. These results demonstrated an error in the aerial photograph transcription, with the features identified in the aerial photograph actually located to the north and east. Taken together, the results indicate a complex site that potentially form an early Neolithic pit-defined cursus monument.

Given the findings of the fieldwork, it is recommended that further post excavation analysis would be beneficial. Additionally, a further programme of geophysical survey and wider open-area excavation which targets the results of the geophysical survey would greatly enhance the understanding of this site.

1 INTRODUCTION

1.1 Background

1.1.2 A community archaeology training project involving archaeological test-pitting and geophysical survey was carried out at the site of a prehistoric enclosure at Keltie Bridge to the east of Callander. This project was undertaken as part of the community-led Callander Landscape Partnership initiative. The programme of archaeological works was in keeping with best practice outlined in current planning policy and guidelines: Scottish Planning Policy (2014) & PAN 2/2011 Planning and Archaeology (2011).

1.2 Location

1.2.1 The site is located approximately 70m north and 150m east of the Keltie Water (Allt a Choire Bhric) and is centered on NGR: NN 64909 06706 (Figure 1). The site is situated on a gravel terrace which forms part of the flood plain of the Keltie Water and undergoes periodical ploughing. The location of the enclosure is situated at the top of a terrace which slopes gently to the west and south towards the river. The site lies at a height of 76m AOD and is bordered to the north and east by the A84 road (Figure 1).

2 ARCHAEOLOGICAL BACKGROUND

2.1 Overview

2.1.1 The prehistoric enclosure (NN60NW 25) at Keltie Bridge was first recognised as a cropmark in an aerial photograph survey on the gravel terrace above the river in 1979 (Plate 1). The cropmark was recorded as comprising up to 20 pits, which may form the southern and western sides of a rectilinear enclosure (RCAHMS 1979). The western arm of the L-shaped enclosure is made up of two distinct alignments, which meet at a facet 8m north of the corner of the overall enclosure, with one slightly larger pit visible within the angle. As the enclosure is incomplete as visible from the aerial photographic record, its classification remains in doubt (RCAHMS 1998).

Plate 1: Aerial photograph of cropmark from 1979, looking east (RCAHMS 1979).

2.1.2 Though the full extent of the structure is unknown, it has been suggested to comprise a rectilinear arrangement of pits or postholes that could be paralleled with similar monuments such as Enclosure 2 at Bannockburn, Stirling (NS 81591 90152; NS89SW 24) (Barclay *et al* 2002; Rideout 1997). This interpretation would include the enclosure at Keltie Bridge as part of a relatively recently classified group of monuments known as timber cursuses.

2.1.3 Whilst the importance of stone and earthen monuments of the Neolithic has long been known (Millican 2016), timber monuments have only recently been considered in the same light. This is due to timber monuments' invisibility on the ground, and the antiquarian obsession with larger upstanding monuments. However, since the advent of aerial survey in the 1970s, a range of cropmarks have been identified and subsequently dated to the Neolithic, although of varying date and function, through investigation. These include timber cursus monuments, timber enclosures,

timber halls, timber mortuary structures, timber settings, avenues and timber enclosures, timber circles and palisaded enclosures (Millican 2016).

2.1.4 These features are generally characterised as structures built of substantial wooden posts, the majority of which are oak, and are unroofed structures. They survive as pits and post-holes which would have supported wooden upright posts. The difficulty in classifying these monuments is that the majority have been identified though aerial survey, which are often incomplete images. As such, the need for invasive archaeological investigation of these monuments is well-established and their value shown by recent excavations at, for example, the timber cursus monument at Upper Largie (NR 8319 9933; NR89NW 43; Cook *et al* 2010), Milton of Rattray (NO 19740 44790; NO14SE 82; Brophy 2000) and Dunragit (NX 14924 57403; NX15NW 76; Thomas 2004); the enclosures excavated during the SERF research project and the timber halls at Claish (NN 6355 0656; NN60NW 57; Barclay, Brophy and Macgregor 2002) and Lockerbie (NY 13361 82715; NY18SW 222).

2.2 Timber Cursus

2.2.1 A recent detailed review and analysis of timber cursus monuments has highlighted both the importance of these structures for our understanding of the early Neolithic and the relative paucity of detailed studies of these sites to date (Brophy and Millican 2015). Cropmarks representing pit or posthole defined rectilinear arrangements were recognized in the 1970s as potentially related to the wider class of earthen ditch and bank cursus monuments known from the Neolithic throughout Britain (Brophy 1999). This interpretation received confirmation through excavations in the 1970s and 1980s, with more intensified analysis being carried out in the 1990s. More recent excavations of pit and posthole defined cursus monuments in Scotland have augmented these interpretations and our wider understanding of these structures (e.g. Hollywood North and South (Thomas 2007); Upper Largie (Cook *et al* 2010)).

2.2.2 Predominantly located on low-lying land, twenty-nine probable timber cursus monuments have been recorded as cropmarks in Scotland (Brophy and Millican 2015). The site of Keltie Bridge is not included amongst these and may be considered a westerly addition to the distribution of these monuments. More than thirty potential cursus monuments have been suggested by Halliday (2011) though this includes a wider range of forms of potential cursus monument and similarly does not include the site of Keltie Bridge. This raises the question of how these monuments are defined and understood in relation to their distribution in the landscape. The potential biases of cropmarks as a reliable representation of the 'true' distribution of monument type has also been highlighted as the locations of aerial photograph identified cursus monuments coincides with areas of improved

pasture where cropmarks are found. Halliday (2011) argues that to combat this bias we should include a wider classing of monuments including linear stone alignments such as at Achavanich in Caithness, and Callanish in the Western Isles, but more recent work has demonstrated that these stone alignments may belong to the later Neolithic and early Bronze Age (Richards 2013).

2.2.3 To date, eight posthole or pit defined cursus monuments have been excavated in Scotland. The excavated evidence places these timber cursus monuments firmly in the earlier part of the Neolithic of Scotland, in the first three quarters of the fourth millennium cal BC, possibly as early as c.3700 cal BC (Whittle *et al* 2011). These dates have been somewhat debated, with competing suggestions of earlier (Thomas 2006) and later iterations of these monuments (Loveday 2006). Significantly, early Neolithic Carinated Bowl pottery was found in association with one of the enclosures at Bannockburn (Rideout 1997), adding weight to the argument that these monuments were amongst the earliest in Britain. Several of the excavations of timber cursus monuments were carried out in the 1980s and the sampling of material for radiocarbon dating during this period has been criticised, including the use of oak timbers which are subject to the 'old wood effect' (Ashmore 1999; Brophy and Millican 2015). The debate surrounding the dating of these structures can only be resolved with further excavation and meticulous dating of these structures.

2.2.4 Though all are rectilinear in overall form, both cropmark and excavation evidence emphasise the variability of these monuments. They may range in length from c.50m to 500m with widths varying within and between sites, from approximately 14m to 45m (Brophy and Millican 2015). Terminals are present at some sites, at either or both ends, comprising further postholes or pits, often of greater size and depth (e.g. at Dunragit (Thomas 2004), at Douglasmuir (NO 6153 4812; NO64NW 99) (Kendrick 1995), and at Castle Menzies (NN 8304 4939; NN84NW 48) (Halliday 2002)). Though internal features such as pits and transverse divisions (represented by postholes) can be found at several sites, the width of these structures precludes the possibility of roofing.

2.2.5 Though the length of these structures means that the full extent of many timber cursus is unknown, the overall forms that are recorded are somewhat irregular. Despite an overall linearity of form of these structures, the almost erratic and sometimes discontinuous arrangements of the pits and postholes has frequently been noted – even for the more 'complete' sites such as Douglasmuir (Kendrick 1995). This may represent multi-phased construction (Brophy and Millican 2015) perhaps involving multiple groups of people, as has been suggested for other early Neolithic monuments such as causewayed enclosures (Barclay *et al* 1995).

