e-ISSN: 2056-7421

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How to cite:
Callum Murray 2026 'A Middle Bronze Age Roundhouse at Beauly Substation, Beauly, Inverness-shire', *Scottish Archaeological Internet Reports* 115.
https://doi.org/10.9750/issn.2056–7421.2026.115

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Funding
Scottish and Southern Electricity Networks

e-ISSN: 2056-7421
DOI: https://doi.org/10.9750/issn.2056–7421.2026.115
Published by the Society of Antiquaries of Scotland.

Society of Antiquaries of Scotland
National Museums Scotland
Chambers Street
Edinburgh EH1 1JF
United Kingdom
www.socantscot.org

Registered Scottish charity no. SC010440

Editorial manager: Kate Bailey
Copy-editor: Rachel Cartwright
Production: Raspberry Creative Type, Edinburgh

Received 13 December 2024 | Accepted 5 November 2025 | Published 20 February 2026

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1. ABSTRACT

AOC Archaeology Group undertook archaeological mitigation fieldwork in advance of substation reinforcement works at Beauly Substation, Beauly, Inverness-shire, Highland (centred on NGR: NH 5036 4455). Excavation identified the remains of a roundhouse of Middle Bronze Age date, comprising a turf and stone bank and an internal post setting. A small assemblage of macroplant and charcoal was recovered from the site, as well as two saddle querns, two flint artefacts, and sherds of prehistoric pottery. The site lies within a complex prehistoric landscape that has undergone intensive modern archaeological investigation. Combined with the present works, this has revealed a landscape consisting of domestic and agricultural elements comprising roundhouses and associated field systems, as well as funerary elements such as cists and burial cairns. Beauly provides an informative landscape case study, which can be compared with similar sites in the Scottish Highlands such as Navidale, Lairg, and Dalchork.

2. INTRODUCTION

AOC Archaeology Group undertook excavations at Beauly Substation, Beauly, Inverness-shire between May and June 2022 (Illus 1). This revealed a Middle Bronze Age roundhouse comprising a turf and stone bank and an internal post-ring was recorded (Illus 2 and 3). The work was carried out in advance of substation reinforcement works on behalf of Scottish and Southern Electricity Network (SSEN), and in accordance with a Written Scheme of Investigation (WSI) produced by WSP (2022).

The works consisted of the machined topsoil strip of a *c* 20m x 20m area centred over the Middle Bronze Age roundhouse (National Record of the Historic Environment [NRHE] ID 376515). Deposits were stripped to the first archaeological horizon, where a circular turf and stone bank was recognised. Excavation then continued by hand, with the roundhouse being excavated in quadrants (Q1 to Q4 on Illus 4). Internal deposits and features within Q1, Q2, and Q4 were fully excavated by hand. Four slots were excavated through the roundhouse banks in order to record the nature of wall construction materials and techniques. A possible entrance structure, identified towards the southeast side of the roundhouse, was fully excavated. After the roundhouse banks and interior deposits and features had been sufficiently characterised and recorded in Q1, Q2, and Q4, controlled machine excavation was undertaken of the roundhouse bank and the interior of Q3, in the southwest of the structure. This facilitated the recording of additional archaeological features within Q3 and below the roundhouse banks.

Following the completion of fieldwork, a programme of post-excavation analysis was undertaken in agreement with SSEN, WSP, and the Historic Environment Team of Highland Council. The project's research objectives were to establish the character, extent, quality, preservation, and date of the archaeological remains, and to assess their significance.

2.1 Location, topography and geology

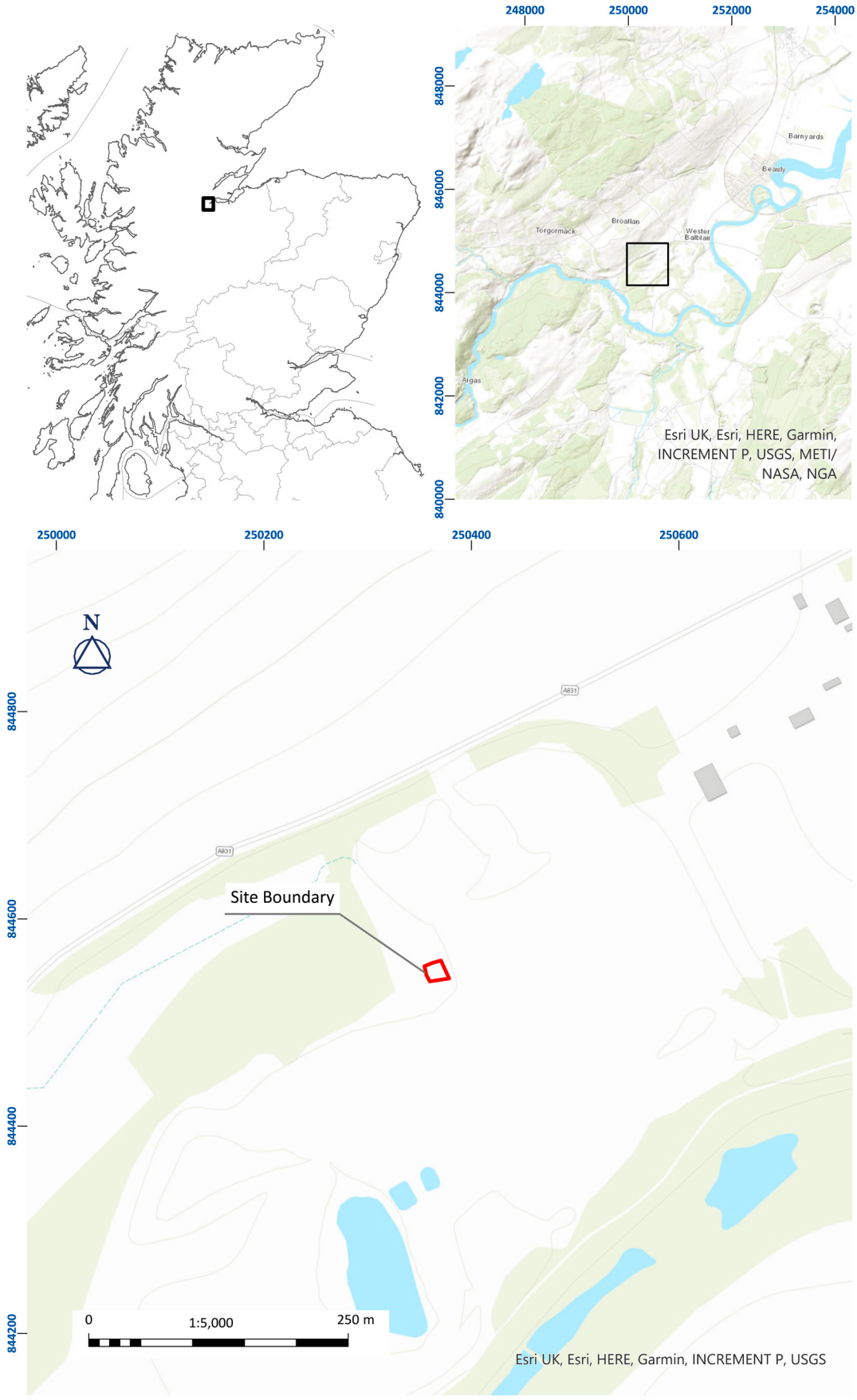
The site comprised a 20m x 20m area centred over a Middle Bronze Age roundhouse (NRHE ID 376515) located next to Beauly Substation, and southwest of the town of Beauly, Inverness-shire (Illus 1) (centred on NGR: NH 5036 4455). The roundhouse was originally identified during a walkover survey by The Centre for Field Archaeology (CFA) in 1999, and was demarcated during Northlight Heritage excavations between 2012 and 2013 (Becket 2012; 2020). The eastern site boundary was formed by the substation perimeter fence, with scrub vegetation to the north, an overgrown mound to the south, and a gravel access track to the west. The ground surface was covered with heather, bracken, birch, and pine saplings. Mature Scots pine associated with Balblair Wood had previously been present across the site; the majority of these had recently been felled, with the stumps still present at the time of fieldwork in spring 2022.

The wider landscape comprises undulating land; this topography is natural in origin and was shaped by glacial action. The underlying geology comprises part of the Ousdale Arkose Formation – Breccia and Conglomerate. The local environment was previously dominated by rivers, resulting in an overlying sedimentary geology consisting of alluvial deposits (BGS 2023).

2.2 Archaeological background

Previous archaeological investigations have revealed that the site is part of a wider substantial Bronze Age landscape (Illus 3). Inverness Museum staff undertook rescue excavation in 1990 of a Bronze Age cist with associated Beaker pottery, within Balblair Wood, 300m east of the present site (Hanley & Sheridan 1995). In 2002, the North of Scotland Archaeology Society (NOSAS) carried out a walkover survey in an area north of Balblair Wood and several probable prehistoric sites were identified, comprising linear earthen banks, clearance cairns and hut circles (NOSAS 2002). In 2004, Headland Archaeology excavated a Bronze Age burial cairn at Balblair Wood, and investigated the surrounding area of clearance cairns and stone banks (Dutton et al 2008), which had originally been identified during previous walkover surveys (Coghill & Hanley 1993; Neighbour 2000; Marshall 2002).

