DigVentures

Penpleidiau / Caerfai Promontory Fort Excavation 2022

Archaeological Assessment Report

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Penpleidiau / Caerfai Promontory Fort Excavation 2022

Post-Excavation Report

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Purpose of document

This document has been prepared as an Assessment Report for Penpleidiau / Caerfai Promontory Fort Excavation 2022. The purpose of this document is to provide a comprehensive account of the 2022 field season, with specialist assessment of finds and samples, and recommendations for further investigation and analysis. It is supported by an easily accessible database of all written, drawn, photographic and digital data.

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Project summary

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DV project code and type	CHE22 Community Excavation
National Grid Reference	SM 76286 24012
County	Pembrokeshire
Designations	Caerfai Camp (PE294)
Title:	Penpleidiau / Caerfai Promontory Fort Excavation 2023 – Post Excavation Assessment Report
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Acknowledgements

We'd like to begin with a sincere thank you to Cadw for their guidance and support in the project planning and permissions, as well as to the CHERISH project team for initially inviting us to be part of such an exciting project in 2021, and for their continued support. Thanks are also extended to the RCAHMW, the Pembrokeshire Coast National Park Authority, the National Trust and other stakeholders for their assistance in various stages and aspects of the project and for their guidance throughout the project.

We would also like to thank Rob Griffiths, proprietor of St David's Bunk Barns, for his assistance in granting land access to the site and for aiding with the logistical side of the excavation.

The Project Executive for DigVentures is Lisa Westcott Wilkins and Brendon Wilkins as Project Director. The project was managed by Kimberley Teale, with Stephanie Duensing acting as the Site Director with assistance from Indie Jago, Freddy Wannop, David Wallace, Maggie Eno and Lisa Westcott Wilkins.

Executive summary

This document is an assessment report for the archaeological evaluation stage excavations at the scheduled Penplediau / Caerfai Promontory Fort (PE294) in Pembrokeshire. The investigative works took place as outlined in the Project Design (DigVentures 2022) and in line with scheduled monument consent from Cadw granted on the 14th of July 2022. The works were undertaken with continued support from the CHERISH project team, the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), the Pembrokeshire National Park, the National Trust and Cadw.

The original aims of the CHERISH project were to increase knowledge and understanding of the impacts (past, present and near future) of climate change, increased storminess and extreme weather events on the cultural heritage of reefs, islands and headlands of the Welsh and Irish regional seas. As such, the aim of the fieldwork was to date and characterise aspects of Penpleidiau / Caerfai Promontory Fort and its immediate environs, whilst raising awareness of coastal and terrestrial erosion and engaging the local community.

Results summary

The project fieldwork, which comprised a community-led and crowd-funded archaeological investigation, was carried out by DigVentures between the 1st and the 22nd of September 2022 as a continuation of excavations undertaken in 2021 as part of the CHERISH project. A total of four trenches were excavated in 2022. Two trenches comprised extensions to trenches excavated in 2021; Trench 3 comprised an extension to 2021's Trench 1, located on the narrow isthmus over the proposed location of the promontory fort, and Trench 6 comprised an extension to 2021's Trench 2, located over the ditch between two of the ramparts to the north of the fort.

Excavations revealed new evidence for multiple structures in Trench 3, including a roundhouse with a partially stone-built support. A second timber post structure immediately to the south of the stone-built structure showed signs of minor terracing, as well as a high concentration of organic, burned material. Beneath the flat-laid stone surface revealed within the second structure, an intercutting hearth feature was uncovered showing a locus of metalworking industry. The excavation also revealed finds comprising a spindle whorl, pottery and fired clay fragments, metal slag, several sling shots, whetstones and rubbing stones, providing evidence for an Iron Age or earlier occupation.

A ditch extending over 2m below the current low surface point was recorded in Trench 6, located between the second and third ramparts to the north of the fort. The excavation also contributed further evidence that the larger rampart appeared to have been the most recently built, whilst the smaller rampart appears to have been stone faced.

Two locations were targeted over areas of high resistance identified in a geophysical survey. Trench 4 revealed another potential stone-built structure with a levelled interior surface, postholes, evidence of burning and possible industrial activities in the way of a cache of honing stones. Trench 5 identified an alignment of upright stones strongly correlated to the widest pattern of resistance.

Public engagement and participation is a key ongoing aspect of the project and the Caerfai excavation offered different activity streams for both in-person participants and virtual audience members. The fieldwork season received approximately 190 visitors, with 88 individuals joining the archaeological team in the trenches. A virtual tour and digital crowdfunding contribution levels engaged a further 111 individuals online. The project succeeded in attracting a new audience for archaeology, with 50% of the in-person participants and 21% of the virtual audience, having never taken part in archaeology activities before. The project attracted a diverse community of people from the local area as well as further afield.

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1 INTRODUCTION

1.1 Project background

1.1.1 DigVentures was initially appointed in 2021 by CHERISH to undertake a community investigation at the scheduled Penplediau / Caerfai Promontory Fort (PE294) in Pembrokeshire, with DigVentures running a crowdfunded community dig in 2022 at the same location, hereafter 'the Site' (Figure 1). The original aims of the CHERISH project were to increase knowledge and understanding of the impacts (past, present and near future) of climate change, increased storminess and extreme weather events on the cultural heritage of reefs, islands and headlands of the Welsh and Irish regional seas. This investigation represents the second phase of work on a multi-staged project thus far comprising a three-year programme of community archaeological excavation at the Site.

1.1.2 This report presents an assessment of the findings from the second season of fieldwork undertaken in September 2022. The excavations were informed by geophysical survey undertaken in 2019 (SUMO 2019) as well as the early results of complimentary geophysical survey undertaken by DigVentures in this same fieldwork season in the first week of September 2022. The overarching aim of the fieldwork was to continue to investigate the previously identified archaeological remains pertaining to the hillfort, fully characterising the scale, depth and density of the area evaluated in season one (Duensing and Teale 2022). Investigations focused on the narrowest point of access across the natural isthmus formed by the rapidly eroding cliff edge on the interior of the ramparts forming the fortified enclosure. The investigative works took place as outlined in the Project Design document (DigVentures 2022) and as agreed with scheduled monument consent from Cadw dated 14/07/2022. The works were undertaken with crowdfunding support from participants, and from the CHERISH project team, the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), the Pembrokeshire Coast National Park Authority, the National Trust and Cadw. A third season of archaeological excavation is planned for August 2023, the methodology for which will be detailed in an Updated Project Design (DigVentures 2023).

1.1.3 This report is one of several archive and dissemination products to have been generated by the project, including the digital archive and metadata, the paper archive and the artefact and environmental material. All archive material is currently held by DigVentures. When the project is completed, the full digital archive will be deposited in the National Monuments Record of Wales, with copies of key reports to stakeholders and the regional HER. The physical archive will be deposited for long term storage and conservation at the Nation Museum Wales.

1.2 Site location, topography and geology

1.2.1 The scheduled promontory fort site of Caerfai Camp (PE294) occupies a very large and visually dominant natural coastal promontory approximately 1.3km to the south-east of St David's, Pembrokeshire, Wales (NGR SM 76280 23980). The site is located on a coastal headland, defended by cliffs on the western, southern and eastern sides. The monument is described as a crescent of three to four lines of banks and ditches, approximately 100m in length, having what appears to be a former entrance gap, about 30m across from the east most extent. This entrance is blocked by two lesser banks, the whole of which are set across the northern boundary of the promontory. Immediately south of these banks, the area narrows to a 45m wide neck of land that opens onto a roughly 100m east-west by 50m cliff-girt promontory. Emplacements for circular structures have been reported but not confirmed in the interior and there is said to be a good natural, small-boat harbour to the south (NPRN: 305396).

1.2.2 The headland extending out into the southernmost promontory is comprised of an Igneous Intrusion of porphyritic microtonalite, a type of microgranitic-rock. This Igneous Bedrock formed approximately 444 to 485 million years ago in the Ordovician Period. It is indicative of a local environment previously dominated by intrusions of silica-rich magma. These igneous rocks are magmatic (intrusive) in origin. Rich in silica, they form intruded batholiths, plutons, dykes and sills.

1.2.3 Further north, the isthmus is composed of Mudstone, while the area where the ramparts are located is comprised of Sandstone with interbedded Argillaceous Rocks. Both the areas are types of Sedimentary Bedrock formed approximately 499 to 508 million years ago in the Cambrian Period. They are both indicative of a local environment previously dominated by shallow seas as these sedimentary rocks are shallow-marine in origin (BGS, http://mapapps.bgs.ac.uk).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

2.1.1 The Site (Figure 1) is a scheduled monument and comprises the remains of a defended enclosure, which is thought to date to the Iron Age period (c. 800 BC - AD 43). The area enclosed was approximately 110m across at the time of its use, although this has become significantly reduced by a series of modern collapse episodes to the western extent of the isthmus. It is estimated that as little as three more collapse episodes may eventually result in the interior enclosure becoming an island (NPRN: 305396). The interior view of the defences reveals the remains of four defensive banks and ditches. Starting with the southernmost bank: this bank stands up to 2m above the interior and 3m above a ditch its north. North of this bank and ditch is a slighter bank and ditch, the bank stands 1.5m high above the ditch. North again is a third bank standing over 4m high, north of this bank is a further ditch, followed by a fourth bank rising 2.2m high, followed by a final outer ditch. These four lines of bank and ditch are close-set and on the east side there is a gap in the two inner banks representing a simple entrance, accentuated by the outer bank turning to the north. Both banks then continue in a reduced form to the cliff edge, however the other two banks stop altogether about 30m short of this. The defences probably represent two phases, with the two inner ramparts being earlier and a later outermost bank that may have been left unfinished (Scheduled Monument - Full Report - Cadw (cadwpublic-api.azurewebsites.net).

2.1.2 The ramparts are covered in vegetation, but show clear lines of bank and ditch, the inner bank standing 3m above the interior and 3.5m over the ditch on the outside. At the western end are vertical cliffs, and the eastern end terminates at the entrance. The entrance lies between the eastern end the banks and ditches and a steep coastal slope which runs down to the top of vertical sea cliffs. The grass-covered interior slopes gently down from north to south and are rectangular in plan measuring circa 100m north-south and 120m east-west. On the southwest, south and east sides the interior slopes down gently before ending in sea cliffs, which may suggest that not a great deal has been lost to erosion. On the northwest side a vertically sided gully has removed a large portion (c.20%) of the interior as well as some of the inner bank.

2.1.3 As highlighted on the Coflein site record, the Penplediau / Caerfai Promontory Fort has clearly been impacted by coastal erosion, with substantial gullies appearing between the late 19th and mid-20th centuries exacerbated by post medieval mining activity. It offers a significant case study looking at the impacts of coastal erosion and the potential to quantify both the loss (from comparison with historic mapping) and the level of active erosion the site continues to undergo. The land cover across the banks offers a second threat to the cohesion of the archaeological record, and a clear record of the

impact of bracken and blackthorn will contribute to the management of the site in the future. The CHERISH community excavation at Caerfai presented a substantial opportunity to understand the promontory fort, and to contribute to wider knowledge and understanding of the impacts of coastal erosion to Wales's cherished heritage assets.

2.2 Summary of previous work

2.2.1 In March 2019, SUMO Services carried out a geophysical magnetometer survey on 2.5Ha of land across the promontory fort and unscheduled headland to the north (SUMO, 2019). Archaeological anomalies were identified within and outside of the fort, including several targets which this project focused on. The CHERISH Project completed an analytical earthwork survey of the promontory fort, as well as a UAV photogrammetric survey. The survey focused on all visible archaeological remains as well as gathering evidence for coastal erosion, resulting in a Digital Elevation Model and a scaled 3D model and orthophoto. A dissertation undertaken by Daniel Hunt in 2020 (Hunt, 2020) evaluated the use of combined archaeological survey approaches in researching the coastal promontory forts of Pembrokeshire, including that of Caerfai Camp. The study presented a new analytical survey and UAV survey for the camp, which identified a possible earlier ditch across the isthmus of the fort and clarified the nature of the earthworks and severe coastal erosion across the isthmus.

2.2.2 A site visit was conducted on the 22nd July 2021 with Kimberley Teale (Project Manager) and Stephanie Duensing (Site Director) from the DigVentures project team comprising Dr Toby Driver, Louise Barker, Patrick Robson and Daniel Hunt from the CHERISH project team, and Rob Griffiths from St David's Bunk Barns. The visit assessed the logistical aspects of the planned excavations, with an agreement being made with Rob Griffiths, proprietor of St David's Bunk Barns, to create temporary access through a current field boundary at the south of his land to allow direct access to the Caerfai fort, and for welfare facilities to be placed adjacent to this temporary access for all attending the excavation. The exact locations of Trenches A and B were discussed including the requirements for fencing around the trenches for health and safety purposes. It was agreed that Trench B would be moved to a rampart further to the north which had visibly been affected by vegetation growth.