2.2.6 Evidence for burning of posts, dismantlement, and consequential post-replacement (as at Holm (NX 95960 80380; NX98SE 86) and at Dunragit (Thomas 2015:149)) also suggests that these monuments were not static but open to continued engagement. It has been argued that these structures were burnt down, sometimes followed by re-erection but the charcoal within the postholes may similarly result from charring of the post-bases to slow decay processes and some sites lack any indication of burning (Brophy and Milcan 2015; *contra* Millican 2016). It may be that the linear timber monuments that we envisage from the overall plans of postholes never existed as a complete form but rather in sequences of erected and dismantled sections. It is likely however, that even as parts of the structure were dismantled and others erected, the linear form of the monument would have been retained with the remnants of posts or postholes visible. Fastidious dating of material from different parts of these structures in wide-scale excavation would potentially allow an opportunity to draw out potential tempos and phasing of these structures over time.

2.3 The Keltie Bridge Cursus

2.3.1 The crop mark identified through aerial photography at Keltie Bridge was transcribed by Kirsty Millican (Historic Environment Scotland 2017). Following this transcription, the enclosure is at least 15m in width and more than 100m in length.

2.3.2 There are larger features also evident along the west side which may be large pits or large post pits. It is unknown to which phase of the monument these features may belong.

2.3.3 The postholes evident from the aerial photographic evidence are neither perfectly straight nor continuous. There is a clear concave section of the posthole alignment at the south end where it meets the east – west alignment of the proposed terminus. Where this concave arrangement of postholes meets the main north-south alignment, there is a clear disjunction. This variability and discontinuity is directly comparable with other timber cursus monuments (such as the two at Inchbare (NO 60800 65464; NO66NW 49) and with cursus monuments in general (Harding and Barclay 1999).

2.4 The Timber Hall, Claish

2.4.1 Located approximately 1.4km to the west of Keltie Bridge, is the site of Claish timber hall. Similarly identified through cropmarks and consequently excavated, the site of Claish comprises a timber hall and related features dating to the early Neolithic (probably the second quarter of the fourth millennium cal BC), with evidence of later Bronze Age activity. The early Neolithic timber hall can be

situated in a wider context of timber halls dating from this period in lowland Scotland such as Balbridie (NO 7335 9590; NO79NW 16) (Barclay, Brophy and MacGregor 2002). It is approximately 24m in length and 8.5m wide, with internal divisions and postholes (Barclay, Brophy and MacGregor 2002). Variously argued as comprising the ancestral homes of some of the earliest Neolithic settlers and fulfilling a more ritualised social role, these were probably roofed rectilinear timber halls.

2.4.2 The relations between rectilinear timber halls, timber cursus, and timber mortuary structures has frequently been noted with some sites shifting between classifications (e.g. Douglasmuir and Inchtuthil (NO 1254 3956; NO13NW 5.06). More recent studies have carefully unpicked the differences between timber structures of the early Neolithic and offered more defined classifications (Millican 2016). However, there is clearly some relation between these early Neolithic rectilinear structures, often found within similar landscapes or in association to each other (e.g. Cleaven Dyke (NO 1633 4049; NO14SE 80) (Barlcay *et al* 1995)).

2.5 Auchenlaich Cairn

2.5.1 Located approximately 450m north of the site of Keltie Bridge is Auchenlaich cairn (NN 6498 0715; NN60NW 4), one of the longest chambered cairns in Britain. At more than 340m in length, it is aligned NNW-SSE with a trapezoidal stone chamber at the SSE end. The original form of both the chamber and overall monument are difficult to discern due to considerable disturbance of the site. This includes alleged emptying of a lateral cist on the west side of the mound in the 1950s (Foster and Stevenson 2002). Due to this disturbance, and the unusual length of the structure, it is possible that this is a multi-phased structure as argued for similar sites (e.g. Corcoran 1972).

2.5.2 Given the length of Auchenlaich chambered cairn, the only comparable sites in Britain are the bank barrows at Maiden Castle, Dorset (SY 6692 8850; SY68NE 7) and Tom's Knowe / Lamb's Knowe in Dumfriesshire (NY 2501 9798; NY29NE 102). Bank barrows and cursus monuments have been suggested as analogous monuments particularly with reference to the linearity and length of these structures, as they may relate to movement within the landscape (Bradley 1983).

2.5.3 Despite the potential for multiple phases at Auchenlaich cairn, it is likely that at least some elements of this structure may be contemporary with the timber hall at Claish (Whittle *et al* 2011: 832). Interpreted as a timber pit defined cursus monument, potentially with several phases, the site of Keltie Bridge is likely contemporary with these sites.

3 OBJECTIVES

3.1 The objectives of the archaeological works were:

- to confirm the extent and scale of the enclosure through trial test pits and geophysical survey;
- to recover potential dating evidence from the enclosure and any associated features;
- to provide professionally-led training opportunities in surveying and excavation for local volunteers and wider audiences;
- to enhance knowledge locally and nationally about the cultural heritage site; and
- to contribute towards the Historic Environment Record for this area to help with future management decisions and interpretation.

4 METHODOLOGY

4.1 The program of archaeological works was conducted in two concurrent stages. Stage 1 consisted of test pitting to target features identified through transcription of the aerial photographic evidence. The test pits comprised two 2m by 2m pits excavated by hand and the topsoil was sieved for artefact retrieval using 1cm mesh sieves.

4.2 Stage 2 involved geophysical survey of the site centred over areas of potential activity identified from transcription of the cropmark evidence. This involved a resistivity survey of four 20m by 20m grids and encompassed the areas in which test pitting was carried out.

5 RESULTS

5.1 STAGE ONE – TEST PITTING

5.1.2 The weather during the test pitting was generally fair allowing for good archaeological visibility.

5.1.2 The first test pit (TP1) was located to investigate two possible postholes of the N-S aligned features of the cropmark record. The second test pit (TP2) was situated to investigate one of the features in the E-W alignment of features, at its most southerly extent (Figure 2; Figure 3).

Plate 2: Community volunteers excavating in Test Pit 2.

5.1.3 Of the two test pits, only TP1 identified archaeological remains.

Plate 3: Post-ex of Test Pit 2 from west.

5.1.4 In TP2, no archaeological remains were discovered (Plate 2). As a result of sieving, some possible worked stones (SF01; SF02); modern ceramics (SF03), glass (SF04), and ceramic building material (SF08); slag (SF05); two pieces of possibly worked flint (SF06); and possible worked quartz (SF07)

were found within the topsoil. The topsoil in this test pit was at a depth of approximately 0.2 - 0.3m and comprised a mid-grey brown sandy silt with occasional small rounded pebble inclusions. Underlying this was a coarse sterile gravel. It was considered possible that this gravel may have been masking archaeological deposits or features so it was excavated to a total depth of one metre. The deposit continued beyond this depth and was interpreted as a natural gravel deposit (002) (Plate 3). It comprised coarse gravels and poorly sorted rounded and sub-rounded waterworn stones c.0.05-0.3m in diameter (Figure 4).

5.1.5 In the western half of TP1, underlying topsoil of a depth of c.0.2m, a feature was encountered (Figure 5). This was a feature [003] cut into the natural gravel (002), extending west, north, and south beyond the limits of excavation. Within the test pit it measured E-W 1.18m wide continuing to the west and extending N-S beyond the 2m length of the test pit. It had a maximum depth of 0.37m but it is likely that the base of the feature was out with the excavated area. The overall shape of [003] was sub-circular though the full extent is unknown (Plate 4). It had a sharp break of slope at the surface, sloping steeply before becoming a more gentle slope towards the base which was not achieved (Figure 6). It was filled by a gradually accumulated deposit (004) which comprised a firm mid-red brown sandy silt with occasional charcoal flecks and frequent sub-rounded stone inclusions near the base of the fill. Sieving of the topsoil in this test pit resulted in the retrieval of stone (SF09) and mixed modern material (SF10).