In 2010, several of the sites identified during the NOSAS walkover survey, comprising three cairns, an enclosure, and a linear bank, were evaluated



Illus 1 Location map of Beauly Substation archaeological works (© OpenStreetMap and contributors, CC-BY-SA)

Illus 2 General view across site (AOC Archaeology)

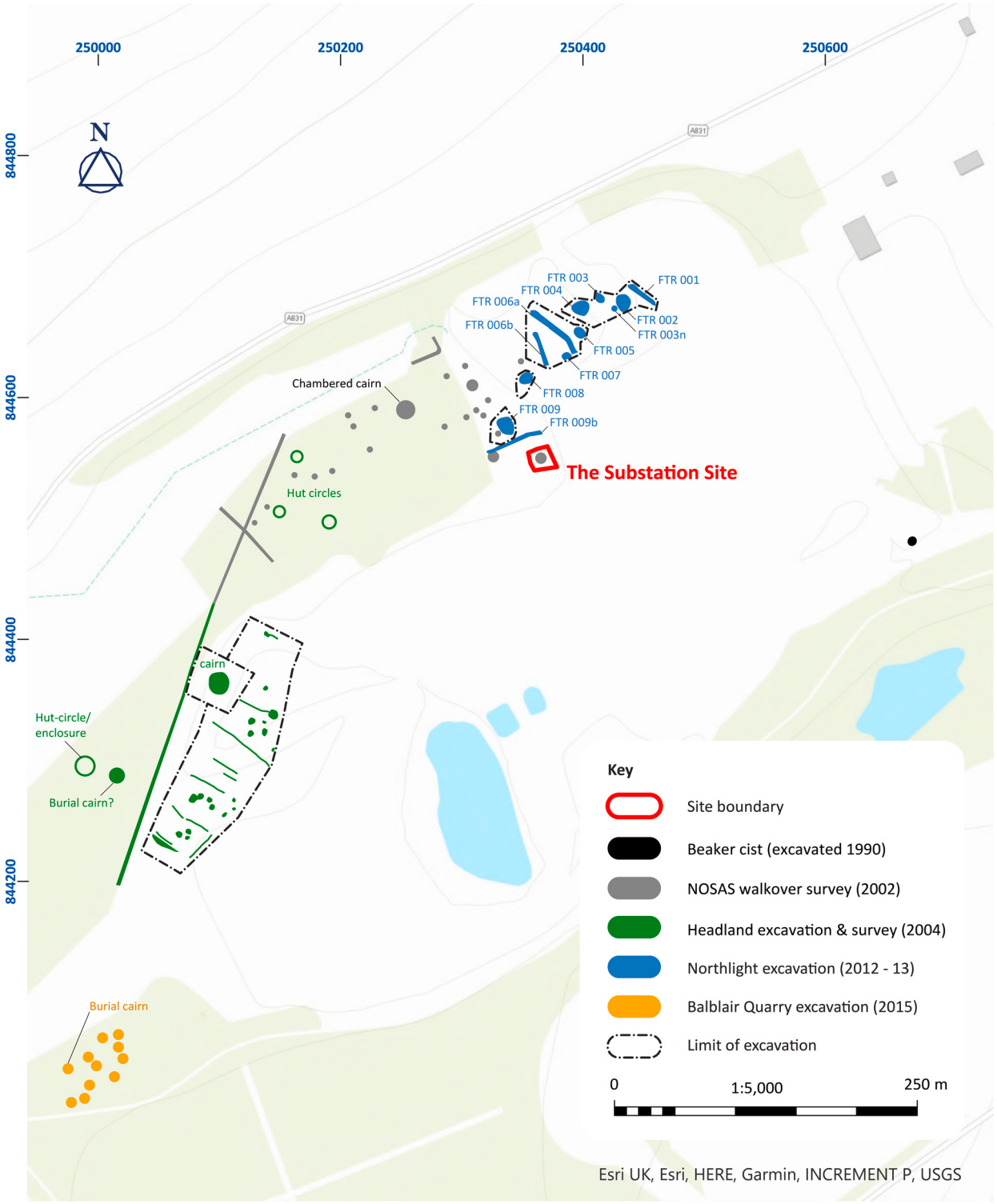
by Glasgow University Archaeological Division (GUARD) prior to the construction of an access track and a programme of tree planting associated with the Beauly Substation (Becket 2010). Subsequently, between 2012 and 2014, archaeological evaluation and excavation was carried out by Northlight Heritage, to the north of the current development area. These works uncovered Bronze Age remains consisting of stone cairns, banks, and other possible structures (Becket 2012; 2014; 2020; Gallacher 2014). The stone cairns (Feature (FTR) 003n, FTR 004, FTR 005, FTR 006b, and FTR 008) consisted of circular or oval mounds, and varied in size from 5.6m to 15m in diameter. On average, they survived to a height of 0.6m. Most of the cairns appeared to have been constructed directly onto the natural subsoil; however, FTR 004 had been constructed above an archaeological deposit and several pits. Burnt bone, consisting of three fragments from a medium to large terrestrial mammal and six small fragments that could not be identified to species, and fragments of pottery were found within this cairn and in the underlying pits. While most of the cairns appear to be associated with stone clearance, FTR 004 may have been a funerary monument.

Three linear banks (FTR 001, FTR 006a, and FTR 009b) were also excavated by Northlight Heritage. They had been constructed with rounded stone cobbles and possibly turf, and each measured between 36m and 45m long, and between 3m and 6.3m wide. These banks were interpreted as field boundaries and may have been constructed during stone clearance activities.

Two roundhouses (FTR 002 and FTR 009), surviving as stone and turf banks, were also excavated by Northlight Heritage. FTR 002 had a southeast-facing entranceway identified as a gap in the bank with a post alignment and a stone step. No postholes were identified within the interior of FTR 002 and there was no evidence of a hearth. FTR 009 was observed as having a south-facing entrance, and the remnants of internal postholes.

In 2012, CFA excavated an area 650m southwest of the current roundhouse excavation as part of a multi-phased extension of Balblair Quarry. Several archaeological features (not depicted on Illus 3) were uncovered, including five stone clearance cairns (CFA 2013). No dateable material was recovered; however, the cairns were interpreted as being related to prehistoric agricultural activities. In 2015, AOC uncovered an additional 11 archaeological features (Illus 3) during an evaluation north of the previous CFA excavations (AOC 2015). These included a burial cairn containing a saddle quern, seven agricultural clearance cairns of probable prehistoric

date, a further possible clearance cairn, which may have comprised a small sub-oval banked enclosure or several overlapping clearance cairns, and two possible banked enclosures. Apart from the burial cairn, the features were interpreted as relating to prehistoric agricultural activity with simple stratigraphy.

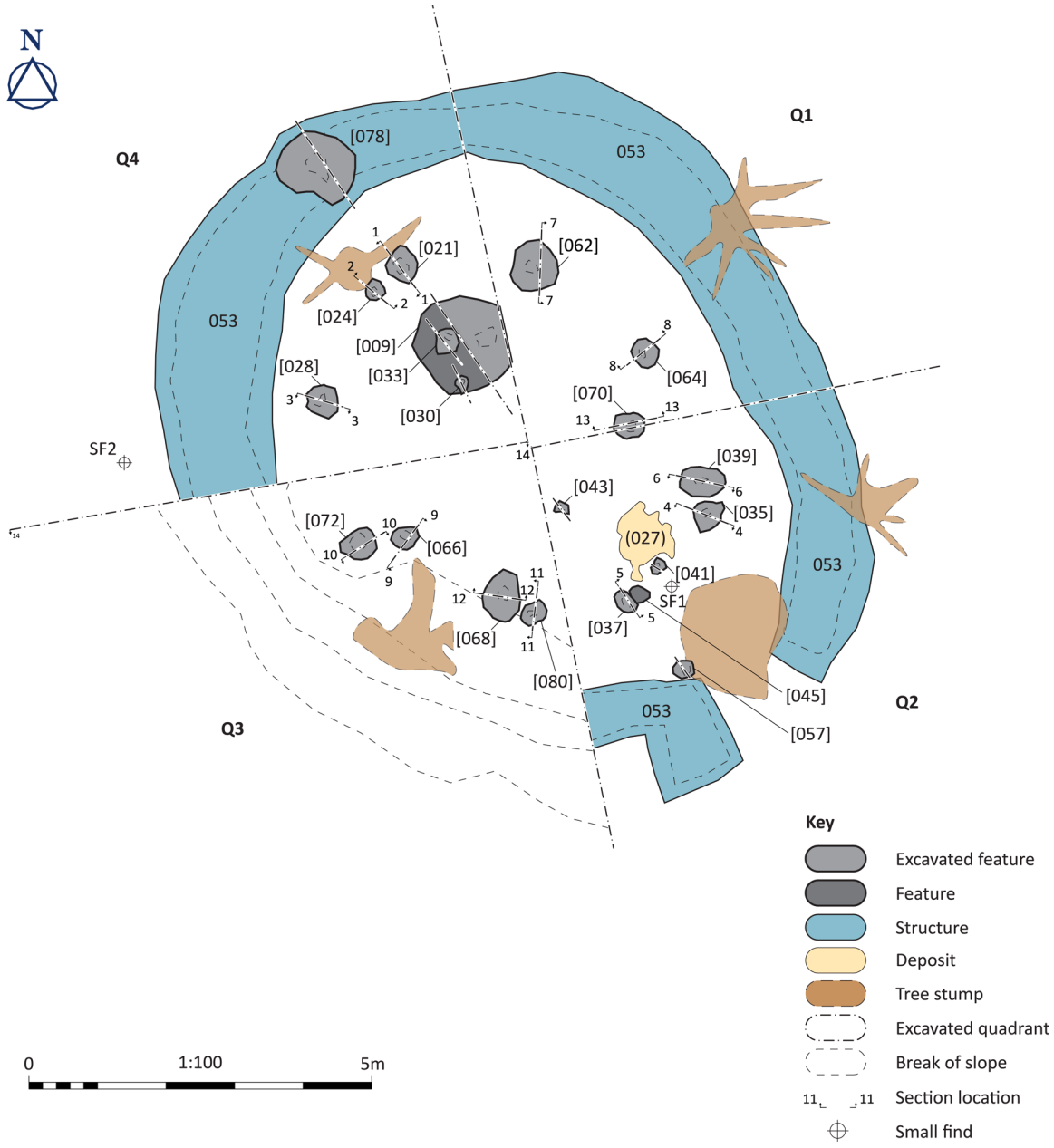


Illus 3 Beauly Substation with nearby archaeological sites (Lindsey Stirling & Sam O'Leary, AOC Archaeology)

3. SUMMARY OF ARCHAEOLOGICAL REMAINS

The site at Beauly substation was covered in a thin deposit of turf, heather, and moss, Context (001), which generally measured 0.10m in depth. Beneath the topsoil was a poorly defined podzol deposit, Context (002)/(006), comprising friable, mottled dark and light brownish grey silty sand, which covered the entire area. This varied in depth from 0.05m up to 0.30m. The glacially deposited subsoil (003) consisted of loose reddish-yellow sandy gravel with frequent rounded stones.