2.2.3 A community-based archaeological investigation was carried out between the 1st and 18th of September 2021 by DigVentures as part of the CHERISH project. Two trenches were excavated, one located on the narrow isthmus over the location of the promontory fort and a second over the defensive ramparts to the north of the fort. The trench located over the ramparts revealed that rooting from blackthorn and bracken scrub had penetrated into the top 30-40cm of the rampart surface, alongside an extensive network of animal burrows, which had caused significant damage. The excavation revealed that the larger rampart appeared to have been the most recently built structure but was far less well constructed than the smaller rampart which had a stone facing.

2.2.4 Evidence for a possible terrace or rampart was recorded at the isthmus, recovering high concentrations of organic, burned material, a flat-laid stone surface, a possible wall and features cut into the surface level proving to be post holes. The excavation also recovered finds including a spindle whorl, pottery and fired clay fragments, copper and iron slag, several sling shots, whetstones and rubbing stones, providing evidence for Iron Age or earlier occupation.

3 PROJECT AIMS & OBJECTIVES

3.1 Project Model

3.1.1 The overarching aim of the archaeological excavation was to define and characterise the physical extent of the Site (Figure 1) through a programme of non-intrusive investigations and intrusive excavation, obtaining baseline data that would facilitate its future management, research, presentation and enjoyment. Consistent with the original Project Brief (CHERISH 2021) and continuing the first field season (Duensing and Teale 2022), the goal of this work was to date and characterise aspects of the monument and immediate environs, particularly features at risk from coastal and terrestrial erosion. This was structured as a community-based research project and university field school, providing a range of physical and digital opportunities to participate and/or watch the excavations.

3.1.2 The project model was framed as overarching aims and key questions/objectives that provided a framework for the methods, stages, products and tasks (Teale 2022).

3.2 Research aims

Aim 1 - Characterise the results of non-invasive survey, refining the chronology and phasing of the site with a programme of trenching

3.2.1 In the light of the evidence base collated through geophysical survey (SUMO 2019) and from the evaluative investigations undertaken in 2021 (DigVentures 2022), this aim uses targeted trenches to address the following questions:

- Q1: Can we establish the layout and extents of the promontory fort by trial trenching and non-invasive survey?
- Q2: Can a chronological sequence and stratigraphic phasing for the sites archaeological evidence be established?

Aim 2 – Understand the development and use of the site and clarify its position in the prehistoric coastal landscape

3.2.2 The 2021 evaluative excavations enhanced the understanding of the site and have aided in the design of future archaeological work. The 2022 excavations are hoping to build on these excavations to define the exact use, date and nature of the fort and its relationship and similarities to those further along the St Davids coastline. The purpose of this year's trenches will be to further investigate the known archaeological features in the fort, to identify new ones and to obtain appropriate samples for archaeological and palaeoenvironmental assessment. In combination, these activities will address the following questions:

- Q3 – To what extent do the archaeological remains of the fort survive and how do these inform a greater understanding of promontory forts in the region?
- Q4 – Can we refine the chronological narrative for the site, including the presence of earlier and later features and structures, as defined in Aim 1?
- Q5: Can we identify the location of industrial and settlement activity on the isthmus to establish activities and use of the fort?
- Q6: What is the landscape setting, use and character surrounding the fort, and how did this shape its location, design and development?

Aim 3 - Understand the site's archaeological and paleoenvironmental conditions

3.2.3 This aim involves assessment and analysis of archaeological samples as defined and recovered in Aims 1 and 2, using appropriate paleoenvironmental, geoarchaeological and archaeological techniques (if possible) to establish preservation and significance. Very little environmental evidence was gained from the 2021 evaluation; on the ramparts the stratigraphy was heavily bioturbated and a full sequence could not be taken, and in Trench 1 we did not reach the base of the occupational layer to establish a sequence. It is hoped that this will be possible this year.

- Q7: What is the current state of the archaeological and paleoenvironmental material across the site?
- Q8: How well do deposits and artefacts survive, and how deeply are they buried?
- Q9: Can the paleoenvironmental data recovered from sampling in the trenches inform us about cultural activities that may have taken place at the site?
- Q10: What is the range and spatial patterning of artefacts recovered from the archaeological trenches and test pits, and can this inform our understanding of the use of the landscape and utilisation of wider resources??
- Q11: Can we establish a scientifically dated sequence for the site, including both cultural activities and landscape development?

Aim 4 - Making recommendations, undertaking analysis and publication

3.2.4 Through collation of data recovered from Aims 1 – 3, integrated analysis of the archaeological and paleoenvironmental resource at the site will provide recommendations to conserve, enhance and interpret the heritage significance of the site.

- Q12: What can an integrated synthesis of the results of this work with previous studies of contemporary regional sites tell us about the site and its setting?
- Q13: What recommendations can be made to protect, conserve and enhance the site?

Aim 5 – Creating opportunities for people and communities

3.2.5 Public engagement and participation is integral to the success of the project and sits with equal importance alongside our research aims. The field school programme will offer a range of opportunities for local community members, students, school children and visitors to the area to get involved and learn about the archaeology of Penplediau / Caerfai promontory fort. Participation opportunities will include excavation, finds processing, photogrammetry and guided visits of the trenches.

3.2.6 The project will also act as an assessed field school module for students from Cardiff and Oxford University. The dig will be structured in a way that fulfils their assessment briefs and completes their archaeology skills passports as much as possible. Activities will comprise of excavation techniques, sampling, recording, photogrammetry, finds processing, geophysical survey and interpretation and will be complemented by evening lectures from specialists from the national park and the Royal Commission.

3.2.7 Over the course of the project, our targets for engagement would be to:

- train community volunteers and students in excavation and post excavation tasks

- engage children and young people with our education sessions including school visits, DigCamps, DigClubs and a visit from the Youth Park Rangers
- broadcast online content across multiple social media channels collated on our dig timeline
- deliver a programme of public events, including daily site tours, expert led workshops and evening talks and an online virtual site tour with Q&A sessions with the project team, reaching an expected 120 individuals and a global online community
- provide access to our online course, *How To Do Archaeology*, for dig participants
- produce and provide a digital archive and exhibition resource for the project website, with an expected audience of 7,000 individuals.

3.2.8 Volunteers will be invited to join the excavations and will be trained in archaeological skills, co-producing the archaeological archive using DigVentures' unique Digital Dig Team software. Results will be recorded directly onto the project microsite, providing live updates of both technical data and social media via the microsite Timeline. Reports produced following the excavations will be hosted on the website, providing a research resource for anyone interested in the region's prehistoric archaeology.

4 METHODOLOGY

4.1 Excavation methodology

4.1.1 All work was completed to CIfA (2014a) Standard and guidance for archaeological excavation and was undertaken in accordance with the standards set out within the Project Design (Teale 2022). The excavation was carried out in accordance with the company Health and Safety Policy, to standards defined in The Health and Safety at Work Act 1974, and The Management of Health and Safety at Work Regulations 1992.

4.1.2 Excavation took place between the 1st and 22nd of September 2022, principally designed to address the research questions associated with Aims 1, 2 and 5 (Section 3.2). This entailed a program of targeted interventions, comprising four trenches designed to investigate the nature, extent and character of the archaeological deposits relating to Caerfai Promontory Fort and associated defensive ramparts (see Aims and Objectives, Section 3).

- Trench 3 formed an extension to 2021's evaluation Trench 1 and measured 9m x 17m. This trench comprised an open area excavation to find the occupational zone and hearth and to understand the nature of the structure as suggested by the post holes found in 2021. The occupational evidence from Trench 1, including pot sherds, slag, charcoal and metal working was discovered along the eastern extents of proposed Trench 3 and this trench aimed to reveal the centre of activity of the fort.
- Trench 4 encompassed 2021's Test Pits 1 and 2, where an alignment of stone was recorded on the headland and where evidence of a hearth bottom was suggested through analysis of the slag. The trench measured 2m x 7m and aimed to expand understanding of the use of the headland in relation to the fort.
- Trench 5 set out to investigate a circular anomaly on the headland identified in the 2019 geophysical data and was further refined with the resistivity data collected in the first week of the 2022 field season. The trench measured 2m x 7m and aimed to establish the nature, date and character of the potential anomaly, and recover evidence to support interpretation of the site.

- Trench 6 further examined the defensive ramparts to the north of Caerfai fort, originally investigated as Trench 2 in 2021, by continuing down into the ditch between the ramparts to find evidence for their construction. The aim of this trench was to find dateable evidence and a good section for environmental sampling, as well as to better understand occupation sequences or dates for construction and usage. The trench measured 3m x 6m, with space to allow stepping the excavation for safety in order to reach the base of ditch.

4.1.3 All trenches were located using a GPS prior to the commencement of work, and each area using the results of pre-existing non-invasive survey data (SUMO 2019; Teale 2022). Trenches were hand dug, cleaned, planned and photographed. Any archaeological features and deposits exposed in the evaluation trenches were hand-cleaned and excavated to determine their nature, character and date. Carefully chosen cross-sections were then excavated through features to enable sufficient information about form, development, date and stratigraphic relationships to be recorded.

4.1.4 A complete drawn record of the trenches comprises plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix A. Layers and fills are recorded with curved brackets (001), whilst the cut of the feature is shown [001]. Each context is prefixed with the relevant Trench number (i.e. Trench 1, 1000+, Trench 2, 2000+).

4.1.5 All interventions were surveyed using a Trimble GNSS system tied into the Ordnance Survey grid. All recording was undertaken using paper records which will be transferred to a digital recording system. All individual trench, feature and context records are provided in Appendix 1. All associated information regarding finds, samples, plans, sections, photographic records and 3D models can also be made available upon request.

4.2 Artefacts and ecofacts

4.2.1 Finds were treated in accordance with the relevant guidance given in the CIfA's Standard and guidance for the collection, documentation, conservation and research of archaeological materials (2014b), except where they were superseded by statements made below. All artefacts from excavated contexts were washed, counted, weighed and identified. Finds recovered were assessed by appropriately qualified specialists, who examined the finds to provide an identification, date and provenance of the material, and to also evaluate the significance of the assemblage.

4.3 Animal bone

4.3.1 The animal remains were identified to element, side and to as low a taxonomic level as possible using the Author's reference collection and published and online identification guides (Cohen and Serjeantson 1996; Hillson 2003; 2005). Quantification for mammal remains used the diagnostic zone method as presented by Dobney and Rielly (1988) and for birds the method presented by Cohen and Serjeantson (1996). A taphonomic assessment of each fragment was undertaken, recording the presence and absence of cut and chop marks, burning and calcination, any evidence for animal activity (canid or rodent gnawing), and surface preservation; any other surface modifications of note were also recorded. At this stage, no attempt was made to sex any of the remains, or to measure any elements. Bones that could be identified to element but not any specific species were grouped as far as possible using size and class or order categories. Results were recorded in an electronic proforma in Microsoft Excel.

4.3.2 The assessment has been undertaken in line with published standards and guidelines (Baker and Worley 2019; CIfA 2014), a project design and written scheme of investigation for the site (Teale 2021) and with reference to the current archaeological research framework for Southwest Wales (Anon. 2017).

4.4 Industrial waste

4.4.1 The slag was visually examined and the classification is based on morphology with additional data obtained from Hand-Held X-Ray Fluorescence Analysis. The debris associated with metalworking, or submitted in the understanding that they are associated with metalworking, can be divided into two broad groups; residues diagnostic of a particular metallurgical process or non-diagnostic residues that may have derived from any pyrotechnological process (McDonnell 2001). The diagnostic ferrous debris can be attributed to a particular ironworking process; these comprise ores and the ironworking slags, i.e. the macro, hand recovered smelting and smithing slags and the micro-residues such as hammerscale and slag fragments recovered from sieving programmes. The second group, are the diagnostic non-ferrous metalworking debris, e.g. crucibles and moulds. Thirdly, there are the non-diagnostic slags, which could have been generated by a number of different processes but show no diagnostic characteristic that can identify the process. In many cases the non-diagnostic residues, e.g. hearth or furnace lining, may be ascribed to a particular process through archaeological association. The residue classifications used in the report are defined in Appendix 2.