Plate 4: Post-ex of large pit feature [003] in Test Pit 1, from north.

5.1.6 The test pits were backfilled by hand and the turf was re-instated.

5.1.7 The results of the excavation area were mixed. Though TP2 did not identify any archaeological remains, the pit [003] identified in TP1 may be one of the larger pit features identified from cropmark evidence (Figure 7). As the transcription upon which the location of the test-pitting was based was created from an aerial photograph taken in 1979, a certain margin of error is to be expected. Given the results, we can suggest that the pit or post-hole defined enclosure may be located to the east of that area indicated by the transcription.

5.2 STAGE TWO – GEOPHYSICAL SURVEY

Aims

5.2.1 The aims of the geophysical survey were to:

- identify the location of the features identified on aerial photography;
- identify previously unknown archaeological features;
- identify areas of archaeological potential for possible future investigations;
- teach volunteers about the different techniques used in archaeological investigations; and
- give students the opportunity to undertake resistivity survey.

Geology, Topography & Vegetation

5.2.2 The underlying solid geology of Bridge of Keltie is Teith Sandstone Formation, a sedimentary bedrock formed approximately 393 to 408 million years ago in the Devonian Period (BGS 1:50,000).

5.2.3 The superficial geology is River Terrace Deposits (undifferentiated) - Gravel, Sand, Silt and Clay (BGS 1:50000) formed by fluvial activity. The depth of this deposit is not known.

5.2.4 The survey area is situated on a relatively flat terrace with a gentle break of slope to the west, sloping towards another flat terrace.

5.2.5 The survey area is used for grazing livestock and is currently under grass crop. The land is ploughed intermittently on a rough 3year rotation. The vegetation is short grass with two large mature trees situated to the east of the survey area.

Methodology

5.2.6 The geophysical survey was conducted using a resistivity (electrical current) technique.

Resistivity Survey

5.2.7 The resistivity survey was conducted using a GeoScan RM15 with 0.5m probe separation. The data was recorded in 20m by 20m grids and readings taken every 0.5m by 0.5m (Plate 5).

Plate 5: Community volunteers carrying out resistivity survey.

Resistivity Processing

5.2.8 The resistivity data was downloaded directly into GeoPlot v4. The data was edge matched in order to compensate for slight differences in the background probe readings during probe movement. The data was then despiked to remove some of the high reading anomalies at a X=1 Y=1 and a threshold of 1.5. The data was then interpolated once in the Y and once in the X direction to increase the resolution.

Results

5.2.9 The resistivity survey covered a targeted area of 4 grids in the general location of the cropmark. Repeated parallel linear anomalies were noted running NW-SE diagonally across the survey area, these represent the overall trend of modern ploughing.

5.2.10 Seven low resistance anomalies were noted within the survey area (Figure 8). They are about 2m in diameter and as they are low resistance it would suggest that these anomalies area rich in moisture and could therefore be pits filled with silted infill. They could also be a natural hollow in the

underlying bedrock which has trapped the moisture but their arrangement and similarity to the aerial photograph anomalies suggest an anthropogenic origin.

5.2.11 A large L-shaped high resistance anomaly was identified running roughly N-S across the grid with an E-W extension at the southern end (Figure 9). This anomaly measures 5-6m wide and continues to the north out with the surveyed area. The high resistance indicates a stonier feature or spread and could be remnants of the base of a plough truncated stonier deposit.

Conclusion & Recommendations

5.2.12 The resistivity survey has been successful in identifying modern land use (ploughing) and several likely archaeological features including several possible pits and a large high resistance stony deposit (Figure 10).

L-shaped Anomaly and possible pits

5.2.13 This stony deposit could well relate to remnants of a plough truncated stone rich bank or feature related to the possible pit alignment identified on aerial photographs. The location and arrangement of this anomaly, respecting but not overlying the break in slope, and similarity in form to the L-shaped pit defined cropmark known in the field indicate a likely anthropogenic origin for this feature rather than a natural change in geology. The existence of a high resistance anomaly mirroring this rough L-shape on the ground is interesting. It continues to the north out with the survey area – indicating a continuation of the feature in this direction. It also fades out to the east, indicating the width of this feature might be similar to that identified on the aerial photographs. Possible pits have been identified in the resistance survey – and seem to respect the edge of or follow the L-shaped high resistance anomaly.

Cropmark Location

5.2.14 The L-shaped pit alignment identified on aerial photography is interpreted as a pit alignment/enclosure/possible cursus monument. Pits relating to this identified feature can be seen in places on the resistance survey but offset from the current cropmark location, indicating a need to relocate the cropmark transcription further to the north and east (Figure 11). This explains the lack of features identified in Test Pit 2. The edge of the feature identified in Test Pit 1 could be evidence of a pit respecting the edge of the stony deposit.

6 WORKSHOPS AND COMMUNITY ENGAGEMENT

6.1 Throughout the project, comprehensive training was provided to the nineteen participating volunteers in various aspects of excavation, recording, and geophysical survey. Additional workshops were held to offer further training opportunities. This included a workshop on wider survey techniques comprising the use of a GPS (Plate 6). A finds workshop was also held which introduced the participants to a wide range of artefacts types including pottery, lithics, metal objects, and coarse stone tools (Plate 7).

Plate 6: Community volunteers undertaking a GPS survey.

Plate 7: Artefact workshop.

6.2 Detailed training manuals were provided to all volunteers over the course of the project, expanding on the training provided on-site. Archaeological Skills Passports were also provided, with feedback offered to volunteers on their participation in the various elements of the project.

6.3 Pupils from a local primary school visited and learned about the prehistory of the site. They also had an opportunity to learn about and handle different artefacts from a broad range of archaeological periods.

7 DISCUSSION

7.1 Keltie Bridge Cursus

7.1.1 The results of the resistivity survey combined with the results of test-pitting clearly demonstrate that the cropmark identified through aerial photographs is located further to the north and east than suggested by the transcription.

7.1.2 The possible large pit [003] identified in TP1 may relate to a large feature though not one identified through the geophysical survey or cropmark evidence. This suggests that a greater number of

features comprise this site than are detectable through these methods and are only identifiable through excavation.

7.1.3 Pit [003] is comparable to pits, or even large post-pits, excavated at other timber cursus sites such as Dunragit (Thomas 2015). Pits such as this can be considered almost ubiquitous for Neolithic sites (Loveday 2012). With pits in excess of 2.7m wide known at some sites such as at Dubton Farm, in Angus (NO 583 604; NO56SE 83) (Brophy and Noble 2012). The association, and phasing, of these pits in relation to cursus monuments is uncertain, as to whether they are the result of contemporary activity or later interactions (e.g. Monktonhall (NT 35029 71002; NT37SE 49)and Douglasmuir (Brophy 1999)).

7.1.4 Perhaps most intriguing is the results from the geophysical survey showing a high resistance anomaly, suggesting a possible L-shaped bank, 5-6m wide, that follows the form delineated by the cropmark evidence. Several low resistance anomalies possibly comprising pits or large postholes are also found within the possible bank. This evidence suggests multiple possibilities for the form of the monument, considering other sites with similar evidence. Excavations at the Cleaven Dyke showed evidence of a possible large posthole in one of the banks (Barclay *et al* 1995). It may be that these comprise different phases of the monument but the site at Keltie Bridge may have elements of different cursus-type monuments, particularly given the variability of these monuments.

7.1.5 The width of the monument, as identified in relation to the high resistance anomaly, is approximately 30m E-W. At this point, the possible bank feature appears to diminish, though further resistivity to the east and north would clarify this image.

7.1.6 There are a number of low resistance anomalies that are aligned E-W, potentially comprising an internal traverse division by pits or postholes. These are located to the north of the E-W features identified through the cropmark evidence. Though it is possible that some of these features are the result of variations in the natural geology, the consistency of the alignment with the other evidence suggests that they are archaeological features. Though this requires testing through excavation, these features contribute to the growing image of a complex site.