The excavation revealed a roundhouse, [053] (Illus 4), measuring 8m x 7m internally. The walls, which were *c* 0.3m high, comprised a foundation layer of turf and an upper layer of stone rubble (Illus 5). The structure contained an internal post-ring set a distance of approximately 1.0m from the inner wall face.



Illus 4 Plan of Beauly Substation roundhouse with quadrants (Lindsey Stirling & Sam O'Leary, AOC Archaeology)

3.1 Neolithic activity

The earliest activity on the site was represented by Pit [078], which was identified below the wall foundations at the northwestern side of the roundhouse and cut into the subsoil, Context (003). It had a circular shape with straight sloping sides and a flat base, and measured 1.2m in diameter and 0.25m deep. The fill comprised a dark greyish brown gravel/sand with frequent large rounded stones. Radiocarbon dating (Table 1) of pine roundwood charcoal (SUERC-122117) retrieved from the single fill of Pit [078] produced a date range of 2881–2636 cal BC (at 95% probability), suggesting that activity at the site stretched back to the Late Neolithic period.

3.2 The roundhouse construction

The roundhouse measured 12m x 10m in diameter (Illus 4). The walls survived as two courses: a lower turf foundation course, Contexts (011)/(047)/(048), and an upper stone course, Contexts (013)/(051) (Illus 5). The turf foundation course comprised a mottled, dark greyish-brown sandy silt measuring 1.2m to 1.4m wide; it was consistently 0.15m thick. Two fragments of hazel charcoal (SUERC-111663 and SUERC-122116) were obtained from wall core material, Contexts (011) and (047), and returned broadly consistent Middle Bronze Age date ranges of 1498–1312 cal BC and 1610–1451 cal BC (at 95% probability), respectively.

The upper stone course was identified in Q1, Q2, and Q4 but was poorly preserved throughout – as it had been disturbed by tree roots. This course was up to 0.85m wide and *c* 0.25m thick and consisted of long, angular and rounded stones, each 0.15m to 0.30m in size.

The interior of the roundhouse contained a posthole setting, which was roughly oval in plan and covered an area measuring 6.0m northwest/southeast x 5.0m northeast/southwest. Its nine postholes, Contexts [021], [028], [037], [039], [062], [064], [068], [070], and [072] (Illus 4 and 6), were each set at a distance of between 0.7m and 1.4m from the inner wall face, with approximately 2.0m between each posthole. The postholes were similar in shape and generally measured 0.4 to 0.6m in diameter and 0.08 to 0.27m deep.

Illus 5 Section through roundhouse walls (AOC Archaeology)

Three postholes, [030], [033], and [043], were located closer to the centre of the structure and may represent internal partitions. Each feature measured 0.15 to 0.45m in diameter, and survived to a depth of 0.05 to 0.15m.

The entrance to the structure, which had been severely disturbed by the removal of a large tree stump, was on its southeastern side. It was defined by a gap in the roundhouse wall. The western side of the entrance was elaborated where the roundhouse wall protruded outwards at roughly 90°. Posthole [057] was identified immediately inside, and a small area (less than 1.0m^2) of a possible cobbled surface, Context (027), was identified 1.2m from the entrance, between Postholes [035] and [037].

3.3 Use of the roundhouse

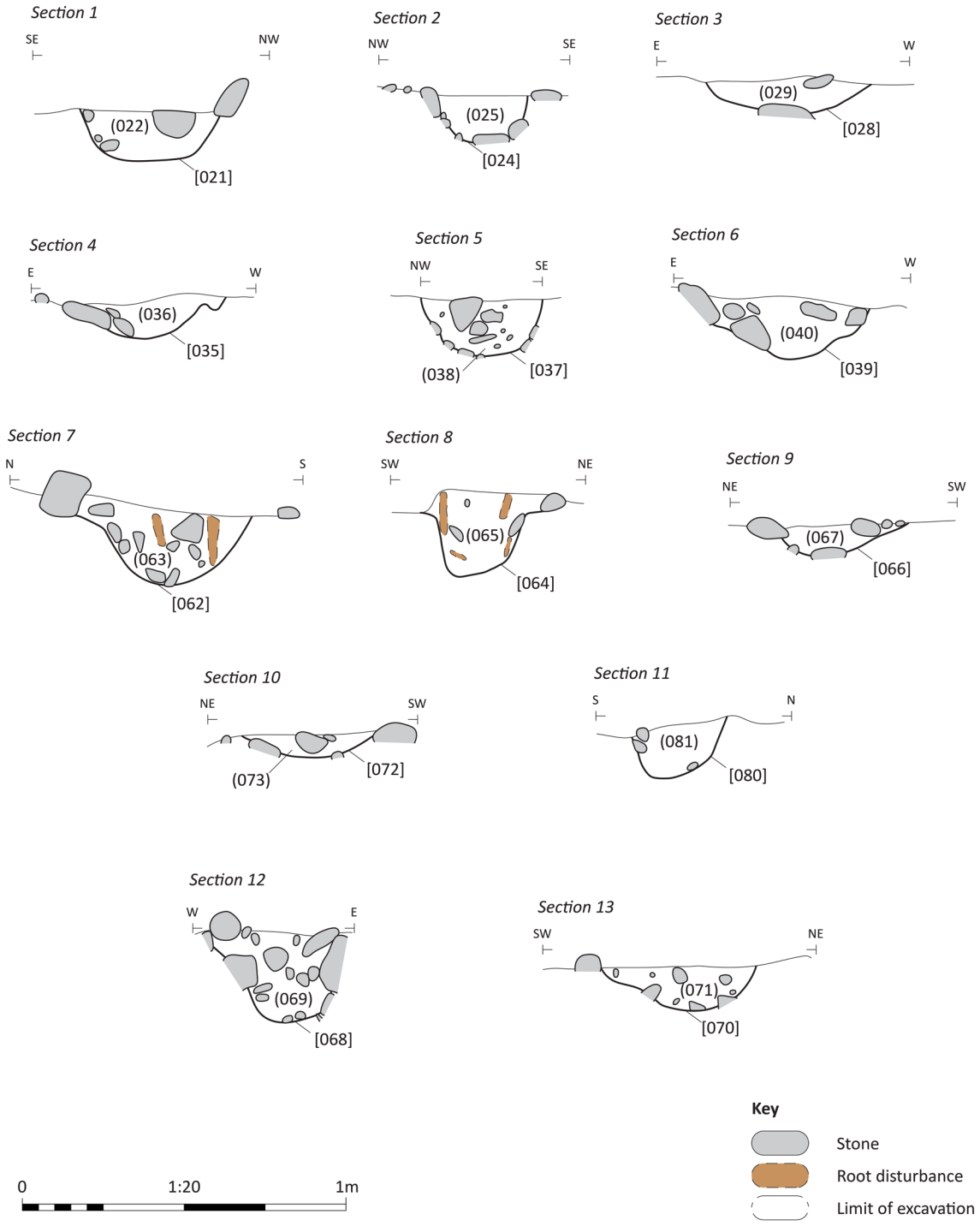
The interior of the structure contained Contexts (017) and (032), deposits that were tentatively interpreted as severely disturbed occupation layers. They comprised friable, dark brownish grey silty sand with moderately small to medium angular and rounded stones and rare charcoal flecks. A sample of oak charcoal (SUERC-111668), recovered from Context (032), returned a date of 1676–1511 cal BC (at 95% probability).

Deposit (020), which measured 0.2m x 0.3m in plan, was identified close to the centre of the structure. It comprised a reddish-brown silty sand with rare small, rounded stones. It was interpreted as a heat-affected deposit due to its colour; however, it did not appear to contain any charcoal.

The structure appears to have undergone repairs and/or alterations throughout its use. Several postholes (Contexts [024], [035], [041], [045], [080], and [066]) were located close to larger post-ring postholes, perhaps representing props or supports during repair/replacement of the original posts. In addition, post-pads were identified at the top of Postholes [021] and [072], which appear to have been inserted after the bases of the posts decayed. As the posts decayed, occupation material appears to have filled the postholes. Four samples, two fragments of oak charcoal (SUERC-111670 and SUERC-111671) and two fragments of hazel charcoal (SUERC-111669 and SUERC-122115), recovered from fills of four postholes, Contexts (073), (081), (071), and (040), returned date ranges of 1746–1546 cal BC, 1495–1304 cal BC, 1746–1546 cal BC, and 2451–2148 cal BC (all at 95% probability), respectively, suggesting a broadly Middle Bronze Age *terminus post quem* for the natural infilling of the postholes. It is likely that the unusually early date from Context (040) (SUERC-122115) represents residual material, related to earlier occupation in the area. Alterations were also made to the interior, when a cobbled surface, Context (027), was laid above occupation Deposit (032), near the entrance between Postholes [035] and [037]. Pit [009] also appears to be a later insertion as it cut occupation Deposit (017). It measured 1.30m x 1.20m in plan and 0.16m deep. Although this pit contained the remains of fuel debris, its function was unclear. A sample of alder charcoal (SUERC-111662) was recovered from Fill (008) of Pit [009], which returned a date range of 1612–1447 cal BC (at 95% probability), overlapping with dates obtained from various posthole samples.