4.5 Environmental

4.5.1 The bulk samples were processed using a water separation machine. Floating material was collected in a 300µm mesh, and the remaining heavy fraction retained in a 1mm mesh. Flots and heavy fractions were air dried. The >4mm heavy fractions were sorted for artefacts and ecofacts. The 2-4mm fractions were scanned by eye and the abundance of wood charcoal was recorded. The abundance of small artefacts or identifiable ecofacts such as molluscs or fish bone in the 2-4mm fractions was also recorded. Magnetic material (such as hammerscale) was extracted from the 2-4mm and 1-2mm fractions using a large magnet.

4.5.2 The samples were assessed in accordance with Historic England guidelines for environmental archaeology assessments (Campbell et al 2011) and the CIfA toolkit for specialist reporting (CIfA 2021). A preliminary assessment of the samples was made by scanning using a stereo-binocular microscope (x10 - x65) and recording the abundance of the main classes of material present. All material present in the samples was quantified using a scale of abundance (- = < 10 items, + = 10-29 items, ++ = 30-49 items, +++ = 50-99 items, ++++ = 100-499 items, +++++ = > 500 items).

4.5.3 A series of hand collected charcoal fragments were identified using high power binocular reflected light (episcopic) microscopy (x 50, x 100 and x 400). Identifications were made based on the anatomic features observed in transverse, radial and tangential planes. A record was also made, where possible, of the ring curvature of the wood and various dendrological features, for the part of the woody plant which had been burnt and the state of wood before charring to be determined (cf. Marguerie and Hunot 2007).

4.5.4 Preliminary identification of charred plant material and wood charcoal was carried out by comparison with material in the reference collections at the Department of Archaeology, University of Sheffield, and various reference works (e.g. Cappers et al 2006; Schweingruber 1990). Cereal identifications and nomenclature follow Zohary et al. (2012). Other plant nomenclature follows Stace (2019). The composition of the bulk samples is recorded in Table 11 and wood charcoal identifications are recorded in Table 12. The seed, in the broadest sense, of the plant is always referred to in Table 11,

unless stated otherwise. The abbreviation cf. means 'compares with' and denotes that a specimen most closely resembles that taxon more than any other.

4.6 Photogrammetric survey

4.6.1 A photogrammetric survey of the excavation trenches was made in accordance with Historic England's (2017) Photogrammetric Applications for Cultural Heritage: Guidance for Good Practice to assist in recording any remains encountered. The survey utilised Agisoft Metagshape 3D Modelling software to detect the feature points of the structure and match these in different images to create a point cloud, from which photo realistic 3D models were generated. All models were georeferenced using a minimum of eight coded targets for each model, surveyed into the National Grid using a Trimble GNSS system.

4.6.2 Images were captured perpendicular to the trenches using telescopic mounted cameras, to deliver optimum results requiring little or no rectification. All images are taken with at least a 16 mega pixel digital camera (unless other cameras are specified) for later processing into high resolution JPG files and downloaded directly on to the hard disk of the laptop.

5 EXCAVATION RESULTS

Stephanie N. Duensing

5.1 Introduction

5.1.1 During September 2022, a community archaeological excavation was carried out at Caerfai Promontory Fort in Pembrokeshire, Wales (SM 76286 24012). The excavations consisted of four trenches (Trench 3, Trench 4, Trench 5 and Trench 6 (Figures 2-10) with the aim of answering questions raised in the project design (DigVentures 2022). The principal purpose of these excavations were to 'characterise the results of non-invasive survey, refining the chronology and phasing of the site with a programme of trenching' (Aim 1) and 'Understand the site's archaeological and paleoenvironmental conditions' (Aim 2). Each trench was designed to address specific research objectives, and these are discussed with the excavation results below. Figure 1 shows the overall location of each targeted area, and Figures 2-8 provide illustrations of individual trenches and archaeological features. Detailed descriptions of each context are included in Appendix 1, organised by trench number.

5.2 Stratigraphic sequence

5.2.1 A common stratigraphic sequence was recognised across the site, in accordance with results from previous investigations. Trench 1, for example, comprised a layer of turf and topsoil (3001) consisting of a mid brownish grey, friable silt with vegetation roots, overlying a mid greyish brown sandy silt subsoil (3005). The stratigraphic sequence fluctuated in depth across the site predominantly due to natural height variation with the underlying sloping topography.

5.2.2 The Caerfai Promontory Fort was investigated with two hand dug trenches within the scheduled monument. This investigation also afforded the opportunity to examine the remainder of the internal construction and extent of the ditch between two of the Iron Age ramparts by linking the cross section from last year's excavation which recorded the upstanding earthworks of the largest rampart with the one directly south of it, and the top 50cm or so of the upper ditch fill. This completed section from both years can be seen in Figure 6.

5.3 Trench 3 (Figures 2 & 8)

5.3.1 Trench 3 was an extension of Trench 1 which was investigated during the 2021 evaluation and was located to the south of the ramparts on top of a natural isthmus where the cliffs are rapidly eroding into the sea (Figure 2). The trench was placed over anomalies identified from a previous geophysical survey (Sumo, 2019), where results indicated that there was an increased chance of human activity in this location, which was then confirmed following excavations undertaken in 2021 (Figure 1).

5.3.2 In the northern half of the trench, a very stoney rubble layer encountered in some sections as little as 5cm below the surface, was carefully unpicked to reveal a stone-based roundhouse (F04). This was located to the east of a compact stone surface discovered in the western aspect of the evaluation trench which ran perpendicular to the cliff edge (F01). Previously thought to relate to evidence of possible archaeological terracing efforts to contour the landscape, excavation suggests this appears to have related to an accumulation of rubble from a partially stone-built roundhouse or structure. A fragment of burnt clay or possible pottery was recovered from within the rubble core of the wall itself (3026). Additional finds included animal bone, charcoal, and possibly human impacted flint and stone.

5.3.3 Just south of this stone structure, a rapid and clear change in the composition of material deposits was observed in 2021. This area was largely free of the rubble makeup of the northern half of the trench, and comprised a high concentration of organic, burned material leading down onto a flat-laid stone surface surrounded by stone-packed postholes. The 2022 excavation progressed investigation of these features, which proved to be a much-anticipated hearth feature (F02). The hearth feature comprised 24 individual cuts with subsequent deposits within them. Burnt animal bone, charcoal, struck flint, stone, shell, and the base of a possible crucible were recovered from this area.

5.3.4 Postholes packed with stones were discovered surrounding this central hearth feature, providing clear evidence for a timber-post roundhouse (F03) which was suspected to have been associated with the postholes identified and excavated the previous year. In total, eight possible postholes were excavated, recorded and sampled to at least 50%. Although most of the fills were saved in the way of sampling for maximum recovery of environmental evidence, only one possible sherd of pot was recovered from within the fill (3007) of a post hole to the east of hearth. Beyond this, only charcoal was identified from these post holes. However, within the subsoil (3005) and the plough horizon (3011) within this area, a number of items including animal bone, flint, possibly worked/sling stones, a spindle whorl and some burnt clay were recovered.

5.3.5 Key finds from Trench 3 include two fragments of possible pottery and multiple fragments of fired clay. A quantity of slag from metalworking was also recovered, along with a great deal of charred deposits. A key find was a fragment from the base of a possible crucible that was recovered from the last quadrant of the hearth feature, found on the final day of digging. Pottery in particular is rare to find on Welsh hillforts, as is metalworking, so finding this fragment which is evidence of the local industry and craftmanship is very exciting.

5.4 Trench 4 (Figures 3 & 7)

5.4.1 Trench 4 was excavated to further characterise and explore anomalies identified through an earth resistance survey undertaken in 2022, as well as continuing investigations of a test pit from 2021 which had produced a small amount of metal working evidence and large stones thought to be potentially structural (Figure 3).

5.4.2 Upon opening the 7m x 2m trench, several potential archaeological features were revealed, including a potential interior surface (4009) set within two more substantial stoney platforms or supports, 4005

and 4006, suggesting a possible small, rectangular shelter. One of these stone platforms to the SW contained a possible post-setting, [4002]. On the north-eastern side of the stoney platform, a cache of 13 honing stones or rubbing stones were discovered, SF8.

5.5 Trench 5 (Figure 3 & 7)

5.5.1 Trench 5 was placed to explore a possible roundhouse which appeared faintly on a magnetometry survey undertaken in 2019. Further targeted earth resistance survey in the week prior to opening the trench allowed for more detail to be gained, which indicated the presence of a high resistance curvilinear anomaly potentially relating to a small roundhouse or structure (Figure 3).

5.5.2 Upon excavation, no evidence of features matching the subcircular geophysical anomaly were found, however a patch of high resistance anomalies to the east-south-east of the circular anomaly appeared to align with a number of upright stones, 5004, which appear to have been intentionally placed.

5.5.3 Due to the limits of the trench size, further characterisation of this area is not possible at this time, but future investigations in this area may produce better insight regarding this possible structure. The feature is located 5m from the sheer cliff edge, making it one of the areas of the site which is at greatest risk of being lost to erosion, but also one which requires careful planning due to its precarious position.

5.6 Trench 6 (Figures 4 - 7)

5.6.1 Trench 6 was an extension of Trench 2 which was investigated during the 2021 evaluation and was positioned over the defensive ramparts and ditches to the north of the fort (Figure 4 & 6). Excavations in 2021 were halted upon encountering a large amount of rubble which had collapsed into the low-lying central recess between the northern and southern ramparts. The deposits were thought to be the silted up remains of what would have been a ditch. Excavations revealed two distinct finishes to the sides of the ditch.

5.6.2 The ditch edge to the south [6016] was roughly cut on a U-shaped base with a gradual brake of slope at the base and appeared to have had natural stone tiles laid over the top, as if to resurface the interior slope. It was suggested that this could be a natural fracture line of the natural stone due to freeze-thaw effect, and may indicate a longer exposure of that slope face to the elements. Alternatively, the northern ditch edge [6015] was cut in nearly a vertical, slightly undercutting, sheer drop, much like a step. This was cut directly into the natural bedrock (6036), resulting in an impressive stone cut ditch extending over 2m below current lowest lying point in the ditch between the two banks.

5.6.3 As seen in the previously excavated superficial fill layers, it appears that the larger rampart was most recently built, constructed with a lower percentage of compact rubble and clay at the core. The larger, northern rampart consisted predominantly of less compact, earthen materials at the core, with more rubble on the external layers. It is likely that the façade was earthen, or grass covered, with evidence of a substantial deposit of stone rubble at the top, possibly enough to support a considerable weight such as a structure (DigVentures, 2021).

5.6.4 The deepest deposits of the central ditch comprised a deep deposit of fine silty clay seen in contexts (6010), (6011), (6013), (6014), (6017), and (6025) – measuring nearly 40cm in total depth - which were deposited over a long period of time. Kubiena tins were used to collect micromorphology samples from these lower deposits.

5.6.5 The rubble deposits appeared much higher up in the chronological in-fill of the ditch, seen in (6006), (6008), (6009), (6022), (6026), and (6032) – measuring over 50cm in total depth - which appear to have been deposited in rapid episodes. This appears to be the remains of a stone facing, which was present

at least around the base of the smaller of these two ramparts, and likely was covering them entirely, with larger stones being found latest of all, which could originate from key stones from the small rampart or part of the stone from the top of the larger rampart.

6 ARTEFACTS

Robert Hedge (pottery), Josh Hogue (flint), Elizabeth Foulds (modified stone), and Gerry McDonnell (metallurgy)

6.1 Summary

6.1.1 The recovery of finds from the excavation at Penplediau / Caerfai Promontory Fort (PE294) characterised the results of the non-invasive survey and provided key information about the phasing of the site, as well as some insight into the chronological framework, status and use of the site (Aim 1 and Aim 2 - Q3, Q4 and Q8). It also provided a better understanding of the site's archaeological and palaeoenvironmental conditions; the condition and preservation of finds across the site was generally good for all artefact types (Aim 2, Q6 and Q7).

6.1.2 In total, the excavations yielded an assemblage of four ceramic artefacts, one worked flint fragments, 20 modified stone objects, 89 possible slingstones, 13 industrial residues, and. Of these finds, two registered finds were recovered during excavation: one stone and one ferrous object (Appendix 2). Additionally, 561 animal bones and 57.7 ml of palaeoenvironmental flots and heavy fractions were collected. Micromorphology samples were collected from the ditch section, although these have not been assessed at this stage, but will be considered for analysis following the 2023 fieldwork.