7.2 The Wider Context

7.2.1 Identification of this site as a timber or pit-defined cursus monument has wide-ranging implications for our understanding of the Neolithic in Scotland. Though the exact dating of these monuments is debated, they are generally considered as part of the earlier Neolithic and may form some of the

earliest monuments constructed in Scotland. This site may have been constructed within a few generations of the first communities farming in this area.

7.2.2 Timber cursus monuments have been considered as possible precursors to the more widely known ditch and bank monuments - a ditch and bank cursus replaced an earlier timber phase at Holm, Dumfriesshire (Thomas 2015). This has ramifications for how we understand cursus monuments more generally across Britain. The current picture remains unclear and more dating is needed of these structures to determine whether the earliest cursus forms were indeed timber and found within Scotland.

7.2.3 This site of Keltie Bridge is not simply another 'dot' on the distribution map but represents one of the most westerly known sites in this area. It has the potential then to enhance our understanding of timber cursus monuments more widely as constructed in disparate areas. The burning of timber posts before or after erection, or perhaps only in certain parts of the monuments, with evidence differing between sites – is a question that remains open to debate. Similarly, the potentially multi-phased nature of construction requires further attention that could be addressed in an open area excavation.

7.2.4 It may be that this site was constructed in multiple phases or that the large pits apparent in the aerial photographs, the results of the geophysical survey and as excavated during this project represent a specific configuration of the monument. The sites of Milton of Rattray, Perth and Kinross (Brophy 2000), and Enclosure 1 at Cowie Road, Bannockburn (Rideout 1997) comprised alignments of pits rather than postholes. While the differences between post-defined and earthwork cursus monuments has received some attention (Thomas 2015; Brophy 2016), the associations with pit defined cursus have not been drawn out in any detail. As noted, pits are present at both timber and earthen cursus but the potential phasing of these remains uncertain. At Keltie Bridge, there is clear evidence of pits and further work may demonstrate the relation between these and any potential postholes or whether the site may be a pit-defined cursus.

7.2.5 The location of the site of Keltie Bridge has further potential for understanding the early Neolithic of this area. Situated close to the excavated site of the early Neolithic timber hall of Claish and the probable early Neolithic chambered cairn of Auchenlaich, this site offers a rich opportunity to draw out narratives of this locality during the Early Neolithic. It is feasible to consider that the same generations who constructed the timber hall at Claish and the chambered tomb of Auchenlaich also constructed the possible timber cursus at Keltie Bridge. Situating these sites in their wider landscape may offer insights into the history of this area. It should be noted that all three sites are

orientated within a few degrees of N-S towards the current site of the Bracklin Falls Bridge. This is where the Keltie Water follows south from the hills, and this valley through which it flowed may have formed a routeway through the hills in the Neolithic. The relation between cursus monuments, rivers and movement has often been suggested (Malim 1999; Brophy 2000: 52). This has also been suggested for long bank barrow monuments (Bradley 1983). It can be suggested that these three sites refer to this point in the landscape and further landscape analysis may draw out this relation in more detail.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 This project has carried out an initial geophysical survey of the site of the prehistoric enclosure of Keltie Bridge. It is suggested that the site represents a pit or posthole defined cursus monument, of a type only known in Scotland of which few have been excavated. During the project, thorough professionally-led training was provided to 19 volunteers over four days in carrying out geophysical survey and test-pitting. Volunteers were provided with the opportunity to excavate and record features, learning about all stages of the archaeological process.

8.2 The results demonstrate that the site of Keltie Bridge has considerable potential for our understanding of cursus monuments, for creating a narrative of this area in the early Neolithic, and significantly enhancing our knowledge of the Neolithic more generally. The site can improve our understanding of the context of the nearby early Neolithic sites of Claish and Auchenlaich cairn. The evidence from the geophysical survey suggests a complex monument, not only demonstrating the diversity and variability associated with pit-defined and timber cursus monuments more generally but suggesting relations between multiple monuments. The possible bank noted is unknown at other timber or post defined cursus monuments, being more reminiscent of earthen cursus monuments. This site has the potential to draw out the long-debated relations between these different cursus monument forms while also providing an opportunity to consider relations with other early Neolithic structures such as bank barrows and timber halls.

8.3 These results are indicative of a complex site, and one that merits further investigation. Post-excavation work would provide additional information and may be desired by the client. Further work could comprise wider geophysical survey of the site, particularly to the east and north to identify the full extent of the monument. Following this, targeted wider area excavation of the structure and associated features would provide a greater understanding of the site and allow an opportunity to situate it in the wider context of these monuments in the early Neolithic of Scotland.

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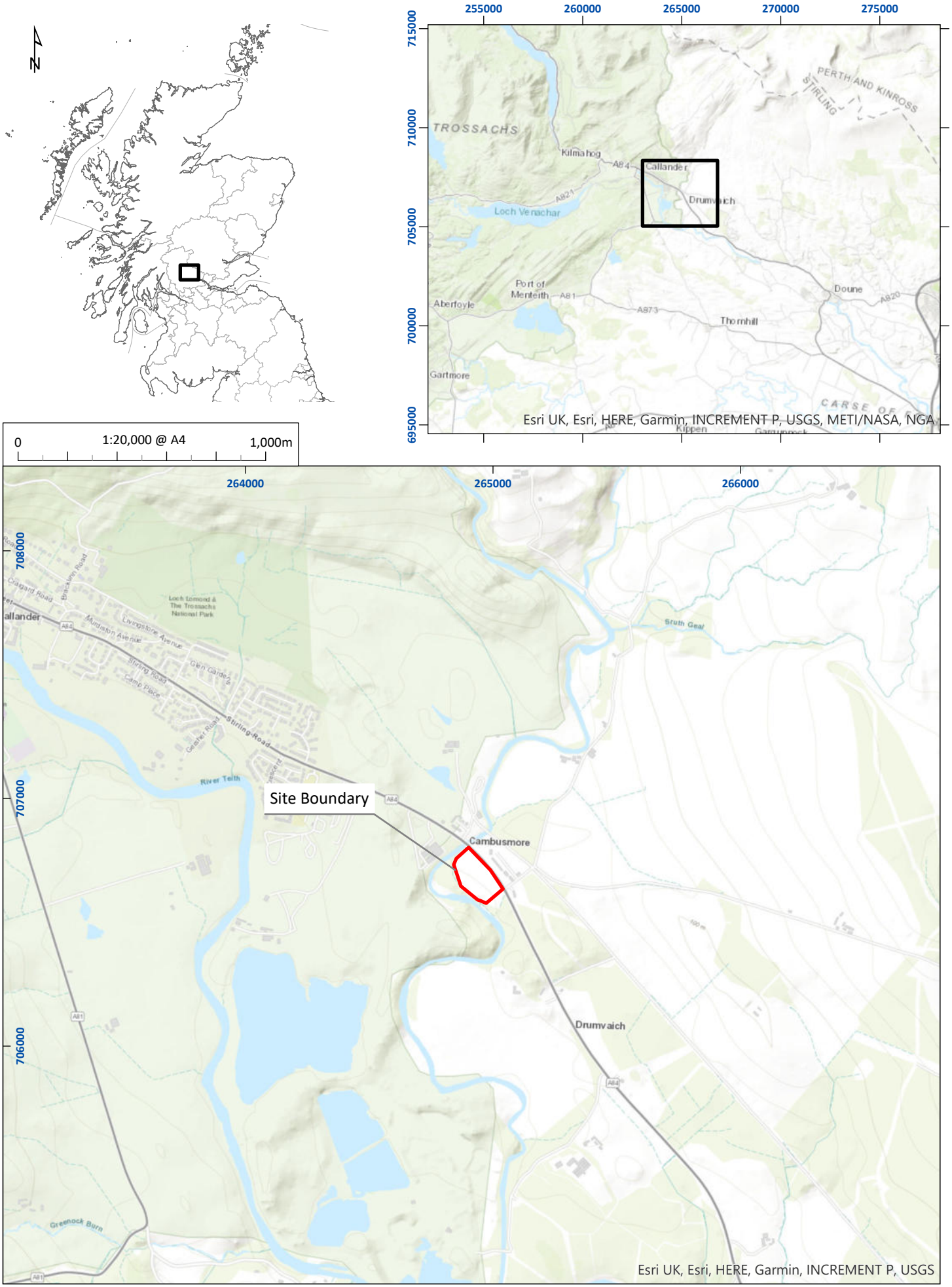