3.4 Abandonment

When the roundhouse was no longer inhabited and had gone out of use, in the Middle Bronze Age, the stone and turf walls collapsed, forming a circular bank made of collapse deposits, Context Group (005), which was on average 2.0m wide and up to 0.4m high (Illus 7 and 8). The interior of the bank primarily comprised collapsed turf material, Contexts (010), (012), (015), (023), (026), and (052), which were generally of a mottled reddish-brown sand with occasional small rounded and angular stones and rare charcoal flecks. These deposits measured 0.1 to 0.3m deep, and were banked against the internal wall face, spreading between 0.5m and 0.8m towards the centre of the structure. Two flint artefacts, SF03 and SF05, were recovered from the collapsed turf material. SF05 is a thumbnail scraper which dates to the Early or Middle Bronze Age. One fragment of oak charcoal (SUERC-111664) was recovered from Context (015), which returned a date range of 1880–1644 cal BC (at 95% probability). The relatively early Bronze Age date of the oak sample may be due to the 'old wood' effect as the longevity of this species can lead to misleadingly early radiocarbon dates. A similar collapsed turf deposit, Context

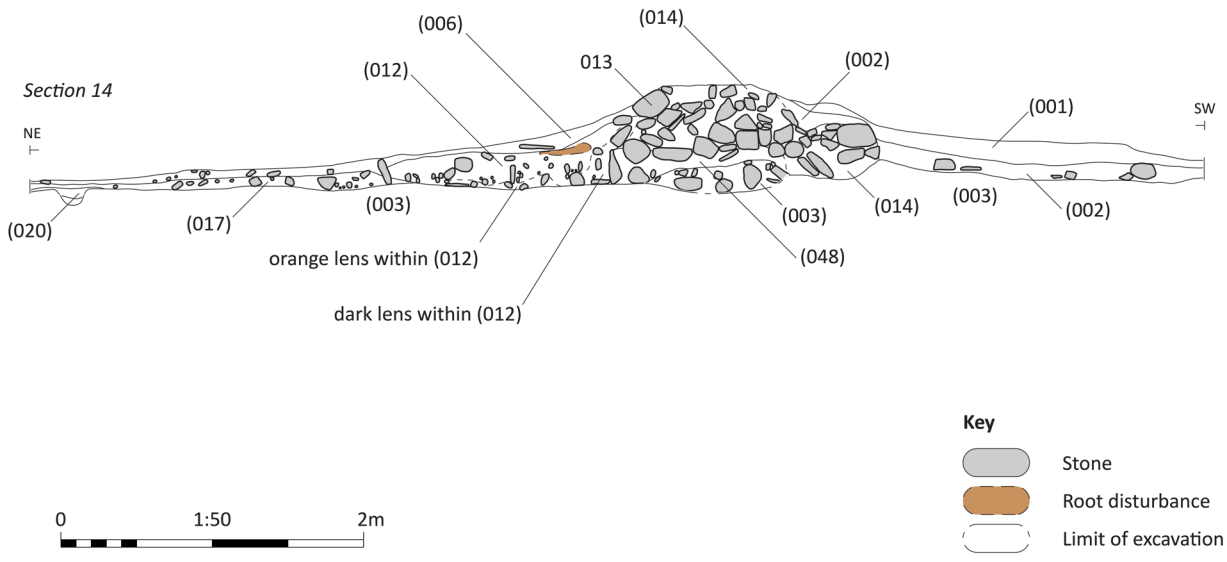


Illus 6 Sections through principal postholes (Lindsey Stirling & Sam O'Leary, AOC Archaeology)

(019), was identified on the exterior of the bank, close to the entrance, in Q2. The collapse deposits, Contexts (014) and (016), located around the exterior of the bank were generally much more stone-rich, consisting of greyish brown silty sand with frequent angular and rounded stones. A saddle quern (SF02) was identified within stone collapse (014).

The posts within the roundhouse interior appear to have been left to decay in situ or were cut close to ground level, as evidenced by the presence of in situ or slightly slumped packing stones.

Illus 7 Orthographic image from pre-excavation photogrammetric model (AOC Archaeology)



Illus 8 Representative section through the roundhouse bank/walls (Lindsey Stirling & Sam O'Leary, AOC Archaeology)

4. RADIOCARBON DATING

Thirteen samples of wood charcoal recovered from archaeological contexts were submitted to the Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating. Three of these samples proved to contain insufficient carbon to return dates. For the ten samples that proved viable, calibrated date ranges were calculated using the IntCal20 atmospheric calibration curve in OxCal v4. Generally, these radiocarbon dates indicate occupation of the roundhouse during the Middle Bronze Age. However, it should be noted that there was evidence of root disturbance across the site, which may have limited the archaeological security of the ecofacts recovered, in particular from features in the roundhouse interior. Conventional radiocarbon ages (Stuiver & Polach 1977) are presented in Table 1.

Table 1 Radiocarbon dates

SUERC lab no.	Feature No.	Context No.	Material/ species	Uncal (BP)	Calibrated 1-sigma (68%; cal BC)	Calibrated 2-sigma (95%; cal BC)	$\delta^{13}C$ (‰)
SUERC-111671	Posthole [080]	081	Charcoal: oak	3134±27	1442–1323	1495–1304	−26.0
SUERC-111663	Wall core	011	Charcoal roundwood: Hazel	3144±27	1490–1329	1498–1312	−29.6
SUERC-111668	Occupation deposit?	032	Charcoal: oak	3322±27	1617–1542	1676–1511	–26.0
SUERC-111662	Pit [009]	008	Charcoal: alder	3256±27	1540–1458	1612–1447	–27.1
SUERC-111669	Posthole [070]	071	Charcoal: hazel	3210±27	1502–1448	1516–1424	–26.9
SUERC-111670	Posthole [072]	073	Charcoal: oak	3380±27	1732–1624	1746–1546	–27.4
SUERC-122116	Turf deposit	047	Charcoal: hazel	3258 ±24	1539–1463	1610–1451	–28.7
SUERC-111664	Bank deposit	015	Charcoal: oak	3448±27	1872–1693	1880–1644	–25.9
SUERC-122115	Posthole [039]	040	Charcoal: hazel	3828 ±28	2338–2204	2451–2148	–25.0
SUERC-122117	Pit [078]	079	Charcoal: Pine roundwood	4170 ±24	2475–2697	2881–2636	–28.2

5. THE ARTEFACTS

5.1 Lithics

by Rob Engl

5.1.1 Introduction

Two flint artefacts were recovered from stratified deposits at Beauly Substation. The artefacts were macroscopically examined and a general characterisation of the material was undertaken. General classifications and descriptions of the artefacts were based on those proposed by Ballin (2000; 2021) and Butler (2005). The artefacts consisted of a small, thick thumbnail scraper (SF05) and a burnt primary flake fragment (SF03).

5.1.2 Catalogue

▸ SF03 Context (015)
Small, thick primary flake fragment made on white flint. The artefact displays a loss of mass, colouration and crazing consistent with being heat-affected. Dimensions: 21.7mm (L) x 13.8mm (W) x 6.7mm (Th).

▸ SF05 Context (052)
Small thumbnail scraper made on a thick, tertiary, flake of fresh honey-coloured east coast flint. Abrupt scalar retouch around 90% of the edge. Dimensions: 20.3mm (L) x 19.8mm (W) x 11.3mm (Th)

5.1.3 Discussion

The two artefacts were recovered from burnt turf deposits associated with the roundhouse bank. It is likely that the artefacts were accidentally discarded during the occupation and became incorporated within the burnt turf. Alternatively, they may represent residual finds.

Lithic assemblages associated with Bronze Age domestic contexts in northern Scotland tend to be dominated by quartz with smaller and more restricted amounts of flint. The flint component of these assemblages often displays a high proportion of retouched artefacts (Finlayson 1998: 138).

At nearby Balblair Wood, the excavations of a substantial Bronze Age landscape revealed a similar limited lithic assemblage of a few flint artefacts. This assemblage again included a small thumbnail scraper (Becket 2014).

Further afield, at Mullans Wood, Killcoy, Inverness-shire (Peteranna & Stirling 2024) a similar recorded landscape including a roundhouse, earth and stone banks, and clearance cairns produced a single flint flake. Similarly, the large-scale excavations on Bronze Age hut circles undertaken at Lairg, Highland (Finlayson 1998) and at Balbithan Wood, Aberdeenshire (Cook 2021) produced a few flint artefacts.

5.2 Pottery

by Orlene McIlfatrick

5.2.1 Introduction

Two sherds from low-fired ceramic vessels came from Contexts (032) and (036), respectively. Context (032) was a possible occupation deposit near Posthole [035], while Context (056) was the fill of Posthole [057].

5.2.2 Catalogue

▸ SF04 Context (032)
A body sherd which survives in very poor condition, having undergone burning after initial firing in the kiln, as evidenced by the colouration and texture of the fabric. The fabric appears to be of unrefined clay and untempered, and both the internal and external surfaces have been compromised. Dimensions: 21mm (L) x 24mm (W) x 9mm (Th).

▸ SF N/A Context (056)
A sherd recovered during soil sample processing. It survives in slightly better condition, with no sign of re-burning. It is of similar low-fired fabric to SF04, but with a few small grits as inclusions or temper. The firing profile shows a reduced grey core and reduced grey inner surface. Dimensions: 21mm (L) x 11mm (W) x 10mm (Th).

5.2.3 Discussion

The potsherds are both undiagnostic body sherds, which cannot be securely dated on typological grounds. Unfortunately, low-fired plain pottery like these sherds is ubiquitous in the prehistoric ceramic record of the region. Without diagnostic features,

such as base or rim sherds or evidence of decoration, a general later prehistoric date is suggested.

The post-excavation radiocarbon dating programme may be of use with regards to greater specificity in the chronology of this small assemblage. A sample of oak charcoal was recovered from Deposit (032) and submitted for radiocarbon dating analysis which returned an assay of 1676–1511 cal BC (at 95.4% probability; SUERC-111668), suggesting Middle Bronze Age activity consistent with the suite of other radiocarbon dates obtained from the structure; it thus provides a valuable benchmark for narrowing down the chronology of the pottery.