6.2 Ceramics

Robert Hedge

6.2.1 The project conforms to standards and guidance issued by the Chartered Institute for Archaeologists (CIfA 2014), as well as further guidance on pottery analysis, archive creation and museum deposition created by various pottery study groups (PCRG/SGRP/MPRG 2016), the Archaeological Archives Forum (AAF 2011), and the Society of Museum Archaeologists (SMA 1993).

Quantification and description

6.2.2 The assemblage comprised 18 artefacts, weighing 226g; they included several small abraded sherds that are likely to be pottery, a large fragment from a crucible, and a piece from a metalworking hearth or structure. All were consistent with an Iron Age date.

6.2.3 The condition of the artefacts was extremely poor. This was due to their friability, the deleterious effect of local soils upon early ceramics, and their stratigraphic position. All were considered by the excavators to be residual within later deposits, indicating a degree of post-depositional disturbance.

6.2.4 A small (5g), rounded ceramic fragment from (3002) was well-fired and is likely to be pot: the exterior surface and core were red-brown, the inner surface dark grey, with occasional voids/impressions likely to be from burnt-out organics. The fabric was dense, even, slightly micaceous and iron-rich. It contained abundant rounded to subangular quartz sand, the majority of grains <0.2mm with occasional angular grains of c0.5mm.

6.2.5 A small, weathered ceramic fragment (SF3), probably pot, was recovered from (3007). It had an orange outer surface; the core and inner surface were grey. Although it was not possible to determine form

or surface character, the fabric was fine and soft. It contained sparse angular clear quartz grains (<0.1mm), and sparse subangular fragments of red-brown sandstone (<2mm).

6.2.6 A fired clay fragment from (3002) comprised an irregular lump of red-brown, poorly-mixed sandy micaceous clay, with a heavily-vitrified inner surface. No clear form could be determined and it seems likely, from the pattern of vitrification and the fabric, that it represents a portion from a hearth or structure associated with bloomery iron production.

6.2.7 Within (3005) were 13 conjoining fragments from a natural triangular cobble of igneous rock: the cobble had been shattered, presumably through thermal shock, leaving a reddish tinge and hackly fracture reminiscent of fired clay. One further fragment of coarser igneous burnt stone was also recovered. Such thermal shock is often associated with 'potboiler' stones used to heat water, although there are a range of processes that can produce similar results.

6.2.8 Part of the rim of a vitrified ceramic vessel within (3023) bears the classic signs of a crucible: curvature suggests the form was a shallow bowl, thickening towards the base, with a straight-edged rim leading to a corner. It is difficult to ascertain the exact form of the rim. The angle suggests that a triangle is most likely (cf Bayley and Rehren 2007, Fig 7). This type is associated with mid to late Iron Age metalworking in the west of Britain. It is also possible that it could be part of a D-shaped crucible of the type observed at Porth-y-Rhaw, suggested to be a transitional late Iron Age/early Roman form (Young 2010, 83-5). However, the earlier triangular form is, at first sight, a better match. The rim was notably more heavily-vitrified than the lower edge, typical of early top-fired vessels. The fabric contained abundant angular white quartz up to 5mm in size, similar to examples from Porth-y-Rhaw. Careful excavation and processing has enabled the observation of bright green deposits on the inside of the rim; these typically suggest use for bronze-working.

Discussion

6.2.9 The majority of the assemblage is in poor condition and difficult to characterise with certainty. Although highly fragmentary, the (probable) pottery is — based on the common local occurrence of the inclusions — likely to be of local production.

6.2.10 Significantly, the vitrified fired clay and crucible fragment are clear indicators of later prehistoric metalworking. The fired clay, though small, has features typical of ironworking waste, but the crucible appears to have contained copper alloys (e.g. bronze). The presence of evidence for both types of metalworking is worthy of further investigation to elucidate if there are particular spatial or temporal indicators separating this activity within the site.

Conclusions

6.2.11 Although small, the assemblage suggests that the site supported a diverse range of craft activity including both iron and bronze-working. All the artefacts are consistent with an Iron Age date. A later date cannot be excluded for the pottery and hearth material, but the crucible best fits a type that is most closely associated with later prehistoric metalworking.

6.2.12 As with the 2021 assemblage, possibly the most instructive aspect of the assemblage is what it does not contain: Roman pottery is entirely absent, unlike many similar promontory forts in Pembrokeshire (eg Crane 1999, Crane and Murphy 2010), strengthening the argument that the artefacts from this site relate to Iron Age occupation.

Recommendations

6.2.13 Due to the paucity of ceramic artefacts from similar sites in this region, this assemblage warrants consideration for museum accession (subject to the collections priorities of National Museums Wales and/or a local repository). Given their condition and residuality, there is relatively little chance of residue analysis proving worthwhile.

6.3 Flint

Josh Hogue

6.3.1 In total, 55 lithic artefacts were submitted for assessment from the 2022 interventions at Caerfai Promontory Fort (Pembrokeshire, Wales). All but two of these were naturally broken or showed no evidence of having been intentionally worked. All worked material was classified following standard recording procedures (Ballin 2021, Butler 2005, Inizan et al. 1999; Appendix 3 Table 1). All naturally broken/entirely unworked material was quantified by count/weight before (Appendix 3 Table 2).

6.3.2 A flake was recovered from topsoil (5001) and a primary flake fragment was recovered from buried soil (3005). Both are heavy patinated with a 'milky' dull film covering the entirely of the surfaces and obscuring the colour of the flint. They are also moderately abraded with frequent chips along the margins consistent with post-depositional damage. Neither is typo-technologically or chronologically distinctive

Discussion

6.3.3 Based on the condition of the pieces both are likely residual and unlikely to be contemporary with deposits from which they were recovered (or the main period of activity at the site). Neither are typo-technologically or chronologically distinct and consequently could date from any age spanning the later Upper Palaeolithic through until the Bronze Age. Irrespective, the worked flint raises questions as to the longevity of activity at the site and tentatively suggests that the site was the focus of at least transient activity at different times throughout prehistory.

Research potential and recommendations

6.3.4 The lithic artefact and its assessment contribute towards the partial fulfilment of the project research aims (Teale et al. 2021). It helps to develop understanding of the chronological narrative of the site and enhances the understanding of the current state of the archaeological record and survival of the earliest artefacts. Given the diminutive and residual nature of the assemblage no further lithic analysis is required at this stage. However, the findings of the lithic assessment should be incorporated into the final published report alongside any findings from future phases of work.

6.4 Stone

Elizabeth Foulds

6.4.1 In total, 40 stones (21.894kg) were hand-collected during archaeological excavation at Penplediau/Caerfai Promontory Fort (Table 6). Most of the assemblage was comprised of small river cobbles, but there was a shale bangle fragment, a quartzite tool, and a possible fragment of chert or pitchstone (Appendix 3).

6.4.2 The majority of the assemblage was made up of unmodified natural stones. However, the presence of some or all of the natural stones may be the result of human activity, such as for building material or

for the use as sling stones. The following sections provide an overview of the assemblage by material type, followed by a discussion of the finds by excavation trench and context..

Utilised stones

6.4.3 Several different types of utilised stones are present in the assemblage. SF 7 is a shale bangle fragment. It has severely laminated and the original thickness no longer survives, but based on the existing shape it was likely D-shaped in cross-section. About 20% remains and it would have measured about 70mm in external diameter with an internal diameter of about 50mm. Although other shale bangles exhibit carved decoration, there is no evidence for decoration on this example. Bangles, such as this one, are found on Iron Age sites and were also worn in the Roman period.

6.4.4 SF 4 is a complete spindle whorl weighing 10.9g. It has a slightly off-centre hour-glass perforation. The sides are neatly finished but the faces have been left a little rough. Spindle whorls are not uncommon finds on later prehistoric sites and are a domestic tool associated with the production of textiles. A roughout was discovered in the 2021 excavations at Penplediau/Caerfai (Chapman 2022), and others are known from Pembrokeshire (e.g., Crane & Murphy 2010; Gould et al. 1899).

6.4.5 SF 8 is a long cobble with a triangular cross-section used as a rubber or perhaps as a whetstone. Two of the faces had been used more heavily than the third, as indicated by the areas of burnishing. The burnished areas do not extend to the edges of the object.

6.4.6 SF 5 is a grinder made from a large quartzite pebble (648.8g) with two opposing flattened faces. Quartzite pebbles used in this manner are known from other sites and a similar grinder was found at The Breiddin Hillfort in the Welsh Marches (Musson 1991, 156, no. 283). A grinder was also discovered during the 2021 excavations at at Penplediau/Caerfai (Foulds 2022).

6.4.7 SF 8 (ID 186) has evidence for use with a burnished, almost 'waxy' appearance on one of the faces. It has been suggested that this may be the result of leather or woollen textile working (Musson 1991, 154).

6.4.8 The remaining stones (SF 8: ID 180, 185, 187) had very faint areas of burnishing that may indicate that they had been used. This was limited to polishing on one surface or area.

Potential for sling stones

6.4.9 There are 22 small pebbles that were collected during excavation at the site. It is possible that some of these had been intentionally gathered and perhaps used as sling shot. Only one of these pebbles (ID 157) displayed evidence for damage, possibly as a result of impact or potentially due to heat damage. However, this does not necessarily mean that the rest of the pebbles were not used or intended to be used as sling stones.

6.4.10 Caches of sling stones are known from other Iron Age sites, such as at Danebury Hillfort, Hampshire; and Maiden Castle Hillfort, Dorset. The weights of the cached sling stones weighed between 29.5g and 109.5g at Danebury and 14.17g and 56.69g at Maiden Castle (Brown 1984, 425). Most of the collected pebbles at Penplediau/Caerfai fall between 14.17g and 109.5g, with only two examples outside of this range (ID 162, ID 163).

Assemblage by trench

6.4.11 The majority of the assemblage was collected from Trench 3, with a smaller assemblage from Trench 4, and only two stones collected from Trench 5 and Trench 6 (Table 7).

6.4.12 Trench 3 was an extension to Trench 1, which was excavated in 2021. A roundhouse with a stone footing and a second timber post structure were revealed. The timber structure had evidence for metalworking. The largest proportion of the stone objects from this trench consisted of possible sling stones. These were recovered from seven contexts. Excluding those from topsoil and backfill from the 2021 excavations (contexts 3001 and 3002), there were four that were found in a cleaning layer (3004) under the possible stone floor surface (3003). A further three came from a sub-soil layer (3005) after the abandonment of the site and two from the rubble layer (3006) that may be related to the collapse of the roundhouse or other structure.

6.4.13 Other finds from Trench 3 included the spindle whorl (SF 4) from the sub-soil (3005), the bangle fragment (SF 7) from the rubble layer possibly associated with the collapse of the roundhouse (3014), and the quartzite grinder (SF 5) that came from an accumulation layer after the abandonment of the roundhouse (3015).

6.4.14 Trench 4 targeted an area identified on the results of the geophysical survey and the excavations uncovered a stone-built structure, postholes, and evidence of burning. All stone finds were recovered from layer 4007. These finds included at least two cobbles with evidence for use (SF 8: ID 173, ID 186) and three additional cobbles with possible evidence for use.

6.4.15 Trench 5 was also positioned over an area identified on the geophysical survey and targeted a curvilinear anomaly. Excavations revealed upright stones. The stone finds recovered from this trench include two possible sling stones (ID 169, ID 170) recovered from the topsoil (5001).

6.4.16 Excavations in Trench 6 aimed to investigate the promontory fort ramparts. There were two stone finds, both of which came from the fill (6006) of the ditch. Neither had clear evidence for use.

Discussion

6.4.17 The 2022 excavations revealed a small range of object types at Penpleidiau/Caerfai promontory fort. The stone artefacts reflect objects worn as part of dress or personal adornment and evidence for textile manufacture. Other utilised stone objects were likely used as part of the processing or production of some other material(s), with leather or woollen textiles hinted at by at least one object. A number of other stones may have been collected for use as sling stones, although the context of the finds makes such an interpretation tentative at best.

6.4.18 The assemblage from the 2022 excavations add to the growing assemblage from this site. Excavations in 2021 included a spindle whorl roughout (Chapman 2022), as well as a further example of a grinder, a possible anvil stone or worksurface, a possible palette, and additional possible projectile stones (Foulds 2022). Given the limited nature of our understanding of hillforts and defended enclosures in southwest Wales and the limited number of excavations at coastal promontory forts in Pembrokeshire (Crane & Murphy 2010; Murphy 2010), the assemblage from Penpleidiau/Caerfai is an important contribution towards our understanding of activity at this type of site. Further work is needed to bring together the assemblages across all years of excavation and discuss it within the wider regional and period context.