Figure 1: Site location plan

01/24992/DSR/01/01

Figure 2: Location of test pits in relation to the transcribed cropmark, in wider context

01/24992/DSR/02/01

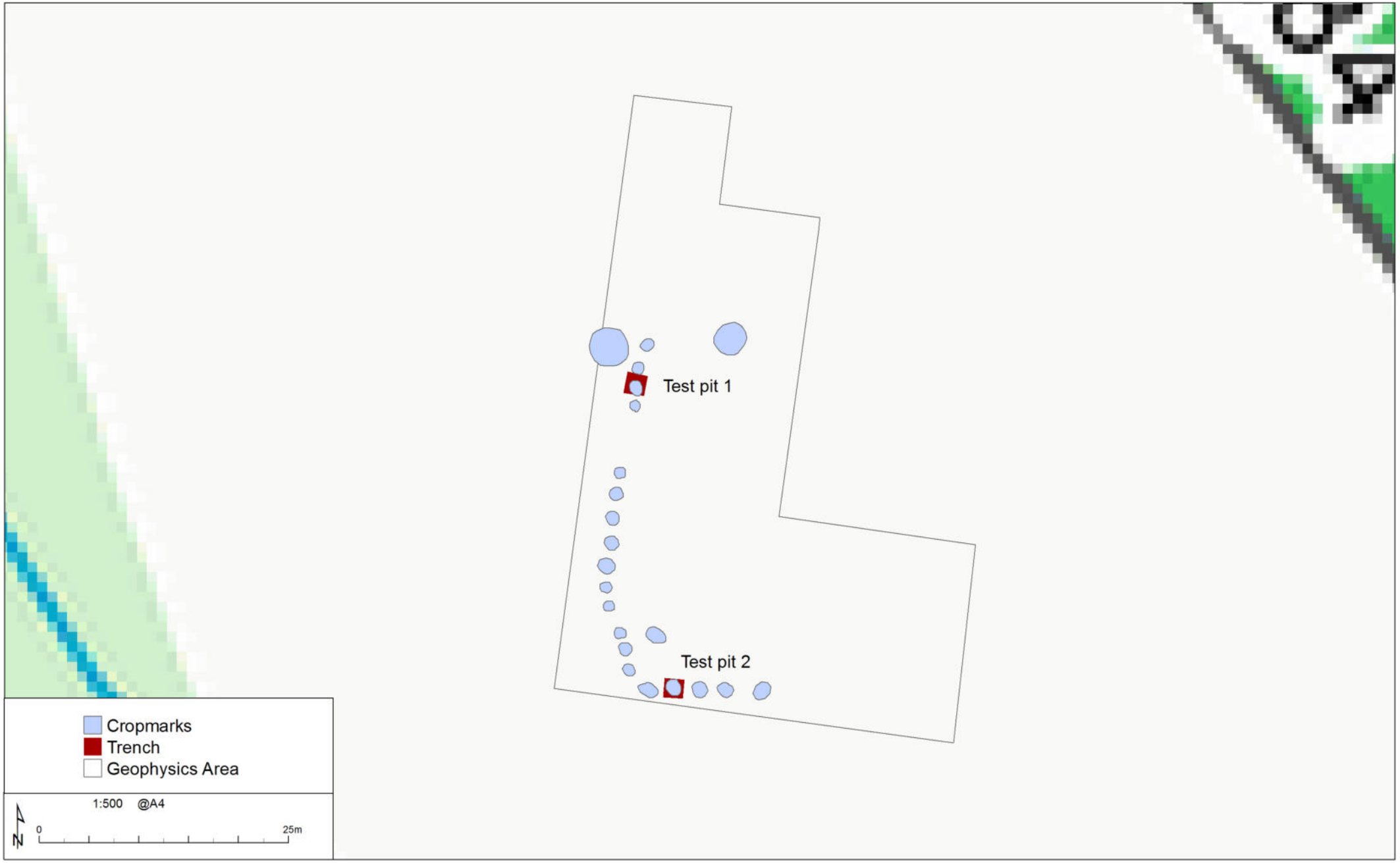
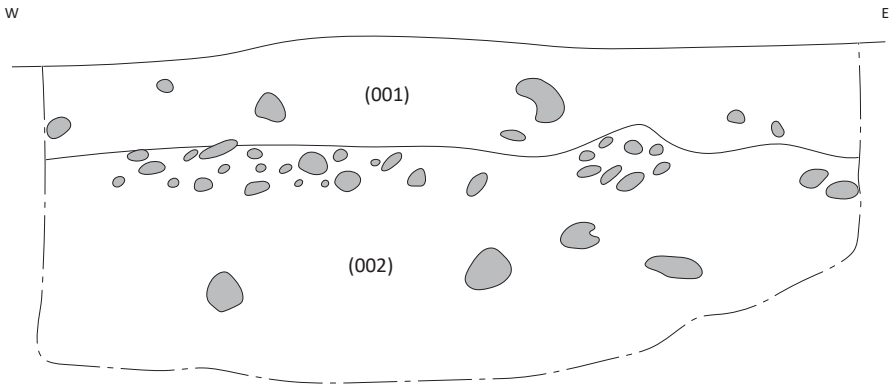