5.3 Coarse stone

by Aurimė Bočkutė & Dawn McLaren

5.3.1 Introduction

Two saddle querns were recovered during excavation (Illus 9). This coarse stone tool type is associated with food production and is used for grinding cereals (Close-Brooks 1984). One quern is complete, made on an undressed, split or naturally flat-faced sandstone boulder (SF01), while the other is incomplete and fractured, fashioned on a coarse micaceous schist stone (SF02). The sandstone saddle quern (SF01) was found deposited face down within a poorly preserved podzol deposit, Context (006), in the southeast interior of the structure, which was defined by a bank or wall feature of turf and stone. SF02 was recovered from the exterior part of the wall, incorporated into the turf and stone structure, and was also found deposited face down. SF01 appears to be related to the abandonment of the roundhouse and may represent the deliberate placement of a saddle quern face down after the structure was no longer in use, while the use-life of SF02 pre-dates the building, as the quern fragment was utilised in the construction of the roundhouse.

5.3.2 Catalogue

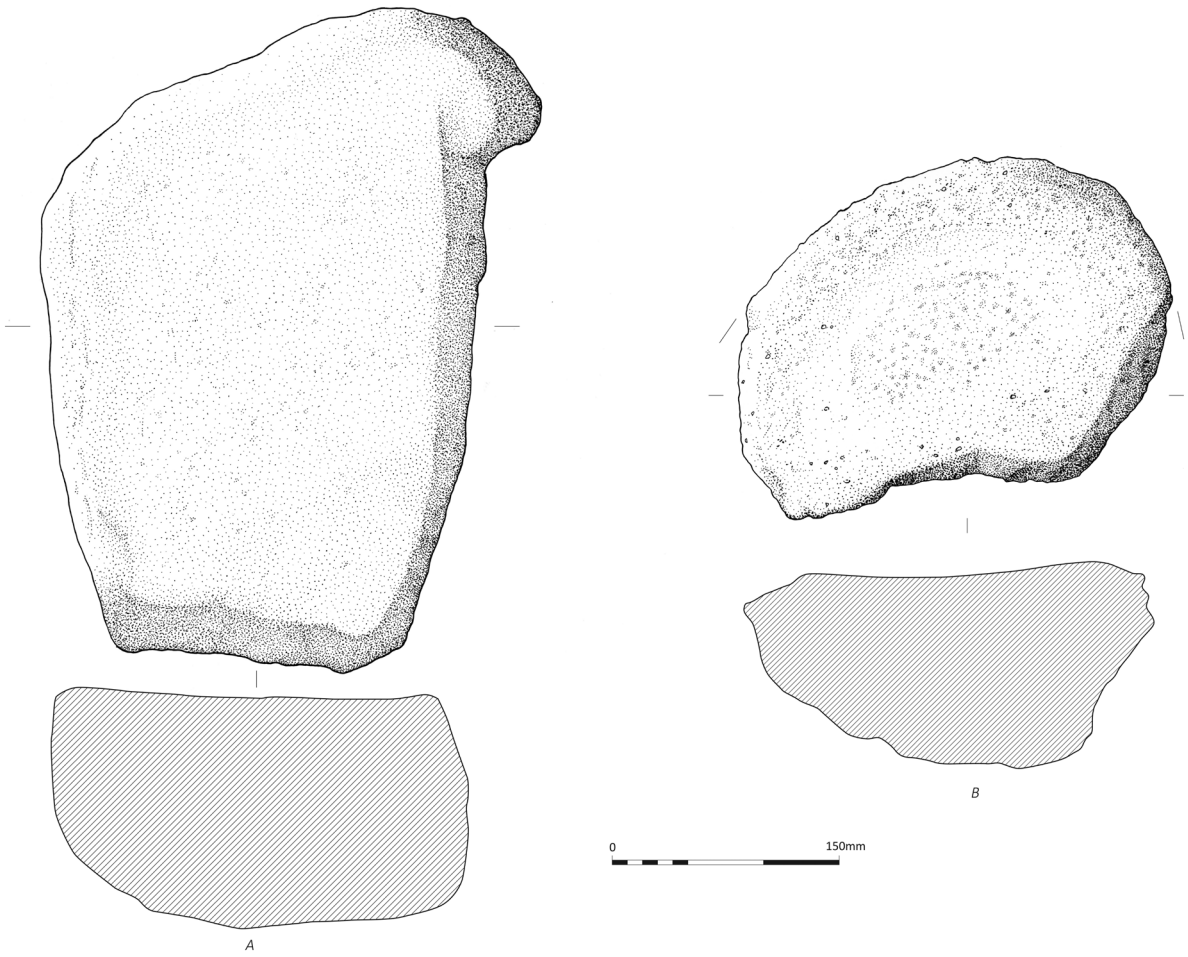
▸ SF01 Context Group (005)
Saddle quern/possible stationary quern. Complete sub-rectangular sandstone saddle quern with a possible small area fractured from the grinding face. The grinding face is sub-rectangular in shape, following the natural shape of the stone and very slightly dished with faint peck marks from shaping but otherwise very smooth with a well-defined edge, max W 250mm, max L 310mm. The bottom of the stone is a natural convex boulder surface. Dimensions: 420mm (L) x 290mm (W) x 160mm (Th). Context (006) Q2, poorly preserved podzol within interior of Bank (005).

▸ SF02 Context (014)
Fragment of a saddle quern. Fragment of a sub-oval saddle quern made from a coarse mica-rich heterogeneous schist. The working surface of the quern is slightly dished and contains small patches of very smooth remains of a possible more homogenous quartz lens that was shaped and ground; the stone may have been discarded once the grinding surface wore away. Width of grinding face is 230mm; length unknown. The quern is fractured across the width with a sheet of stone missing from the bottom; three modern mechanical tool marks are present on the bottom near the fracture. Dimensions: 295mm (L) x 235mm (W) x 110mm (Th). Context (014) Q4, on top of and exterior to stone collapse from turf and stone wall, Context (013).

5.3.3 Discussion

SF02 is a fragment of a saddle quern, fractured along its width. The reason for breakage cannot be determined; however, its friable material quality can lend itself to accidental fracture. The find is distinctive for its unusual choice of stone for a quern. It is a coarse, heterogeneous micaceous schist rich with mineral clasts interleaved with finer textured quartz—a granular material which would have eroded during the grinding process. However, possibly for this reason, the quern fragment does not appear heavily used. The grinding face is naturally rough, slightly dished and contains smooth patches of ground quartz that form evidence for the extent of the grinding face. SF01 is a large complete sub-rectangular quern stone with a slightly dished grinding face, a well-defined smoothed edge, and a natural sub-rounded boulder underside, a commonly recognised form of saddle quern, elsewhere described as a stationary quern (Engl 2008: 215).

Saddle querns have been in use since the Neolithic, remaining the predominant type of grain processing tool through the Bronze Age and into the Iron Age, and are occasionally found in



Illus 9 Saddle Querns: A = SF01; B = SF02 (Mark Hoyle, AOC Archaeology)

association with later prehistoric (Bronze Age and Iron Age) hut circle sites, such as that investigated at Beauly Substation. The suite of radiocarbon dates from the structure provides evidence of Middle Bronze Age activity and this is entirely consistent with the forms of the saddle querns recovered.

Similar querns have been recovered from other later prehistoric roundhouse sites in the region, such as Upper Suisgill and Lairg, Sutherland (Barclay 1987: 184, 187–8, figs 28–29; Clarke 1998). The small assemblage of four saddle querns from Lairg is probably the most illustrative in comparison to the Beauly examples. Three of the six roundhouses investigated at Lairg, had querns associated with them (Clarke 1998: 128). These included a large quern (Find 3171) found amongst the rubble infilling of House 1 (ibid). A friable granite quern (Find 2081) from House 2 was found to have been re-used amongst the secondary floor slabs within the building and was found face down (ibid). A third quern (Find 2033) came from the tilled ground between Houses 2 and 3. A fourth, large, quern (Find 2080) was deposited, with its grinding face placed towards the ground, in the fill of a gully to the rear of House 3 (ibid). The practice of abandoning or depositing querns face down after use is widely observed across Scotland in the later prehistoric period. This likely reflects traditions dictating the appropriate means of decommissioning quernstones, which were central to subsistence activities and may have symbolised agricultural fertility and the lifecycle of the household (Watts 2014: 47–8).

6. ENVIRONMENTAL ANALYSES

6.1 Macroplant and charcoal

by Genoveva Dimova & Jackaline Robertson

Forty bulk samples were submitted to the authors for environmental analysis in December 2023 from Beauly Substation. Following processing, the charred macroplant and charcoal assemblages were identified in the laboratory. The full report on the analysis of macroplant and charcoal including a methodology is contained within the site archive to be deposited at the National Record of the Historic Environment of Scotland (NRHE).

6.1.1 Macroplant assemblage

One poorly preserved bud was recovered from Deposit (011), which was part of the wall base of Roundhouse [053].

6.1.2 Charcoal assemblage: introduction

A total of 165 fragments (41.4g) were identified to species from 26 contexts (Table 2). The species were alder (*Alnus glutinosa L.*), hazel (*Corylus avellana L.*), ivy (*Hedera helix L.*), pine (*Pinus sp.*), cherry (*Prunus sp.*), and oak (*Quercus sp.*). The charcoal was scattered throughout the site with no evidence of selective or deliberate disposal within any specific feature. Preservation of the charcoal ranged from poor to good.

6.1.3 Summary of charcoal assemblage

Neolithic

Pit [078] was Neolithic in date, but its function is unknown. The charcoal assemblage in its fill, composed of pine (80%) and oak (20%), is fuel debris backfilled into this feature.

Bronze Age

The charcoal from podzol Deposit (006) consisted of 60% pine roundwood and 40% oak fragments. It was fuel debris that had been reworked into the deposit.

Pit [009] contained charcoal made up of 50% oak, 25% alder, and 25% hazel. This charcoal was likely fuel debris associated with the roundhouse.