Conclusion

6.4.19 The stone assemblage from the excavations represents objects related to activity at Penpleidiau/Caerfai promontory fort. Some of this activity may be related to food preparation, but there were more instances of tools potentially related to craft. While not closely indicative of date, the assemblage is similar to other worked stone assemblages from the later prehistoric period (e.g. Brown 1984; Musson 1991) and adds to the emerging understanding of the activity at the site.

Recommendations

6.4.20 At the conclusion of the project, a final analysis report that integrates all finds and places them in their site and wider regional context should be completed.

6.5 Metallurgy

Gerry McDonnell

6.5.1 This assessment report describes the material classified as slag recovered from the 2022 excavation season, with supporting data in Appendix 4. The significance of the material is discussed, and recommendations made for further work. The assessment report follows the guidelines issued by Historic England (Dungworth 2015, 13-14).

6.5.2 A small assemblage containing ferrous and non-ferrous debris was recovered in this phase of work. Table 8 lists the count and weight of the slag types present on the site, no magnetic fractions, e.g. containing hammerscale were recovered from the sieving programme. The most significant item was a large crucible fragment, that was heavily vitrified on the external surface and contained prills of corroded copper alloy adhering to the inner surface. It is probably a sherd of a shallow triangular crucible typical of Iron Age technology (Ponting, 2008, p12-13). The HH-XRF analysis of the internal surface showed, in addition to clay elements (Ca, K, Fe) the presence of copper, tin and lead with a trace of zinc (Appendix 4, Figure 1). The data indicates that the alloy being melted in the crucible was a leaded tin bronze which is the common alloy used in late Iron Age Britain. The HH-XRF analysis of the external surface showed traces of copper lead and zinc (Appendix 4, Figure 2). The zinc was probably a trace element in the clay, and hence not associated with the alloy. It was also noted that the external surface showed a high manganese peak, which may result from post burial percolation of water depositing manganese (and iron) rich minerals on the crucible surface. The context (3023) was interpreted as the fill of a possible hearth.

6.5.3 The other slags recovered included two fragments of smithing slag (3002) and three fragments of slagged lining, i.e. slag attacked ling that probably derived from the smithing hearth (3005). Both of these contexts are unstratified.

Discussion

6.5.4 The assemblage is very small and is indicative of iron smithing and copper alloy working.

Recommendations

6.5.5 If a bulk sample was taken from (3023) (or associated contexts), it/they should be checked for the presence of non-ferrous debris. No further work is required on the assemblage. The assemblage should be retained until completion of the project and then reviewed.

7 FAUNAL REMAINS

Hannah Russ

7.1 Results

7.1.1 The animal bone recovered during excavations at Penpleidiau/Caerfai Promontory Fort (CHE22) was extremely fragmentary. Mammal and marine mollusc remains were recovered from Trench 3, Table 9. In total, 670 fragments were recovered from 15 contexts, weighing 72g. The vertebrate remains (567 fragments) included those of mammals including domestic cattle (Bos taurus), domestic pig (Sus

domesticus), and sheep/goat (Ovis aries/Capra hircus). Most of the bone fragments could only be identified within size-based groups at clade (ungulate) or class (mammal) level (55.4%, n=314). No remains were specifically identifiable as human, though it is possible that small fragments are included in the large- and medium-sized mammal categories. Supporting data can be found in Appendix 5.

7.1.2 The marine mollusc assemblage (103 fragments) included remains of mussel (Mytilus sp.), dog whelk (Nucella lapillus), and common limpet (Patella vulgata), Table 9.

7.2 Taphonomic assessment – Vertebrate remains

Bone surface preservation and fragmentation

7.2.1 Bone surface preservation varied throughout the assemblage from 'moderate' to 'very poor' (categories 3-5). Most of the specimens displayed 'poor' surface preservation (72% by count, n=408). Fragmentation was very high throughout the assemblage with many partial bone fragments and teeth recovered and some re-fitting fragments of single specimens.

Butchery

7.2.2 Evidence for butchery in the form of fine cut marks, more substantial chop marks and saw marks was not recorded on the assemblage. One of the reasons for this was the very poor surface preservation of the recovered remains.

Animal interaction

7.2.3 Evidence for carnivore activity was not observed on any of the remains. Gnawing activity provides evidence for the presence of carnivores, likely domestic dogs and/or foxes, and rodents at the site and that animal remains/carcasses were accessible to these animals at some point after their deposition. Due to poor surface preservation this evidence was not possible to record.

Pathology

7.2.4 No skeletal abnormalities possibly resulting from disease, injury or age were recorded.

Burning and calcination

7.2.5 Burnt bone was recovered from 10 contexts, 110 fragments in total. The burnt remains included cattle, pig, large mammal, medium mammal, and medium/large mammal.

Potential for measurements

7.2.6 No bones were suitably complete to allow measurement for size estimation.

Potential for ageing and sexing

7.2.7 Bone fusion data for estimation of age at death could not be recorded on any of the specimens from CHE22. Likewise, no animal remains were suitable for establishing sex

7.3 Taphonomic assessment – Mollusc remains

Bone surface preservation and fragmentation

7.3.1 Bone surface preservation was 'poor' throughout the assemblage (category 4), with all the specimens displaying a poor surface preservation overall. Fragmentation was very high throughout the assemblage with some partial shells recovered and some re-fitting fragments of single specimens.

Parasitic infestations

7.3.2 Sponge infestations were present on some of the common limpet remains. In large assemblages that are known food waste deposits, the presence, absence, and frequency of parasitic infestations can be used to understand collection and/or harvesting locations and oyster bed management. Due to the poor surface preservation, survival of this type of evidence can be impeded.

Burning and calcination

7.3.3 No burnt shell was recorded in the Penpleidiau/Caerfai Promontory Fort assemblage.

Potential for measurements

7.3.4 No shells were suitably complete to allow measurement for size estimation.

7.4 Discussion

7.4.1 The range of taxa identified at Penpleidiau/Caerfai Promontory Fort are consistent with those to be expected in Britain from sites ranging from the Neolithic to the modern period (Baker and Worley 2019, 3). Cattle were kept for meat, milk, traction and/or leather, pigs were kept for meat, and sheep/goat were kept for meat, milk and/or wool. These animals are common features within the assemblages of animal bones recovered from sites within the region and throughout Britain, being four of the main domestic livestock animals. The remains recovered indicate that there are poor conditions for the preservation of bone at the site. Three hundred of the animal bone specimens (just over half of the total count) represented extremely fragmented teeth of cattle, pig and sheep/goat, while a further 239 fragments were identified only as representing medium and large sized mammals. Furthermore, the only bone (i.e., not teeth) that could be identified at species level was a burnt fragment of cattle astragalus – it is suggested that burning contributed to the preservation of this specimen. The poor condition of the surviving animal remains precludes any further discussion of the role of animals at the site.

7.4.2 The variety of marine mollusc species present on site is to be expected given the environment in which it is located. It is difficult to distinguish mollusc remains resulting from human food waste (or other human uses of marine shells) and those naturally occurring at the site. Mussels have been a popular food item since prehistoric times in Britain; however, dog whelk and common limpet, while edible, tend to not be consumed regularly by human populations. However, the common limpet is a popular fish bait (Tupper 1970) and the collection of empty shells for building, soil improvement, craft and as trinkets are all activities that may result in the deposition of marine shell within archaeological contexts. It was not possible to determine the role shellfish played at the site as a dietary resource or in any other human activity at the site.

7.4.3 The animal remains recovered from Penpleidiau/Caerfai Promontory Fort to date (Russ 2020 and those presented in this report) have been in poor condition and offer extremely limited insight into the role of animals in the lives of those living at and visiting the site. Due to the poor preservation the assemblage is of low local significance with limited future research potential beyond the information contained within this report and associated spreadsheet.

7.5 Recommendations for future analysis and dissemination

7.5.1 No further work is recommended for the animal bone or marine shell recovered during excavations at Penpleidiau/Caerfai Promontory Fort in 2022. Should future excavations take place, the data should

be considered alongside any future findings. The data should be reviewed if any dating evidence for the contexts that contained burnt bone becomes available. This report and associated data should be integrated into any site-wide grey literature or publication reporting and retained within the site archive.

8 PALAEOENVIRONMENTAL RESULTS

Rosalind McKenna with contributions from Emma Tong

8.1 Introduction

8.1.1 Eleven bulk samples, totalling 110 litres of sediment, were taken during archaeological excavations at Penplediau/Caerfai Promontory Fort, Pembrokeshire (SM 76286 24012) by DigVentures in September 2022. The bulk samples were processed by archaeology.biz for the recovery of charred plant macrofossils and wood charcoal in April 2023. The heavy and light fractions/flots were sorted for charred plant material, as well as any other artefacts in April 2023. Data supporting this report, including tables referred to in the text, can be found in Appendix 6.

8.2 Results

Emma Tong

Light fractions/flots

8.2.1 Eleven bulk environmental samples yielded 11 flots, weighing a total of 121.58g (Table 10). The flots contained mainly charred grain, charred seeds, and charcoal. Several samples contained small quantities of metal production waste.

Heavy fraction/residues

8.2.2 The heavy fraction residues mainly contained magnetic material and bone. There were smaller quantities of charcoal, bone, and shell (Table 11). There were several possible iron artefacts recovered along with fragments of slag or iron (see sample spreadsheet for full details). Smaller fragments of bone, charcoal, and shell are present in the smaller fractions (i.e., 2mm-4mm and <2mm), however the material was not diagnostic and has not been bagged separately (see full data for contents).

8.3 Discussion of potential

Rosalind McKenna

8.3.1 Eleven samples and eighteen sieved charcoal samples are the basis of this investigation. Preservation of the plant macrofossils and wood is by charring. The preservation of the charred remains ranged from poor to good. Most of the cereal grains were puffed and distorted, and some of the charcoal remains were affected by vitrification. The presence of root / rootlet fragments within all the samples provides evidence of bioturbation, and therefore some disturbance of the archaeological features.

8.3.2 Charred plant macrofossils were present in all eleven of the samples and the results of this can be seen in Table 12 below. The samples produced small to medium suites of plant macrofossils, both in terms of quantity and diversity. Cereal chaff fragments in the form of spikelet forks and glume bases were the most abundant remain recorded within the samples and were present in all eleven. Indeterminate cereal grains were also present within all the samples and were identified based on their overall size and morphological characteristics, which may suggest a high degree of surface abrasion on the grains, indicative of mechanical disturbances that are common in features such as pits and gullies, where

rubbish and waste are frequently discarded. Charred weeds were also recorded in seven of the samples, and grass seeds were recorded in five of the samples.

8.3.3 Charcoal fragments were present in all the samples, scoring between a '2' and '4' on the semi quantitative scale. The preservation of the charcoal fragments ranged from poor to good. A lot of the fragments were too small to enable successful fracturing that reveals identifying morphological characteristics. Where fragments were large enough, they broke into even patterns making the identifying characteristics reasonably well preserved to distinguish and interpret. Identifiable remains were however present, generally in small quantities, in all eleven of the samples. Identifiable remains were also present in all eighteen of the sieved charcoal samples. The results of this analysis can be seen in Table 13 and Table 14 below.

8.3.4 The total range of taxa comprises oak (Quercus), hazel (Corylus avellana), and willow/poplar (Salix/Populus). These taxa belong to the groups of species represented in the native British flora. A local environment with an oak dominant woodland is indicated from the charcoal on the site. As seen in Table 13, hazel is the most abundant identifiable recorded remain within the samples and it dominated six of the samples. Oak dominated five of the samples. Willow/Poplar was also present in small number in two of the samples. Of the eighteen sieved charcoal samples, twelve were dominated by oak, four by hazel, one by willow/poplar and one sample contained equal quantities of hazel and oak. The results of this can be seen in Table 14.

8.3.5 Generally, there are various, largely unquantifiable, factors that affect the representation of species in charcoal samples including bias in contemporary collection, inclusive of social and economic factors, and various factors of taphonomy and conservation (Thiery-Parisot 2002). On account of these considerations, the identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment in a definitive sense and are possibly reflective of particular choice of fire making fuel from these resources.

8.4 Conclusion

8.4.1 The samples produced some environmental material of interpretable value, with the plant macrofossils from eleven samples, and the identifiable charcoal remains from the eleven samples and eighteen sieved charcoal samples.

8.4.2 The remains of plant macrofossils recovered from the samples showed the presence of cereal chaff, indeterminate cereal grains, grass and weeds. It is possible to state that plant macrofossils were present and utilised throughout the site during the periods relating to archaeological features. There is little difference in the composition of the samples, other than the domination of cereal chaff recovered from samples relating to hearth feature [3010], and posthole features [3014] and (4004). Remains from other features, such as ditches and layers, showed a low-level spread of charred plant macrofossils.