Figure 3: Location of test pits in relation to transcribed cropmark

01/24992/DSR/03/01

DWG 22



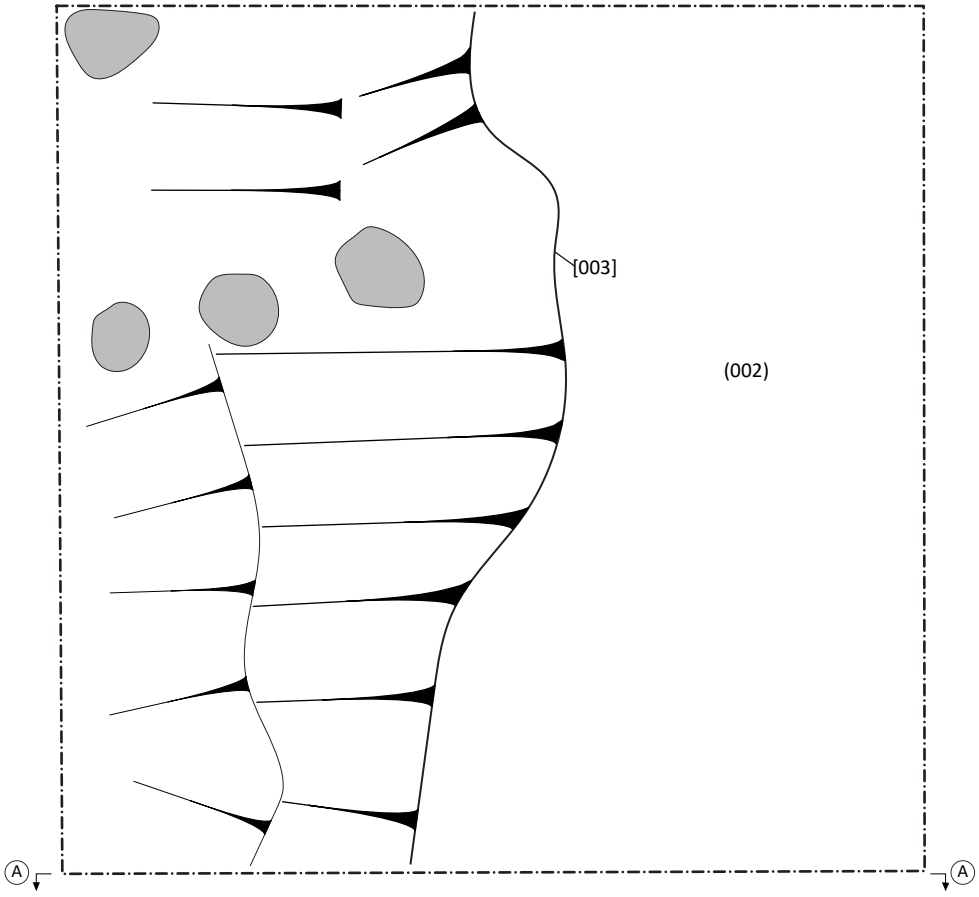
Key

Stone

0 1:10 at A4 0.5m

01/24992/DSR/04/01

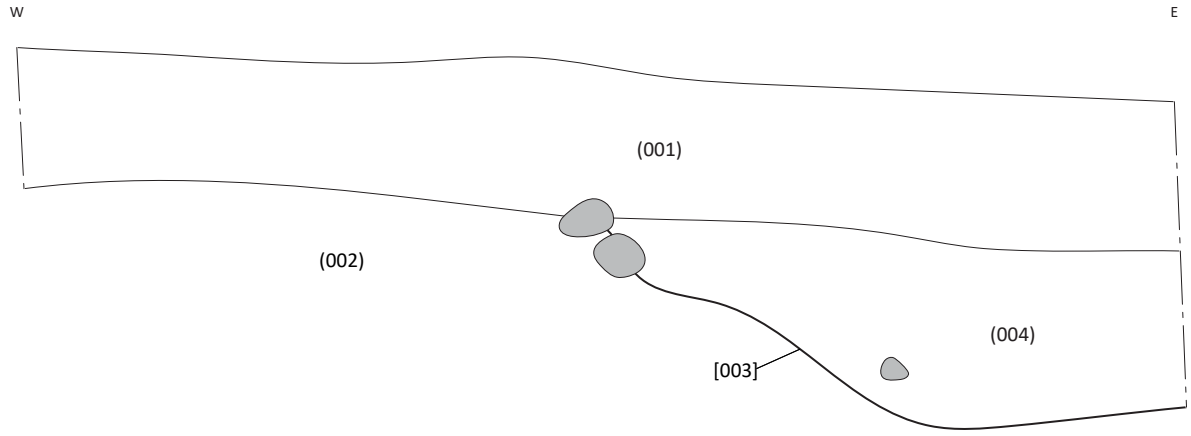
Figure 4: South-facing section of test pit 2

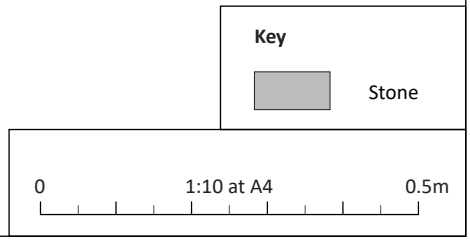


01/24992/DSR/05/01

Figure 5: Plan of test pit 1 showing pit [003]

Section AA
DWG 4





01/24992/DSR/06/01

Figure 6: North-facing section of pit [003] in test pit 1

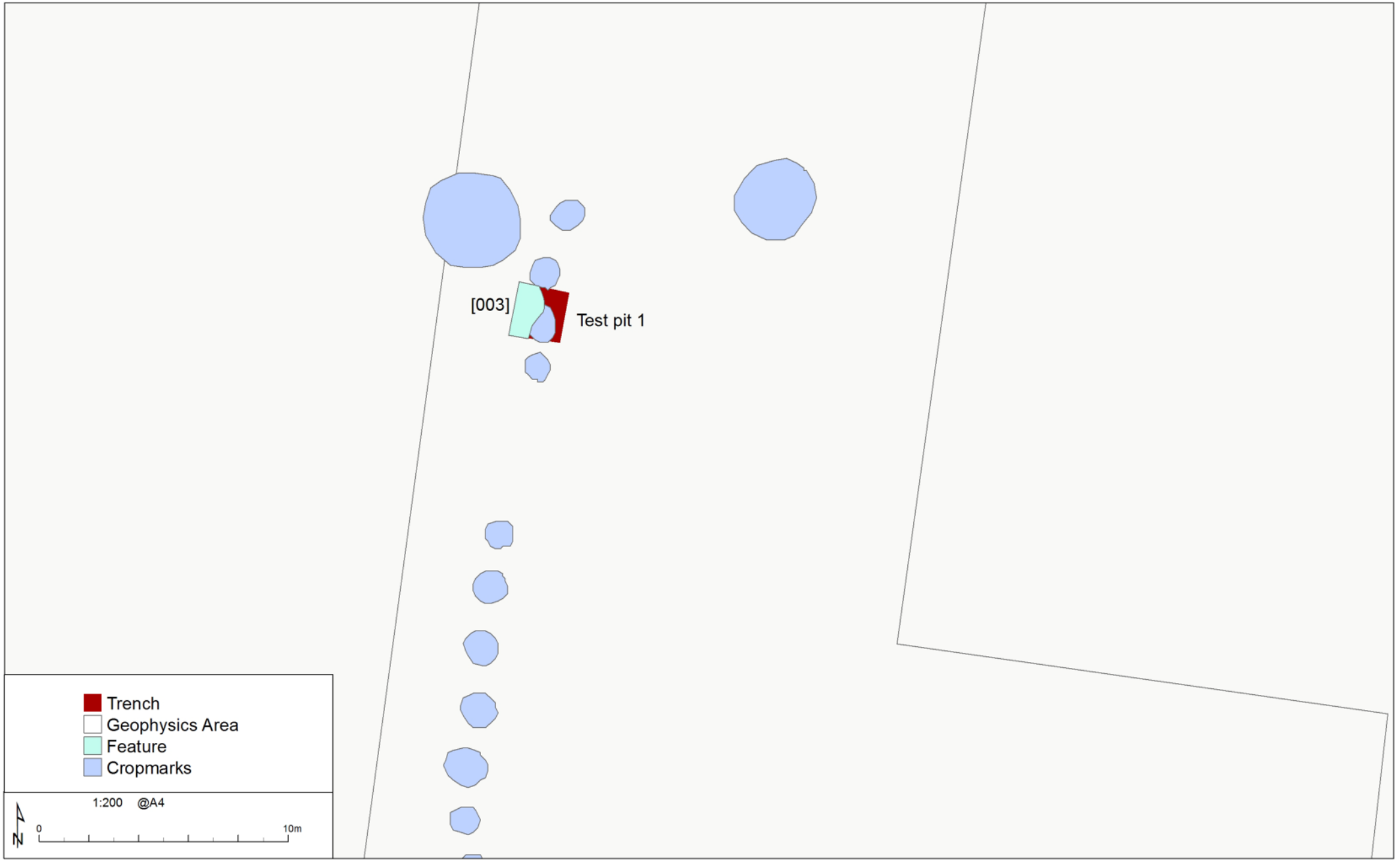
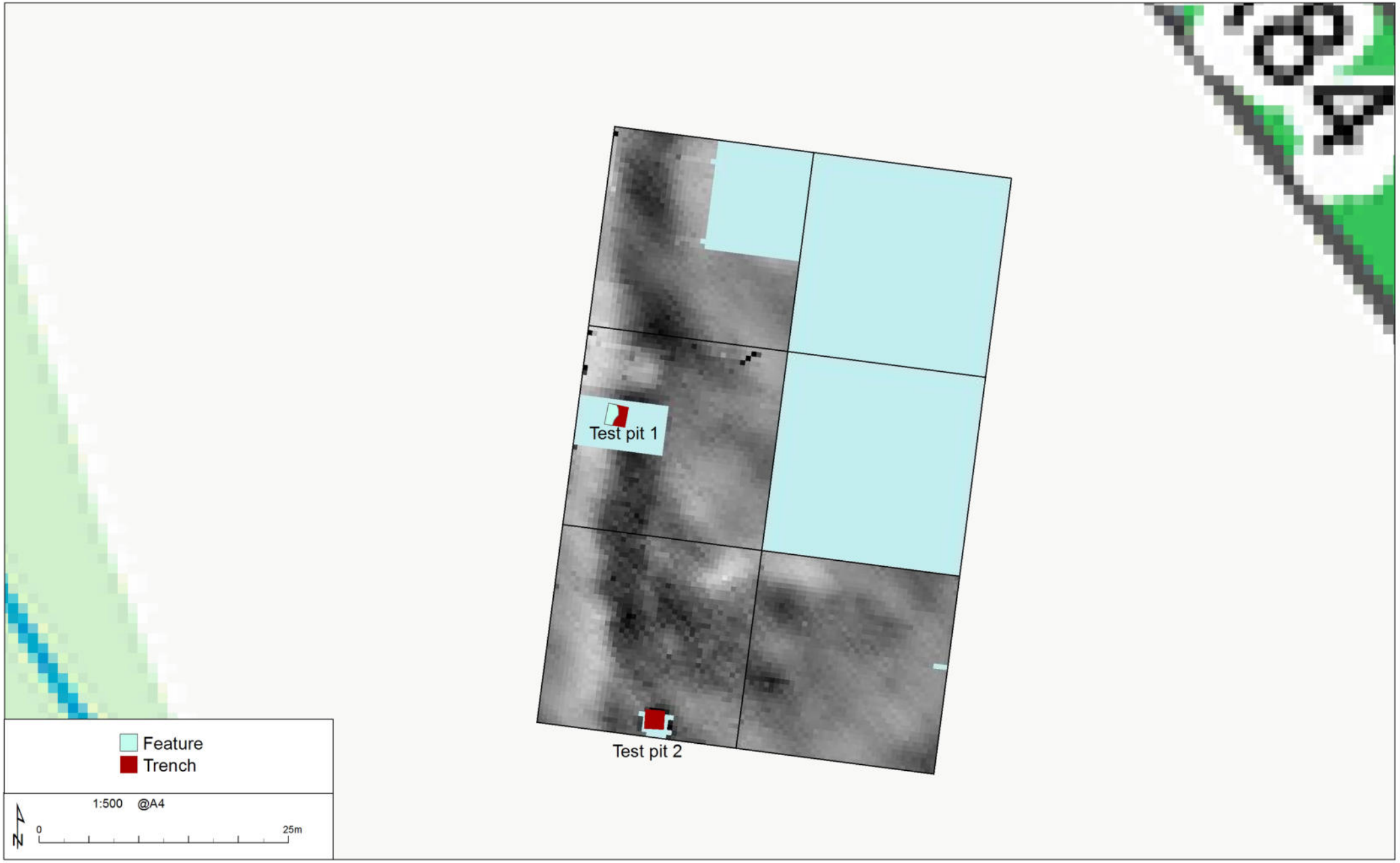