Contexts associated with Bank (005) contained 58% oak, 19% hazel, 13% pine, 6% ivy, and 4% alder charcoal. The charcoal was in small quantities with no signs of deliberate disposal, suggesting it was fuel debris from the roundhouse that was incorporated into the bank material as the roundhouse collapsed.

A single fragment of oak charcoal (0.1g) came from occupation Deposit (032). The charcoal was likely trampled into this deposit during the roundhouse's use.

The fills of Postholes [024], [028], [033], [035], [039], [062], [068], [070], [072], and [080] contained 51% oak, 39% pine, 8% hazel, and 2% alder charcoal. This likely represents domestic fuel debris, rather than remnants from structural burning, possibly reworked during cleaning of occupation floors.

Deposits (011), (047), (048), and (049) associated with the roundhouse wall base contained randomly dispersed charcoal, comprising 42% oak, 26% hazel, 26% pine, 3% ivy, and 3% cherry. This charcoal may have been already present in the turf material used to construct the roundhouse walls, originating from earlier human activity within the area.

Charcoal was recovered from Posthole [057] of the roundhouse entrance. This included 70% oak, 20% alder, and 10% ivy roundwood, likely trampled into the area during the roundhouse's use and naturally redeposited in the posthole, filling the void left by the decayed post.

6.1.4 Discussion

The macroplant bud was probably an accidental inclusion of the wood brought to site as a fuel resource.

The charcoal species from Beauly Substation are native and would have grown in the surrounding landscape. Alder favours damp habitats, hazel and cherry grow in hedgerows, scrub or more open woods, pine prefers acidic landscapes, and oak is adaptable to a variety of growing conditions (Linford 2009; Stace 2010; Martynoga 2012). Ivy is a climbing plant that grows on trees, banks, rocks, structures, or along the ground (Stace 2010: 800). The alder, hazel, cherry, pine, and oak were likely deliberately collected for fuel. The ivy may have been introduced accidentally if it was growing on other wood species or was already present in the location in which the roundhouse was constructed.

Table 2 The charcoal species

Date	Quadrant	Structure	Feature	Context	Species	Name	Fragments	Roundwood	Weight
Neo	4	Backfill	Pit 078	079	*Pinus* sp.	Pine	3	5	
Neo	4	Backfill	Pit 078	079	*Quercus* sp.	Oak	2		3.7
BA	2	Podzol	Deposit	006	*Pinus* sp.	Pine		4	0.8
BA	4	Podzol	Deposit	006	*Quercus* sp.	Oak	1		
BA	4		Pit 009	008	*Alnus glutinosa* L.	Alder	2		
BA	4		Pit 009	008	*Corylus avellana* L.	Hazel	2		
BA	4		Pit 009	008	*Quercus* sp.	Oak	4		0.8
BA	2	Bank 005	Deposit	010	*Pinus* sp.	Pine		1	2.5
BA	2	Bank 005	Deposit	010	*Quercus* sp.	Oak	9		
BA	4	Bank 005	Wall 013	014	*Quercus* sp.	Oak	1		0.1
BA	2	Bank 005	Wall 013	015	*Quercus* sp.	Oak	2		0.3
BA	2	Bank 005	Deposit	019	*Corylus avellana* L.	Hazel		2	
BA	2	Bank 005	Deposit	019	*Hedera helix* L.	Ivy		1	0.8
BA	2	Bank 005	Deposit	019	*Quercus* sp.	Oak	1		
BA	2	Bank 005	Deposit	023	*Corylus avellana* L.	Hazel	3		1.1
BA	2	Bank 005	Deposit	023	*Quercus* sp.	Oak	7		
BA	2	Bank 005	Deposit	026	*Alnus glutinosa* L.	Alder		2	
BA	2	Bank 005	Deposit	026	*Corylus avellana* L.	Hazel		4	
BA	2	Bank 005	Deposit	026	*Hedera helix* L.	Ivy		1	
BA	2	Bank 005	Deposit	026	*Quercus* sp.	Oak	3		2.2
BA	1	Bank 005	Wall 051	052	*Hedera helix* L.	Ivy		1	
BA	1	Bank 005	Wall 051	052	*Pinus* sp.	Pine	2	3	
BA	1	Bank 005	Wall 051	052	*Quercus* sp.	Oak	4		3.3
BA	2	Cobble	Deposit	032	*Quercus* sp.	Oak	1		0.1
BA	4	RH 053	PH 024	025	*Quercus* sp.	Oak	1		0.5

Table 2 *cont*

BA	4	RH 053	PH 028	029	*Quercus* sp.	Oak	1		0.3
BA	4	RH 053	PH 033	034	*Quercus* sp.	Oak	2		0.2
BA	2	RH 053	PH 035	036	*Corylus avellana* L.	Hazel	1		
BA	2	RH 053	PH 035	036	*Quercus* sp.	Oak	9		1
BA	2	RH 053	PH 039	040	*Corylus avellana* L.	Hazel	2		
BA	2	RH 053	PH 039	040	*Quercus* sp.	Oak	8		2.2
BA	1	RH 053	PH 062	063	*Alnus glutinosa* L.	Alder	1		
BA	1	RH 053	PH 062	063	*Pinus* sp.	Pine	7	2	2.7
BA	4	RH 053	PH 068	069	*Pinus* sp.	Pine	10		1.6
BA	1	RH 053	PH 070	071	*Corylus avellana* L.	Hazel	1		
BA	1	RH 053	PH 070	071	*Quercus* sp.	Oak	1		0.1
BA	3	RH 053	PH 072	073	*Quercus* sp.	Oak	2		0.4
BA	3	RH 053	PH 080	081	*Quercus* sp.	Oak	1		0.1
BA	2	RH 053	Wall	011	*Corylus avellana* L.	Hazel		5	
BA	2	RH 053	Wall	011	*Hedera helix* L.	Ivy		1	5.9
BA	2	RH 053	Wall	011	*Quercus* sp.	Oak	4		
BA	2	RH 053	Wall	047	*Corylus avellana* L.	Hazel	4		3.6
BA	2	RH 053	Wall	047	*Quercus* sp.	Oak	6		
BA	4	RH 053	Wall	048	*Pinus* sp.	Pine	1	3	
BA	4	RH 053	Wall	048	*Prunus* sp.	Cherry	1		2.4
BA	4	RH 053	Wall	048	*Quercus* sp.	Oak	5		
BA	4	RH 053	Wall	049	*Pinus* sp.	Pine	5		0.9
BA	2	RH 053	PH 057	056	*Alnus glutinosa* L.	Alder	2		
BA	2	RH 053	PH 057	056	*Hedera helix* L.	Ivy		1	
BA	2	RH 053	PH 057	056	*Quercus* sp.	Oak	7		3.8

Key: Neo=Neolithic, BA=Bronze Age, RH=Roundhouse, PH=Posthole, weight recorded in grams

The charcoal is representative of re-deposited fuel debris and there is no evidence that any structural elements or wooden artefacts were burnt or disposed of on-site. There is limited evidence of Neolithic activity when pine (80%) and oak (20%) charcoal were exploited for fuel. During the Bronze Age, when the roundhouse was constructed and occupied, the wood species used were more varied, comprising oak (52%), pine (25%), hazel (15%), alder (4%), ivy (3%), and cherry (1%).

6.2 Micromorphological analysis

by Lynne Roy

Two kubiena tin samples were taken from the turf bank of the roundhouse wall. The objective of the analysis was to shed light on the formation and construction of the roundhouse. Examination of the microstructure of the turf wall sequence was undertaken with the aim of defining the processes of sediment deposition and nature of activity. The full report on the micromorphological analysis, including methodology, is contained within the site archive to be deposited at the NRHE.

6.2.1 Context (011)

Context (011), was identified in Sample 1 as two basal units, initially hypothesised to be wall core material. In thin section, these were identifiable as anthropogenically altered thick organo-mineral A horizons (topsoil). Unit 1 resembles topsoil or turf material, indicating the wall core's basal part may have been constructed from turf. There was an observed increase in anthropic indicators in Unit 2, along with a decrease in porosity, suggesting that the upper part of the wall core material was sourced from an area more heavily influenced by anthropogenic activity.

6.2.2 Context (016)

Context (016), the remains of a collapsed turf wall foundation, is represented in Unit 3 of Sample 1 and Units 1 to 4 of Sample 2. Thin section analysis revealed at least four stratigraphic units in Sample 2, with Unit 3 of Sample 1 likely corresponding to Unit 1 of Sample 2. The sedimentary characteristics suggest reworked anthropogenic soil deposits, indicating that, similar to (011), (016) was likely constructed using turf material. Humic and biological components were observed, with organic-rich mineral soil generally becoming finer farther up the profile.

Post-depositional faunal activity was evidenced by well-preserved vughs, bio-channels, and partially welded organo-mineral excrements, with finer components like silts and clay likely translocated by soil invertebrates and rainwater. Evidence of reworking increased upwards, indicating that many sedimentary features formed after deposition. In contrast, anthropic indicators decreased upwards, suggesting reduced human influence in the upper deposit. However, it remains unclear if this reflects the original soil character or results from the wall's use and collapse.

The similarities between the sedimentary units and their distinctive arrangement suggest that the earthen material for the roundhouse construction originated nearby, and it is hypothesised that turfs from various soil profile sections were stacked to form the wall.

6.2.3 Conclusion

Taphonomic and post-depositional processes are especially intense in afforested parts of the Highlands, such as Beauly, preventing a complete understanding of roundhouse remains located in these areas due to the degradation of scarce evidence. Very intense and constant pedo- and bioturbation was observed in the pedosedimentary sequences analysed micromorphologically from the Beauly Substation roundhouse. This pedoturbation led to a partial blurring of the stratigraphy of the sequence, causing a certain homogenisation in terms of colour, texture, and structure inside each of the main units that were already difficult to distinguish due to the homogeneity of the source material across time. However, stratigraphic units were preserved as coherent layers at microscopic levels, as shown by the litho-stratigraphic descriptions and the vertical distribution of key micromorphological features (grain size, organic matter, charcoal, etc.). The identification of these features confirmed the use of turf in the wall core Deposit (011) and also indicated multiple sediment sources and depositional/construction activities within the wall collapse Deposit (016).