8.4.3 The presence of cereal being used is evidenced by the indeterminate cereal grains present within eleven of the samples, but more comprehensively by the chaff remains, which dominated the charred assemblages and were also present in all eleven of the samples. Due to poor preservation, it was not possible to ascertain which species were being harvested and utilised. It is probable that it was a glume wheat based on the number of spikelet forks and glume bases recorded. It may be possible to identify these chaff fragments to species level given more time.

8.4.4 If cereal processing were occurring at the site, it would be expected that some remains (most probably in high numbers) of cereal chaff – a by-product of the crop processing sequence as stated in Hillman

(1981; 1984) would be found. A chaff to grain ratio of more than one is likely to represent a by-product removed at a late stage of glume wheat processing. Given the remains recorded in Table 12, where chaff is much more abundant than grains recovered in samples 9, 10, 11 and 20, it is likely that these represent the fine sieve by-product (Hillman 1984; Jones 1984) which was subsequently deposited within the features.

8.4.5 Another, more indirect, indicator of cereals being used on site is the number of remains of arable weeds that were found in forty-nine of the samples (fifty four sub-samples). These weeds are generally only found in arable fields and are doubtless incorporated into domestic occupation samples with crop remains. Along with grasses (POACEAE), remains of goosefoot/orache (Chenepodium/Atriplex), docks (Rumex), corn flower (Centaurea cyanus) and cabbage family (BRASSICACEAE) also fall in this group. All these species would almost certainly have been brought to the site together with harvested cereals.

8.4.6 As the majority of the plant remains were found together with charcoal remains, it may suggest that they were put on the fire with other rubbish and a small fraction became charred without burning up and joined the domestic ash on the rubbish heap. Intentional dumping of charred debris (such as spent fuel, charred debris from parched crops, etc.) seems the most likely explanation for the formation of some of the deposits encountered here.

8.4.7 The charcoal remains showed the exploitation of several species native to Britain. Oak has good burning properties and would have made a fire suitable for most purposes (Edlin 1949). Oak is a particularly useful fire fuel as well as being a commonly used structural/artefactual wood that may have had subsequent use as a fire fuel (Rossen and Olsen 1985). Hazel is recorded as a good fuel wood and was widely available within oak woodlands, particularly on the fringes of cleared areas (Grogan et al. 2007, 30). Willow/Poplar are species that are ideal to use for kindling. They are anatomically less dense than for example, oak and ash and burn quickly at relatively high temperatures (Gale & Cutler 2000, 34, 236; Grogan et al. 2007, 29-31). This property makes them good to use as kindling, as the high temperatures produced would encourage the oak to ignite and start to burn.

8.4.8 Dryland wood species indicates the presence of an oak woodland close to the site. This would have consisted of oak, which would be the dominant large tree species (Gale & Cutler 2000, 120, 205). Hazel thrives at the extents and within clearings of oak woodlands, as well as being present in its more immature forms in scrubland. There is evidence of carr fen woodland, which would have consisted of willow and poplar - trees that thrive in waterlogged and damp soils, particularly in areas close to streams or with a high-water table (Stuijts 2005, 143; Gale & Cutler 2000).

8.4.9 As asserted by Scholtz (1986) cited in Prins and Shackleton (1992,632), the "Principle of Least Effort" suggests that communities of the past collected firewood from the closest possible available wooded area, and in particular the collection of economically less important kindling fuel wood, which was most likely obtained from the area close to the site.

8.4.10 Previous excavations at the site from 2021 (DigVentures 2021) produced similar results, with small quantities of charred remains. Spelt, emmer and barley grains, alongside spelt and emmer chaff fragments were present. A very similar suite of weed/wild seeds was also recorded. The charcoal remains from the 2021 excavations also show the presence of oak and hazel charcoal, with the addition of alder, bird cherry and hawthorn/crab apple, etc. The low concentration of charred crop material is consistent with archaeobotanical assemblages from other Iron Age hill forts in West Wales such as Berry Hill, Ffynnonwen (Caseldine & Griffiths 2012) and Castell Mawr (Simmons 2017).

8.4.11 It is thought to be problematic using charcoal and plant macrofossil records from archaeological sites, as they do not accurately reflect the surrounding environment. Wood was gathered before burning or

was used for building, which introduces an element of bias. Plant remains were also gathered foods and were generally only burnt by accident. Despite this, plant and charcoal remains can provide good information about the landscapes surrounding the sites presuming that people did not travel too far to gather food and fuel

8.5 Recommendations for further work

8.5.1 The samples have been assessed, and interpretable data has been retrieved and is the basis of this report. It is proposed that samples relating to the following features are fully identified: (3010) – hearth, (3014) – posthole and (4004) – posthole. No further work is required on the remaining samples. Any material recovered by further excavations should be processed to 0.3mm in accordance with standardised processing methods such as Kenward et al. (1980), and the English Heritage guidelines for Environmental Archaeology (2002). It is also recommended that a comprehensive comparison with data from other Iron Age hill fort sites in Wales be carried out.

8.5.2 A small number of artefactual and other finds are included in the assemblage and will need to be assessed by the relevant specialists (Table 15). These should be included in the finds assessment reports. The magnetic material was checked for hammerscale and it was present in one of the ten samples (Sample 14 context 4003) and will need to be included in the metalworking assessment report.

9 PUBLIC IMPACT

Johanna Ungemach

9.1 Introduction

9.1.1 This section details the social impact of the Caerfai public programming for virtual and in-person visitors and project participants over the course of August and September 2022. DigVentures defines social impact as a measure of the positive and negative primary and secondary long-term effects produced by the programme, whether directly or indirectly, intended or unintended, over and above what would have happened in the absence of the project initiative. Results were analysed using a bespoke social impact methodology, drawing on DigVentures' Theory of Change and Standards of Evidence framework (Wilkins 2019, 77; Wilkins 2019, 30, see Appendix 7).

9.1.2 Public engagement was integral to the project design of the Caerfai excavation as one of the project aims and objectives (Aim 5: Creating opportunities for people and communities). The project was designed to provide a 'range of opportunities for local community members, students, school children and visitors to the area to get involved and learn about the archaeology of Penplediau / Caerfai promontory fort.' Targets for engagement also included to 'broadcast online content across multiple social media channels collated on our digital timeline' (Teale 2022, p14).

9.2 Public programming

9.2.1 A carefully designed programme of public participation was planned for the course of the three-week-long project (31st August until 21st September 2022), creating different levels of engagement for adults and young people. Participation and training of venturers in the trench and the finds room were serviced to National Occupational Standards:

- Excavation and finds room training for Archaeology students from Cardiff University (31st August until 21st September) – 15 participants
- Excavation and finds room training for adults and teenagers (3rd until 18th September) – 54 participants
- Three 'DigClubs' for teenagers (aged 12-16) and parents (4th, 7th and 11th September) – 18 participants
- Six half-day geophysics workshops for dig participants (4th, 8th, 9th and 14th September) – 29 participants
- Two rainy day workshops (Intro to Geophysics, Intro to Photogrammetry) for dig participants (3rd and 11th September) – 54 participants
- Three survey workshops with Dr Julian Whitewright (Royal Commission on Ancient and Historic Monuments Wales) for students (9th, 13th and 14th September) – 17 participants
- Lecture on 'Maritime Archaeology in Pembrokeshire' by Dr Julian Whitewright (Royal Commission on Ancient and Historic Monuments Wales) for dig participants (7th September) – 31 participants
- Lecture on 'Hillforts of Pembrokeshire and Climate Change and Heritage' by Dr Toby Driver and Louise Barker (Royal Commission on Ancient and Historic Monuments Wales) for dig participants (15th September) – 27 participants
- 38 in-person site tours (31st August until 21st September) – approximately 190 participants
- Virtual site tour (14th September) – 99 bookings
- Digital engagement strategy for 12 digital crowdfunding contributors and the wider community

9.2.2 DigVentures' own digital engagement strategy for the excavation was designed to keep its core audience up to date, provide opportunities to get a detailed look at what was happening on site, and to amplify its social footprint. This strategy included regular progress updates by email, amplification of selected highlights on social media, and a 'live blog' on the Dig Timeline: https://digventures.com/projects/caerfai/timeline/ (777 unique visitors for the duration of the excavation). Also available on the timeline are several videos from the following months that feature the 2022 excavation at Caerfai, such as an episode of DigVentures' *Why We Dig* series (https://youtu.be/jnUBuQDt654), and the 2022 dig season wrap up (https://youtu.be/cAUf8oavdds).

9.2.3 From 1st until 21st September, the Caerfai excavation reached a minimum of 164k individuals on Facebook, 8.9k individuals on Instagram, and 76.5k impressions on Twitter. The average engagement rates were 4% on Facebook, 5% for Twitter, and 10% on Instagram. In addition, there were 356 unique visitors to the project microsite with more in-depth information, including background information, the Dig Timeline, and reports. In addition, the Caerfai project video (https://youtu.be/ZDClwAfscCw) was posted on Youtube in April 2023 and received 853 views and 13 comments in the first five days. A short engagement video about hammerstones from the same month (https://www.youtube.com/shorts/132uXOI66Lc) received 792 views on YouTube, 2.3k views (159 likes) on Instagram and 9.9k views (230 likes) on Facebook.

9.2.4 Whilst these results demonstrate a public appetite for the Caerfai excavation, any evaluation of social impact needs to go beyond a list of output numbers of participants and visitors (Gould 2016). DigVentures has developed a bespoke evaluation methodology for measuring the social impact of public archaeology programmes and this is discussed in specific relation to this project further below.

9.3 Evaluation methodology

9.3.1 The Caerfai excavation community was separated into three broad categories: in-person project participants and virtual audience members who joined the project through a formal booking process, and site visitors who attended the in-person site tour or visited the trench in between. DigVentures have developed a methodology for measuring the social impact of archaeology programmes for both in-person participants and virtual audience members, pictured as a Theory of Change detailing outputs, outcomes and impacts (see Appendix 7). In this framework, social impact can be conceived as the difference that activities make to people's lives over and above what would have happened in the absence of that initiative. Outputs are a measurable unit of product or service, such as a community excavation; outcomes are an observable change for individuals or communities, such as acquiring skills or knowledge. Impact is therefore the effect on outcomes attributable to the output, measured against two metrics: scale, or breadth of people reached; and depth, or the importance of this impact on their lives.

9.3.2 The credibility of a Theory of Change rests on the level of certainty that organisational activities are the cause of this change. For this certainty to be achieved, the correct data must be collected to isolate the impact to the intervention. The DV Theory of Change is therefore linked to a Standards of Evidence framework designed to articulate and highlight the causal links between activity and change. These tools are then used to create a bespoke, project specific evaluation table linking activities, outputs, outcomes and evidence base (Appendix 7).

9.3.3 In support of this overarching methodology, two slightly different data collection strategies were undertaken for both in-person participants and virtual audience members; Both were interviewed before their respective experience by completing a questionnaire upon booking (100% completion rate, or 199 in total), but in-person participants were also interviewed post experience (69% completion rate, or 61 in total). The age and professional background of participants was derived through digital analytics, with occupational categories derived from the Office for National Statistics for virtual audience members. At this stage, the report only focuses on output numbers and socio-economic distribution of the community. The final evaluation report will include a more in-depth analysis designed to reveal 'whether or not people will have learnt about heritage, developed skills, changed their attitudes and/or behaviour, and had an enjoyable experience'. The output numbers for excavation participants and virtual audience members are discussed below.

9.4 Social impact – in-person participants

9.4.1 To ensure that a wide range of people will be involved in archaeology, different groups of people were invited to actively participate in the excavation and also take part in recording and finds processing. The students from Cardiff joined the excavation for the full three weeks, but to help decrease perceived barriers to participation, adults and teenagers over 12 who crowdfunded the project, could take part for any length of time starting from a taster day and culminating in two entire weeks, depending on their contribution level. Accessible half-day DigClub session were offered to teenagers over 12 and accompanying guardians to give them a taste of the work happening in the trench, all of which followed DigVentures' CIfA-endorsed Field School curriculum. Because of health and safety implications at the site, DigCamps for children 12 and under were not offered on this site. Figure 9 shows how the distribution of participant's active involvement with the excavation, illustrating that only 25% of participants, or 22 stayed for one day. The remaining participants stayed for two days (33%, or 29 in total) or one week and longer (42%, or 37 in total), which provided them with more opportunities to learn different skills.