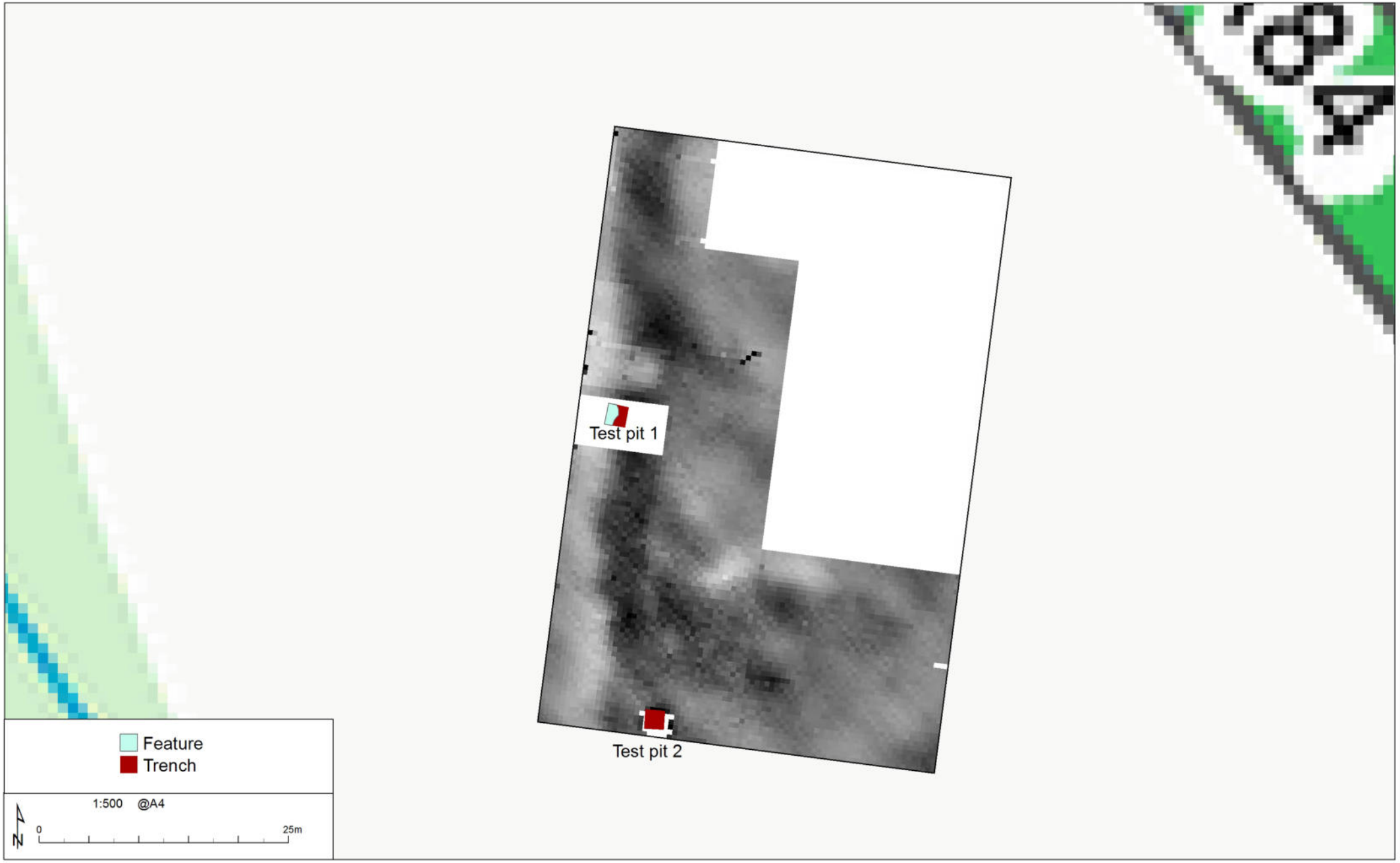
Figure 7: Location of feature [003] in Test Pit 1 in relation to transcribed cropmarks