The investigations at Beauly Substation have offered further insight into the construction of turf roundhouses in the Highlands, and associated soil formation dynamics. Despite the strong post-depositional processes affecting the taphonomy of the archaeological stratigraphy, the micromorphological analysis has allowed characterisation of the deposits from within the structure and has added to an increasing bank of micromorphological evidence for prehistoric roundhouses from across the region, such as that at Dalchork, Sutherland (Glew & Peteranna 2020; Roy 2023), which is allowing better recognition and characterisation of the use of turf as a construction material.

7. SITE INTERPRETATION AND DISCUSSION

The complete excavation of a Middle Bronze Age roundhouse at Beauly Substation, in an area which has seen intensive archaeological work, provided an excellent opportunity to investigate this type of feature, and to place it within its wider prehistoric landscape setting, as well as investigating the state of preservation of upstanding archaeological remains within an afforested landscape.

7.1 Neolithic

The earliest feature excavated at Beauly Substation was Pit [078], which contained pine roundwood charcoal (SUERC-122117) dated to the Late Neolithic period, between 2881 and 2636 cal BC (at 95% probability). Environmental analysis of samples taken from the fill of the pit indicated that pine and oak woodland was located nearby. The recording in the Historic Environment Record of a findspot of a polished stone axe head (MHG49771; Saville 2005), located at Kilmorack, Ardachy, *c* 500m west of the current site, is indicative of Neolithic activity within this landscape. Two previously recorded funerary monuments at Balblair Wood, also mentioned in the Historic Environment Record (MHG29162; MHG24775), are also of interest. The Balblair Wood 2 cairn (MHG29162; Neighbour 1999: 16) was situated on level ground *c* 300m southwest of the current site. It was roughly horseshoe shaped, with an open end facing southeast. The other burial cairn in Balblair Wood (MHG24775; Jacks 1989) was located *c* 500m south of the current site. It was described as a probable sub-circular funerary enclosure with an entrance on its northwest side. It measured 14m x 11m and comprised a bank that was up to 1m wide and 0.2m high. Regularly spaced around the interior of the enclosure were four stone mounds, all of similar proportions. Although it could be argued that recorded evidence suggests that the landscape was predominantly used for funerary activities during the Neolithic period, this pattern may be due to the better survival of large stone-built funerary monuments in comparison with more ephemeral settlement remains.

7.2 Early Bronze Age

Early Bronze Age radiocarbon dates were obtained from two sampled deposits at Beauly Substation: oak charcoal (SUERC-111664) from collapsed turf Deposit (015), 1880–1644 cal BC (at 95% probability); and hazel charcoal (SUERC-122115) from the fill of Posthole [039], 2451–2148 cal BC (at 95% probability). These dates likely represent residual material, related to Early Bronze Age occupation in the area, which became incorporated into the roundhouse deposits.

The use of the landscape for funerary activities during the Late Neolithic, continued into the Early Bronze Age. In 1925, a cist (MHG42151) was uncovered, on the summit of a slight ridge, *c* 650m north of the current site. It contained the remains of an incompletely incinerated human skeleton, fragments of an Early Bronze Age bronze dagger, a barbed and stemmed flint arrowhead, and a flint knife (Callander 1925). In 1990, Inverness Museum staff undertook rescue excavation of a Bronze Age cist within Balblair Wood some 300m east of the present site (Hanley & Sheridan 1995). The cist contained a pair of Beaker pots, and likely contained a decayed inhumation, as indicated by phosphate and pH analyses. The cist likely dated to between 2460 and 1675 BC on typological grounds. In 2004, Headland Archaeology excavated a Bronze Age burial cairn, *c* 300m southwest of the present site (Dutton et al 2008). A single cist was found within the cairn, which contained three decorated stone slabs, food vessel fragments, and a flint scraper. No cremated bone was identified within the cist, suggesting that it may originally have contained an inhumation, although no skeletal remains were preserved. One of the cairns, FTR 004, excavated by Northlight Heritage (Becket 2014; 2020; Gallacher 2014) appeared to be a funerary monument. Although radiocarbon dates, obtained from a sample of birch charcoal that returned a radiocarbon range of 1686–1526 cal BC (95.4% probability; SUERC-65257) and a sample of hazel charcoal that returned a date range of 1611–1439 cal BC (95.4% probability; SUERC-65251), indicate a Middle Bronze Age date, the feature was severely disturbed and associated artefacts appeared to date to the Early Bronze Age. The cairn contained sherds possibly derived from an Early Bronze Age Cordoned Urn, and fragments of burnt bone, consisting of three fragments from a medium to large terrestrial mammal and six small fragments that could not be identified to species. The cairn also contained an Early Bronze Age tanged

copper awl that was missing its point and part of its tang (Sheridan 2020). Investigation by X-ray fluorescence spectrometry indicated that the awl had formerly been located in proximity to human remains and it was interpreted as a grave good.

7.3 Middle Bronze Age

7.3.1 Construction of the Roundhouse

The roundhouse at Beauly Substation was constructed during the Middle Bronze Age and has many similarities to nearby roundhouses, FTR 002 and FTR 009, excavated by Northlight Heritage. These features consisted of a circular or oval bank constructed with stone and turf. A number of pits and postholes were found within the interior of FTR 009, with four postholes forming a rough square within its centre. FTR 002 contained a pair of entrance postholes at its southeast side but lacked internal features to support a roof. A sample of hazel charcoal from FTR 002 returned a radiocarbon date range of 1682–1514 cal BC (95.4% probability; SUERC-65249). Two samples of alder charcoal from FTR 009 returned a radiocarbon date range of 1623–1460 cal BC (95.4% probability; SUERC-65263) and 1728–1530 cal BC (95.4% probability; SUERC-65267). This shows that these roundhouses were broadly contemporary with the Beauly Substation roundhouse. While no definitively identifiable hearth was recorded in any of these roundhouses, the Beauly Substation roundhouse contained a burnt deposit, Context (020), close to the centre, which could represent the scant remains of a hearth.

Walkover survey undertaken by Headland Archaeology recorded an additional four roundhouses within 500m of the Beauly Substation roundhouse (Dutton et al 2008). Although these have not been excavated, they appear similar to the Beauly Substation roundhouse in form, and are likely to be broadly contemporary with it. This suggests that there was a loosely clustered settlement during the Middle Bronze Age, perhaps representing a social group of about seven families.

These roundhouses can be classified as 'ring-bank structures' (Pope 2015). Previous research shows that ring-bank structures originated in the Early Bronze Age, in predominantly upland and coastal areas, with a variety of techniques used in their construction, and varying proportions of stone and turf components. For example, the walls of House 5 at Culduthel, Inverness, were constructed entirely from turf, with a timber revetment encasing the outer edge of the wall (Hatherley & Murray 2021), whereas the walls of Hut 2 at Kilearnan Hill, Sutherland, were constructed from a core of closely-set stones and soil contained by an internal and external façade of upright, tightly-spaced stone blocks (McIntyre 1999). It is likely that the construction materials and techniques chosen were, in part, based on communal traditions, but were largely influenced by the resource availability (Pope 2015). At Kilphedir, Sutherland, three of the hut circles were similar in shape, size, and construction to the roundhouse at Beauly Substation, consisting of stone and turf walls and a central ring of posts to support the roof (Fairhurst & Taylor 1974). While these might not have been in use simultaneously, the similarity of construction could indicate that the Kilphedir structures were occupied by a single social group of up to five families in multiple buildings. Recent excavations at Dalchork have revealed four very different roundhouses (Glew & Peteranna 2020). Dalchork Site 1 had a boulder-faced stone bank and contained a single inner post-ring to support the roof, together with a central slab hearth and a simple entrance. This roundhouse contained deep occupation deposits with evidence for the multiple re-setting of posts, which represented two phases of occupation during the Middle Bronze Age and Early Iron Age. In contrast, Site 2 at Dalchork had a stone-faced earth bank, a double post-ring, and a paved entrance, but lacked interior floor deposits. This suggests that the structure may have contained a first floor, with animals stalled on the ground floor. Site 3 had a smaller stone rubble bank with inner and outer boulder facing stones, and an internal tank feature, which was tentatively identified as industrial in nature, but may have been related to domestic storage. Site 4 was much larger, comprising a rubble stone bank, which enclosed a single ring of postholes, and a timber-built entrance passage. This group of structures was originally occupied during the Middle Bronze Age, suggesting that differences in construction might indicate differences in use rather than date. Different construction methods were also seen in the

roundhouses at Lairg, Sutherland, which included turf (House 3), earth with stone-facing (House 5), and earth/turf with an outer stone face (House 4) (McCullagh & Tipping 1998).

7.3.2 Alterations and refurbishment

There is evidence from the excavation at Beauly Substation that replacement posts were inserted to repair parts of the roundhouse. Ongoing repair of roundhouse structures has been identified at other Highland sites, such as Dalchork Site 2, where most postholes contained two or three post slots interpreted as enabling re-insertion or re-setting. Excavation of a roundhouse at Navidale, Helmsdale, revealed that extensive refurbishment, such as post replacement and reroofing, might have left minimal archaeological evidence (Dunbar 2008). The postholes, cut into bedrock, could allow for posts to be replaced without the holes collapsing. Two shallow pits near the postholes suggested repair and consolidation rather than complete replacement. At Lower Slackbuie, Inverness, Roundhouse 6 contained clusters of postholes and the postholes within Roundhouse 3 were often found in pairs. In both cases, this was interpreted as indicating the replacement or repair of posts throughout the life of the structure (Christie & Dalland 2022).