9.4.2 The project presented an opportunity for the archaeology students to take part in an archaeological excavation from start to finish, beginning by deturfing by hand to comply with Schedule Monument conditions to recording the archaeology over the course of the three-week excavation. DigVentures' archaeological curriculum is designed to ensure that anyone joining receives structured learning and can develop their skills incrementally. All the field training is designed in line with National Occupational Standards (NOS) and all participants are encouraged to record their progress in learning new skills. This means participants were able to use tools such as the CPD Skill Passport to track their progress. All archaeology students were assessed and given feedback on their performance in line with the University of Cardiff's fieldschool requirements.

9.4.3 The age of participants ranged from children aged 13 to people in their mid-70s, with Figure 9 showing that just over half the participants, or 45 in total were aged under 45, which is mostly due to archaeology students from Cardiff and the DigClub sessions. But eight crowdfunded spaces were also booked by participants between 16 and 24 with no affiliation to Cardiff, making this excavation attractive for younger people as well as older participants. Participants further represented a variety of part or full-time occupations (47%, or 411 in total) and retirees (13%, or 11 in total). Another 39% of participants, or 34 in total were students, either of compulsory educational age or those attending university. The low percentage of people in unemployment (2%, or 2 in total) is likely because the excavation was crowdfunded and participation opportunities were neither free of charge not easily affordable without regular income.

9.4.4 Examples of professions included for example accountant, business consultant, creative director, content writer, doctor, events officer, funeral celebrant, head gardener, illustrator, investment manager, IT consultant, nurse lecturer, office assistant, pathologist, personal assistant, pharmaceutical researcher, physician, retailer, scientist, solicitor, teacher, tour guide, town planner and warehouse operative. Taking this into consideration, almost all age groups and different socio-economic backgrounds were represented in the data. This illustrates that despite the crowd-funding aspect, the project allowed participation for people with different occupations, as well as young people, which is a marked improvement on existing community archaeology provision compared with the typically retired, over 65 local civic society groups (Wilkins 2020, 33).

9.4.5 Participants joined the project from all over the United Kingdom. Only 12%, or 10 in total lived within 25 miles of Caerfai, which is not surprising given that the site is very remote and surrounded by only a few smaller dwellings. Similarly, only a handful of participants (8%, or 7 in total) lived between 25 and 50 miles of the site, and the majority of people who joined the dig (80% or 71 in total) travelled further than 50 miles to have the opportunity to take part in the project. More than half of those (53%, or 47 in total) lived over 100 miles away from Caerfai, and 9% of participants, or 9 in total, live outside the UK and joined the excavation from the United States of America (see Figure 10).

9.4.6 In addition to widening the demographic and socioeconomic range of participation (when compared to existing community archaeology provision), the project attracted a considerably sized new audience for archaeology, with 50% of participants, or 44 in total having never taken part in archaeology activities before (see Figure 9).

9.5 Social impact – virtual audience

9.5.1 A virtual component was added to the Caerfai excavation to reach a wider audience for the Caerfai excavation. People who wanted to support the crowdfunding campaign but couldn't or didn't want to participate in the dig, could contribute financially to become a digital supporter and be kept up to date with developments on site. A virtual tour took place on September 14th July free of charge

resulting in a total of 99 bookings. When booking a virtual ticket, people were asked to complete a short questionnaire to understand the socio-economic background of participants.

9.5.2 When analysing the socio-economic background, it needs to be taken into consideration, that it might not be a true representation of the audience. The person who booked a space is likely to be the one who filled in their information, but they may have watched the event together with several other people – friends or family members – who would have provided different information. Over a third of people who booked a virtual ticket did not join the live event, but rather chose to receive a recording that they could watch in their own time (40% or 40 in total) (see Figure 12). This was especially useful for people from oversees who live in different time zones. The live event received 45 individual views.

9.5.3 The majority of people who witnessed the project online preferred the pronouns she/her (54% or 60 in total) and, in contrast to the in-person participants, were primarily over the age of 54 (74%, or 82 in total) and also included individuals aged 75 and older. The virtual audience members represented primarily a variety of part or full-time occupations (33%, or 37 in total) and retirees (49%, or 54 in total). The remainder were students, either of compulsory educational age or those attending university (5%, or 6 in total), or people in long-term unemployment, carers or homemakers (13%, or 14 in total, see Figure 11). The latter percentage is considerably higher compared to in person participants and likely due to the free element of the virtual tour. Those in full time employment were divided into categories based on the Office of National Statistics (ONS) classifications, the breakdown of which can be seen in Figure 11 illustrating that the virtual components were preferred by several people with lower income, but also favourited by people of older age who might be more willing to follow the excavation from the comfort of their own home. Taking this into consideration, almost age groups and socio-economic backgrounds were represented in the data, albeit not equally.

9.5.4 The virtual component removed geographical barriers of access and made the experience more inclusive, which is shows in 32% of the bookings and contributions, or 35 in total coming from outside the UK and 91%, or 101 in total being done by people living more than 100 miles from the site. Overall, the virtual offers reached not only people from Europe, but also Australia and North America, and made them aware of the archaeology of Caerfai. Virtual audience members comprised residents of 9 different countries, namely Australia, Canada, England, Ireland, the Netherlands, Slovenia, Spain, the United States and Wales (see Figure 13). Almost a quarter of the virtual audience members were new to archaeology with 25% of individuals, or 23 in total stating that they had never done archaeology before. The virtual tour was further an opportunity to build a bigger audience for archaeology in general, with 73% of participants, or 81 in total expressing their wish of being informed about upcoming events (see Figure 12).

9.6 Conclusion

9.6.1 As a community focussed project, public engagement was integral to the research aims and success of the excavation. Several participation opportunities for local community members, visitors to the area and people from further away, provided a chance to experience the archaeology of Caerfai. In total, the project received approximately 190 visitors, with 88 individuals joining the archaeological team in the trenches. A virtual tour and digital crowdfunding contribution levels engaged a further 111 individuals online. The project succeeded in attracting a new audience for archaeology, with 50% of the in-person participants and 21% of the virtual audience, having never taken part in archaeology activities before.

9.6.2 The project attracted a diverse community of people from the local area as well as further afield. The Caerfai excavation offered different activity streams for different groups of people and evidence was collected for in-person participants and virtual audience members. Training activities were also

independently accredited through CIfA. The insights gained from this evaluation have established a clear community need and demand for more archaeological work at Caerfai and further evaluation will analyse the deeper motivations and impact of the public engagement programme.

10 DISCUSSION

10.1 Introduction

10.1.1 The archaeological evaluation at the scheduled Penplediau / Caerfai Promontory Fort (PE294) in Pembrokeshire achieved all the project aims set out by the project design. In addition, there were many things we achieved that surpassed expectations and have expanded our understanding of the development of the site enormously.

10.2 Aim 1 - Refine the chronology and phasing of the site with a programme of trenching

10.2.1 In the main trench, Trench 3, we targeted the identified and partially characterised archaeological features and structures revealed through the trial trenching evaluation of the site in 2021 (Q1). These were seen in the form of a series of postholes, pits, surfaces and walls uncovered at varying depths of preservation ranging from less than 0.1m to as much as 0.4m below ground level.

10.2.2 Stratigraphic phasing across the isthmus (Trench 3) is possible in a more refined form at this secondary stage of excavations (Q2). We were successful in revealing a second roundhouse in very close proximity to the initial post-structure thought to have been discovered at the close of the 2021 evaluation.

10.3 Aim 2 - Development and use of the site, within its position in the prehistoric coastal landscape

10.3.1 In Trench 3, the focus on establishing the presence and characterisation of features associated with the second, stone-based roundhouse rather than full excavation was required due to time constraints. As such, the archaeological potential still exists for these features identified in Trench 3 (Q3). In Trench 4, remains of a potential rectangular structure or shelter where identified (Q3-Q6). Trench 5, though minimal in what was found, was successful in answering questions about the depth and preservation of interior surfaces at the highest point on the promontory compared to those seen in Trench 3 and Trench 4 (Q3, Q6). In Trench 6, the chronological sequence and stratigraphic phasing for the ramparts based on the archaeological evidence in the ditch could be more confidently established (Q3-Q4).

10.3.2 The location and nature of the surviving archaeology was able to further inform us as to the significance and impact that the landscape setting had on the way in which the site was developed and used. The natural barrier produced by the cliffs, and how they formed a narrowing point of access for the headland, demonstrates that they were intentional about their choice of the natural isthmus as the entrance point. The coastline provided an ideal location to design and develop their encampment, taking advantage of the natural fortification and prominent position for visibility (Q5-Q6).

10.4 Aim 3 - Understand the site's archaeological and paleoenvironmental conditions

10.4.1 The archaeological preservation recorded in Trench 3 was seen to be moderate to good, considering the atypical recovery of ceramic material and animal bone (Q7). Suitable deposits were encountered in the lower fills of Trench 6 for micromorphology sampling. The deposits sampled were from the lowest deposits thought to be alluvial deposits due to the refined silty nature of the material as opposed to the heavily stoney material comprising the vast majority of the fill layers (Q8).

10.4.2 The state of preservation and the potential for the paleoenvironmental data recovered from sampling in Trench 3 has been able to inform us regarding cultural activities that may have taken place at the site (Q9). Sampling from Trench 6 has the potential to greatly inform us about activities from the period of use. The range and spatial patterning of artefacts recovered from the archaeological features supports that this site was a hub of industrial and domestic activities and the material recovered has increased our understanding of the local environment during the period of occupation of the site (Q10, Q11).

10.4.3 We can establish a stratigraphic sequence for the construction of the ramparts on the site, allowing for greater understanding of both cultural activities and landscape development (Q11).

10.5 Project Aim 4 - Making recommendations, analysis and publication

10.5.1 This secondary stage of excavations has generated a wealth of deeper insights into several activities from the late prehistoric period in this region previously assumed to have been taking place, and with only minimal physical evidence collected from the surface of features in the archaeological evaluation in 2021. We have more evidence now to support activities include metal smithing in both iron and copper, as well providing evidence of non-Roman pottery industries in the area (Q12).

10.5.2 We have established evidence of broad phases of occupation and use of the site spanning generally from the early to late prehistoric period. However, there remains plenty of scope to refine these phases and derive a firmer grasp of those living and working on this particular site and its immediate environs (Q12).

10.5.3 Based on Aims 1-2, we have recommended further archaeological and palaeoenvironmental analysis at the site to be obtained through additional seasons of fieldwork, followed by the implementation of a programme to publish and disseminate our results (Q13).

10.6 Project Aim 5 - Public engagement and communication

10.6.1 Our aim for this year was to run a field school programme offering a range of opportunities for local community members, students, school children and visitors to the area to get involved and learn about the archaeology of Penplediau / Caerfai promontory fort. Participation opportunities will include excavation, finds processing, photogrammetry and guided visits of the trenches.

10.6.2 The project also acted as an assessed field school module for students from Cardiff and Oxford University. The dig was structured in a way that fulfiled their assessment briefs and completed their archaeology skills passports as much as possible. Activities comprised of excavation techniques, sampling, recording, photogrammetry, finds processing, geophysical survey and interpretation and will be complemented by evening lectures from specialists from the national park and the Royal Commission.

10.6.3 Over the course of the project, our targets for engagement were to:

- train community volunteers and students in excavation and post excavation tasks
- engage children and young people with our education sessions including school visits, DigCamps, DigClubs and a visit from the Youth Park Rangers
- broadcast online content across multiple social media channels collated on our dig timeline
- deliver a programme of public events, including daily site tours, expert led workshops and evening talks and an online virtual site tour with Q&A sessions with the project team, reaching an expected 120 individuals and a global online community
- provide access to our online course, How To Do Archaeology, for dig participants

- produce and provide a digital archive and exhibition resource for the project website, with an expected audience of 7,000 individuals.

10.6.4 In total, the project received approximately 190 visitors, with 88 individuals joining the archaeological team in the trenches. A virtual tour and digital crowdfunding contribution levels engaged a further 111 individuals online. The project succeeded in attracting a new audience for archaeology, with 50% of the in-person participants and 21% of the virtual audience, having never taken part in archaeology activities before.

10.6.5 The project attracted a diverse community of people from the local area as well as further afield. The Caerfai excavation offered different activity streams for different groups of people and evidence was collected for in-person participants and virtual audience members. Training activities were also independently accredited through CIfA. The insights gained from this evaluation have established a clear community need and demand for more archaeological work at Caerfai and further evaluation will analyse the deeper motivations and impact of the public engagement programme.