01/24992/DSR/07/01



01/24992/DSR/08/01

Figure 8: Location of test pits in relation to resistivity results



01/24992/DSR/09/01

Figure 9: Location of test pits and pit [003] in relation to resistivity results

01/24992/DSR/10/01

Figure 10: Intepretation of resistivity results

Figure 11: Interpreted resistivity results and cropmark transcription

01/24992/DSR/11/01

KELTIE BRIDGE, CALLANDER: ARCHAEOLOGICAL EXCAVATION

APPENDICES

APPENDIX 1: Photographic Register

Camera 1

Frame	Description	From
1	General shot of possible cut [003]	S
2	General shot of possible cut [003]	S
3	General shot of possible cut [003]	SW
4	General shot of possible cut [003]	SW
5	West facing shot of trench 2 subsoil	W
6	West facing shot of trench 2 subsoil	W
7	South facing shot of trench 2 subsoil	S
8	South facing shot of trench 2 subsoil	S
9	Pre-ex shot in trench 2	E
10	Pre-ex shot in trench 3	S
11	Flags marking out post hole positions from GPS	
12	Resistivity survey with Martin and Deely	
13	Resistivity survey with Martin and Deely	
14	South facing section of sondage in trench 2	S
15	South facing section of sondage in trench 2	S
16	South facing section of sondage in trench 2	S
17	South facing section of sondage in trench 2	S
18	South facing section of sondage in trench 2	
19	South facing section of sondage in trench 2	
20	South facing section of sondage in trench 2	W
21	Detail of cut [003]	N
22	Detail of cut [003]	N
23	Detail of cut [003]	E
24	Detail of cut [003]	E
25	Detail of cut [003]	
26	Detail of cut [003]	
27	Detail of cut [003]	
28	Detail of cut [003]	
29	Detail of cut [003]	
30	Detail of cut [003]	

Camera 2

Frame	Description	From
1	Plan shot of trench 1 and feature 003	N
2	Plan shot of trench 1 and feature 004	W
3	Plan shot of trench 1 and feature 005	S
4	Plan shot of trench 1 and feature 006	E
5	South facing section of sondage in trench 1	S
6	South facing section of sondage in trench 1	S
7	East facing section of sondage in trench 1	E
8	East facing section of sondage in trench 1	E
9	North facing section of sondage in trench 1	N
10	North facing section of sondage in trench 1	N
11	West facing section of sondage in trench 1	W
12	West facing section of sondage in trench 1	W
13	Plan shot of trench 2	E
14	Plan shot of trench 2	E
15	Plan shot of trench 2	E
16	South facing section/plan shot of trench 2	S
17	South facing section/plan shot of trench 2	S
18	West facing section/plan shot of trench 2	W
19	West facing section/plan shot of trench 2	W
20	North facing section/plan shot of trench 2	N
21	General shot	E
22	South facing section of trench 2	S
23	South facing section of trench 2	S
24	General shot	S
25	South facing section of trench 2	S
26	South facing section of trench 2	S
27	Plan of possible feature in trench 2	NE
28	Plan of possible feature in trench 2	SW
29	Plan of possible feature in trench 2	NE
30	Post-ex plan of possible feature [005]	N
31	Post-ex plan of possible feature [005]	S
32	West facing section of possible feature [005]	W
33	West facing section of possible feature [005]	W

34	Detail of cut [003] - post-ex	E
35	Detail of cut [003] - post-ex	E
36	East facing section of trench 1	E
37	North facing section of trench 1	N
38	Plan shot of trench 1	N
39	Plan shot of trench 1	N
40	Plan shot of trench 1	S
41	Plan shot of trench 1	E
42	Plan shot of trench 1	W
43	North facing section of trench 1	N
44	North facing section of trench 1	N
45	North facing section of trench 1	N
46	East facing section of trench 1	E

APPENDIX 2: Context Register

Context No.	Context Description and Interpretation
[000]	**Turf.**
[001]	Mid brown grey sandy silt with rooting and occasional small rounded stones. Found across the site. Depth 0.2 – 0.3m. **Topsoil.**
[002]	Natural subsoil comprising coarse gravel with rounded and sub-rounded stones 0.1-0.3m in diameter. **Natural subsoil.**
[003]	Cut of pit. This is cut directly into the natural gravel in test pit 1. Full extent and shape is unknown but appears sub-circular in shape. It extends > 2m north – south beyond the limits of excavations. 1.18m of the east - west dimensions of the pit is visible in the test pit and it continues beyond the limit of excavation to the west. The maximum depth is 0.37m though it is likely that it is deeper further to the west as the base was not achieved. The top of the sides slope steeply and then more gently continuing beyond the limits of excavation. **Cut of pit or post-pit.**
[004]	Fill of pit [003]. This is a firm mid-red brown sandy silt with occasional charcoal flecks and occasional sub-rounded medium stones, particularly towards the base of the fill. **Fill of pit [003].**
[005]	Investigated as a potential feature within the natural gravel, this was recorded as a cut. It comprised a sub-circular shape with indistinct edges c. 0.7m in diameter. Interpreted as a natural hollow in which slightly larger stones had settled. **Natural hollow.**
[006]	Fill of [005]. Comprised of natural gravel, with a concentration of slightly larger sub-rounded stones. **Natural gravel within a hollow.**

APPENDIX 3: Drawing Register

Drawing No.	Context	Scale	Description
1	TP1	1:20	Mid – ex plan of TP1
2	(002) TP2	1:10	South- facing section of TP2
3	002 TP2	1:20	Mid-ex plan of sondage in TP2
4	003 TP1	1:20	Post-ex plan of pit [003] in TP1
5	002 TP2	1:10	West facing profile in TP2
6	003 TP1	1:10	South facing section of pit [003] in TP1
7	003 TP1	1:10	North facing section of pit [003] in TP1
8	002 TP2	1:20	Plan of possible feature in TP2

APPENDIX 4: Sample Register

Area	Context	Quantity
1	004	10 x 10L Tubs

APPENDIX 5: Finds Register

Find #	Context	Material code	Description
1	001	ST	Possible worked stone – 5” long
2	001	ST	Six stones 4 small One 2-3” long One quartzite
3	001	CE	2x blue and white pottery sherds

4	001	GL	2 glass shards
5	001	Slag	One piece of slag
6	001	ST	2x pieces of flint
7	001	ST	4x pieces of quartz
8	001	CBM	Small piece of brick
9	004	ST	Stone
10	002	Mix	Mixed finds

APPENDIX 6: '*Discovery and Excavation in Scotland*' Report

LOCAL AUTHORITY:	Stirling Council
PROJECT TITLE/SITE NAME	Keltie Bridge, Callander: Archaeological Excavation and Geophysical Survey
PROJECT CODE:	24992
PARISH:	Kilmadock
NAME OF CONTRIBUTOR:	Katie O'Connell
NAME OF ORGANISATION:	AOC Archaeology Group
TYPE(S) OF PROJECT:	Geophysical Survey and Test-Pitting
NMRS NO(S)	NN60NW 25
SITE/MONUMENT TYPE(S):	Prehistoric Enclosure
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	NN 64909 06706
START DATE (this season)	27th September 2019
END DATE (this season)	30th September 2019
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A geophysical survey and archaeological test pit investigation was carried out at the site of Keltie Bridge, Callander. This was undertaken as a community project with the Callander Landscape Trust initiative to investigate cropmarks identified through aerial photographs. The archaeological test pitting revealed part of a large pit that may form part of the wider monument. The geophysical results showed several archaeological features including possible pits and a potential large bank. These results demonstrated an error in the aerial photograph transcription, with the features identified in the aerial photograph actually located to the north and east. Taken together, the results indicate a complex site that potentially form an early Neolithic pit-defined cursus monument. Given the findings of the fieldwork, it is recommended that further post excavation analysis would be beneficial. Additionally, a further programme of geophysical survey and wider open-area excavation which targets the results of the geophysical survey would greatly enhance the understanding of this site.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	N/a
SPONSOR OR FUNDING BODY:	**Loch Lomond and The Trossachs National Park Authority**
ADDRESS OF MAIN CONTRIBUTOR:	Edgefield Road Industrial Estate, Loanhead, Midlothian, EH20 9SY
EMAIL ADDRESS:	admin@aocarchaeology.com
ARCHIVE LOCATION (intended/deposited)	Archive to be deposited in NMRS

AOC Archaeology Group

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