Certain elements of a roundhouse structure could have required more frequent repairs. For example, many of the structures at Culduthel, Inverness, contained postholes that had been recut for replacement posts, and House 10/1 contained six postholes that had been recut, all of which were located on the southwest side of the structure (Hatherley & Murray 2021). At Macallan Distillery, Craigellachie, evidence for post replacement was identified close to the entrance to the roundhouse, and it was hypothesised that the junction between the structure and porch was amongst the most vulnerable to damage and decay (Dunbar 2017). Similarly, at Beauly Substation, the postholes at the southeast side, near the entrance, appear to have been repaired/replaced.

7.3.3 The associated field system

The Beauly Substation roundhouse, and those excavated by Northlight Heritage, are associated with an extensive field system. This field system was recorded during walkover survey in 2002 and comprised features labelled as 'enclosures', 'clearance cairns', and 'banks' (NOSAS 2002). Excavation of some of the surveyed sites was carried out by Headland Archaeology in 2004 (Dutton et al 2008) and by Northlight Heritage between 2012 and 2013 (Becket 2014; 2020; Gallacher 2014). The excavations by Headland uncovered 18 small cairns and ten sections of stone banks, likely constructed during land clearance. There was no clear dating evidence, but the similar alignment of the banks indicates that they were likely contemporary. The Northlight Heritage excavations uncovered similar evidence for small cairns and banks constructed during stone clearance activities and positioned to divide plots of land. Radiocarbon dating of the Northlight Heritage features indicated that the field system and the roundhouses appeared to be broadly contemporary. A sample of birch charcoal from Northlight cairn (FTR 006b) and a sample of hazel charcoal from cairn (FTR 008) returned radiocarbon date ranges of 1745–1565 cal BC (95.4% probability; SUERC-65261) and 1616–1453 cal BC (95.4% probability; SUERC-65262). A sample of alder charcoal from a recorded bank (FTR 006a) returned a radiocarbon date range of 1625–1461 cal BC (95.4% probability; SUERC-65260).

The field system is complex, with many clearance cairns and banks, and does not appear to have an immediately obvious planned layout. This is typical of Bronze Age field systems in Scotland, which tend to be more organic in nature; often one element of the field system subsumes structures of different dates (Barber 1997). This has hindered attempts to categorise the field systems into regionally or chronologically significant groups. At Lairg, radiocarbon dating of field banks indicated that they were constructed and maintained over long periods of time (McCullagh & Tipping 1998). For example, the earliest radiocarbon date from Dyke 1 indicated construction during the Late Neolithic 2850–2325 cal BC (95% probability; GU-3319) while a sample representing the latest surviving tilled land-surface in the vicinity of the dyke returned a date of 1420–1115 cal BC (95% probability; GU-2859). While the banks at Lairg may have been used as sediment traps, their primary purpose appears to have been as boundaries that performed social rather

than agricultural functions in terms of dividing the landscape into discrete plots. It is possible that the field banks associated with the roundhouse at Beauly Substation were similarly maintained over long time periods with important social implications. One of the Northlight-recorded field banks (FTR 0009b) was situated between the Beauly Substation roundhouse and another nearby roundhouse (FTR 009), creating a separation between them, and it also appears that two banks, FTR 001 and FTR 006, bounded roundhouse FTR 002. It has been suggested that this type of small-scale organisation of land, in contrast to larger field systems, which cover many hectares, created fields that were an extension of a household's domestic space, marking out the edges of gardens, stock enclosures, and cultivated plots (Johnston 2013: 320). One of the field banks at Beauly Substation appeared to be aligned with the earlier Bronze Age cairn excavated by Headland Archaeology (Dutton et al 2008: 124). While this may have been coincidental, it is also possible that incorporating an earlier monument within the field bank was a symbolic act; as small-scale field systems can often reflect the strong social and emotional attachments between communities and the land (Johnston 2013: 319).

The presence of a stationary quern (SF01) within and associated with the abandonment of the roundhouse at Beauly Substation, and also of a broken quern (SF02), associated with the construction of the roundhouse highlights a connection between the house and the associated agricultural field system, and crop/food processing activities. It also adds to the body of evidence for the redeposition of querns within roundhouse construction and occupation surfaces of Bronze Age and Iron Age date. There is increasing evidence for querns being rebuilt into walls and floors, perhaps indicating a belief system connected with the ritual of construction and the importance of the land, food production, and the domestic sphere (Watts 2012: 140). At Navidale, Helmsdale, Sutherland, for example, querns were re-used within the structure of the house, and querns were also left inside it after its abandonment (Dunbar 2008: 165). The abandonment of still functional querns at Navidale suggests an abrupt end to the occupation of the structure, perhaps due to the decline of the surrounding agricultural land. At Dalchork Site 2, querns were rebuilt into the entrance floor slabbing (Glew & Peteranna 2020). This was interpreted as the product of an active agrarian society, incorporating old worn querns into their new house, perhaps as a symbolic act. Similar narratives could explain the distribution of querns (SF01 and SF02) at Beauly Substation, deposited as symbolic acts during the construction of the roundhouse and during the structured abandonment of the roundhouse.

7.3.4 The economy

Analysis of ecofactual material recovered from the Beauly Substation roundhouse and the Northlight Heritage excavations helps define the wider environment and economy during the Middle Bronze Age.

The charcoal assemblages from both projects are similar, consisting of tree species that would have grown within the local area and remains that represent fuel rather than structural or artefactual remains (Ramsay 2020). A variety of wood species were exploited, including oak, pine, birch, hazel, alder, willow, ivy, and cherry. From the later prehistoric period onwards, the presence of oak is often an indication of structural remains, since oak had become a less common component of Scottish woodlands and was saved for construction purposes (Gale & Cutler 2000). However, the woodlands in this landscape appear to have provided a plentiful supply of oak that could perhaps be used as firewood.

The presence of assemblages of carbonised cereal grain and of artefacts for food processing varied between the projects. No cereal grains were retrieved during the excavation of the roundhouse at Beauly Substation, despite the presence of saddle querns within the structure. In contrast, a small assemblage of carbonised cereal grains was recovered during the Northlight Heritage excavations, but no querns were found.

7.4 Later landscape and state of preservation

Human activity in this landscape appears to have shifted towards the banks of the River Beauly following the abandonment of the Beauly Substation roundhouse. The nearest significant potential Iron Age site is located 130m WSW of Corff Cottage (Scheduled Monument Index

Number 3195; MHG3401), and approximately 1km east of the present roundhouse; this may have been an Iron Age fort or a medieval motte. Additionally, a medieval defensive earthwork (MHG3402) can be found at Castle Hill, located around 1km southeast of the Beauly Substation roundhouse. The place-name 'Annat' suggests the presence of a possible 9th or 10th-century chapel or cemetery, along with several enclosures (MHG3404; MHG63329; MHG62997) located 0.8km south of the roundhouse.

Post-medieval activity within this landscape comprised the construction of enclosures (MHG62996; MHG63328), as well as earthworks (MHG29176; MHG56317) associated with an 18th century forestry plantation.

One of the key research aims of the project was to assess the extent to which forestry activities had impacted the remains of the roundhouse. Birch and pine saplings, and the stumps of mature Scots pine were present across the site at the time of fieldwork. These had clearly displaced stones within the roundhouse bank predominantly towards the south and east. The most severely affected area was believed to have been the roundhouse entrance, in the southeast of the roundhouse; this area had been completely disturbed by a large tree stump. The interior of the roundhouse was generally less impacted by mature tree stumps with only one large stump located at the northwest side. However, this stump caused disturbance to the features within Q4, with particularly severe disturbance identified in features [009], [021], [024], [033], and [078]. Micromorphological analysis supports the view that the remains had been disturbed by modern bioturbation, resulting in the mixing of deposits and the blurring of their interfaces. Despite this disturbance, the state of preservation allowed for a good understanding of the construction and use of the roundhouse.

8. CONCLUSION

The archaeological excavation at Beauly Substation is an important addition to the growing corpus of roundhouses excavated in the Scottish Highlands. Radiocarbon dates indicate that the site was occupied between 1700 and 1300 BC, during the Middle Bronze Age. This overlaps with the occupation of similar sites within the Highlands such as Navidale (Dunbar 2008), Lairg (McCullagh & Tipping 1998), and Dalchork (Glew & Peteranna 2020).

Despite some disturbance by forestry activities, this land use (rather than deep ploughing associated with arable cultivation) preserved the roundhouse as an upstanding structure, allowing for a more detailed understanding of its character. The intensive archaeological work that has been undertaken in Balblair Wood, has revealed the complex prehistoric landscape in which the inhabitants of the roundhouse would have lived. The landscape contained a variety of features, including hut-circles, field banks, clearance cairns, and burial cairns and cists, many of which have been excavated. Comparison of the archaeological remains at Beauly Substation with similar sites within the Highland region has shown that timber post and turf and stone-walled construction methods are part of a common array of construction techniques. These types of structures frequently show signs of repair and refurbishment; however, this may have taken place after only a short period of time, and the length of occupation of the site could have been relatively brief. The various excavations and post-excavation programmes on the field system and roundhouses within Balblair Wood provide crucial data for investigating the nature and chronology of this prehistoric landscape.

9. ACKNOWLEDGEMENTS

The author is grateful to Scottish and Southern Electricity Networks who funded the excavation, consultants WSP, and specifically to the cultural heritage team for help and advice during fieldwork. The author would also like to thank Kirsty Cameron of the Highland Council Historic Environment Team for her support and guidance. They would also like to thank Global Infrastructure Ltd and Breedon Group plc for their support regarding access to the site and site clearance. The project would not have been possible without the team of excavators, Lindsey Stirling, Patrick Rowan, Peta Glew, and Steven Watt; as well as the post-excavation team and specialists: Aurimė Bočkutė, Dawn McLaren, Genoveva Dimova, Jackaline Robertson, Lynne Roy, Rob Engl, and Orlene McIlfatrick. Special thanks go to Lindsey Stirling, Sam O'Leary, and Mark Hoyle for production of the illustrations and to Mary Peteranna for management, supervision, support, and guidance throughout the project.

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