11 CONCLUSION

11.1.1 The archaeological work at Penplediau / Caerfai Promontory Fort (PE294) in Pembrokeshire revealed a wealth of valuable insights into both the state of preservation of archaeological resources at the site as well as providing crucial information about the current environmental factors threatening these said resources.

11.1.2 The project has made ongoing strides towards identifying, uncovering and recovering vital information contained within the landscape so urgently under threat of erosion. Beyond this, the recovery of evidence of the metalworking and local ceramic industries has potential for local and national significance. Finally, the insight into the extent of the settlement out onto the promontory area has already contributed to new interpretations of what the settlement may have looked like.

11.1.3 The project team has made a series of recommendations which will be considered and incorporated into future stages of work, following an excavation season planned for delivery in 2023. The targets and methodology for this work will be outlined in an Updated Project Design (see Duensing and Teale 2023), which will build on the work presented here.

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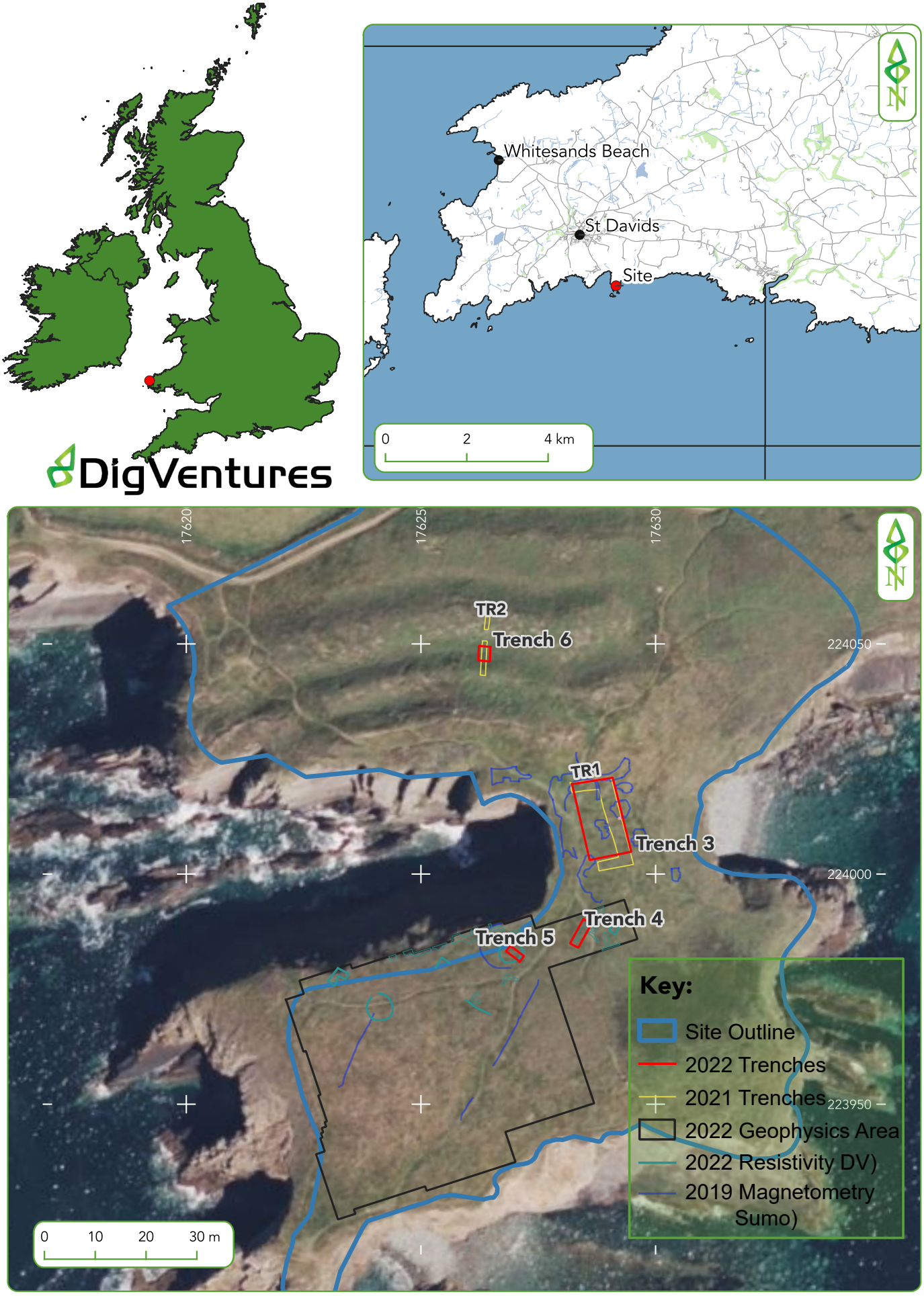


Figure 1. Site location

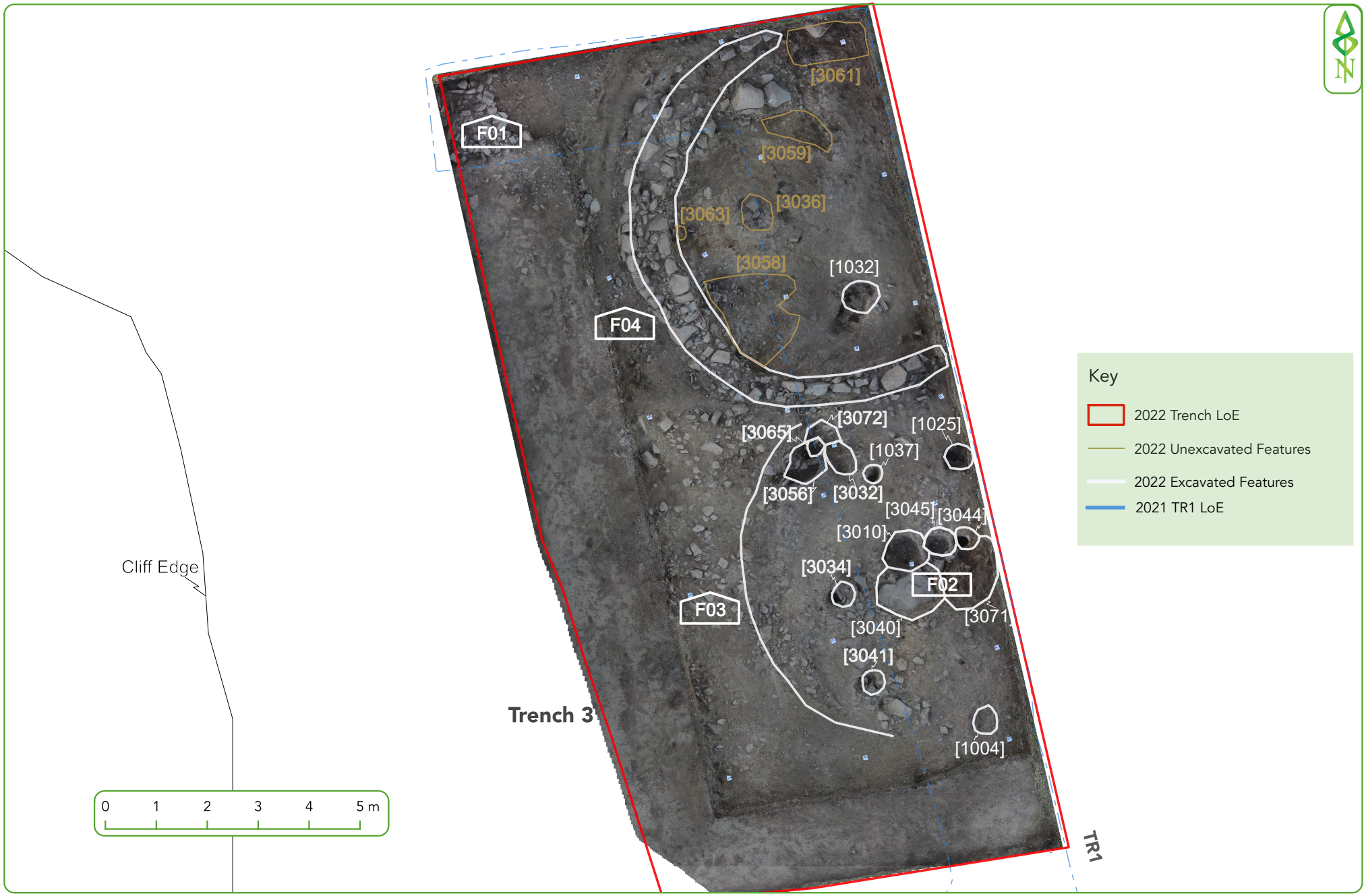


Figure 2. Trench 3 detail, 1:100 @A4

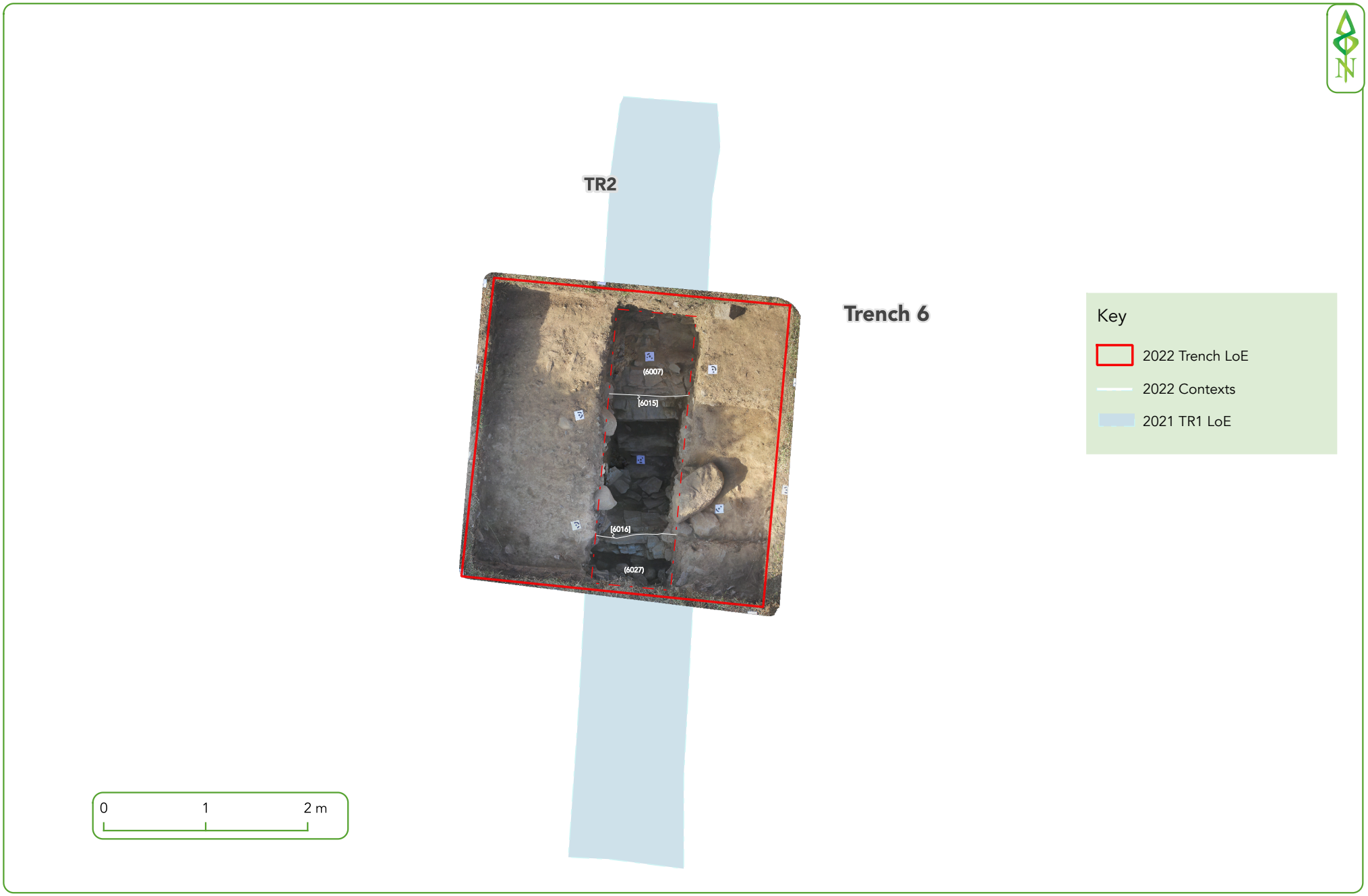


Figure 4. Trench 6 detail, 1:50 @A4

Figure 4. Trench 4 and Trench 5 detail, 1:80 @A4

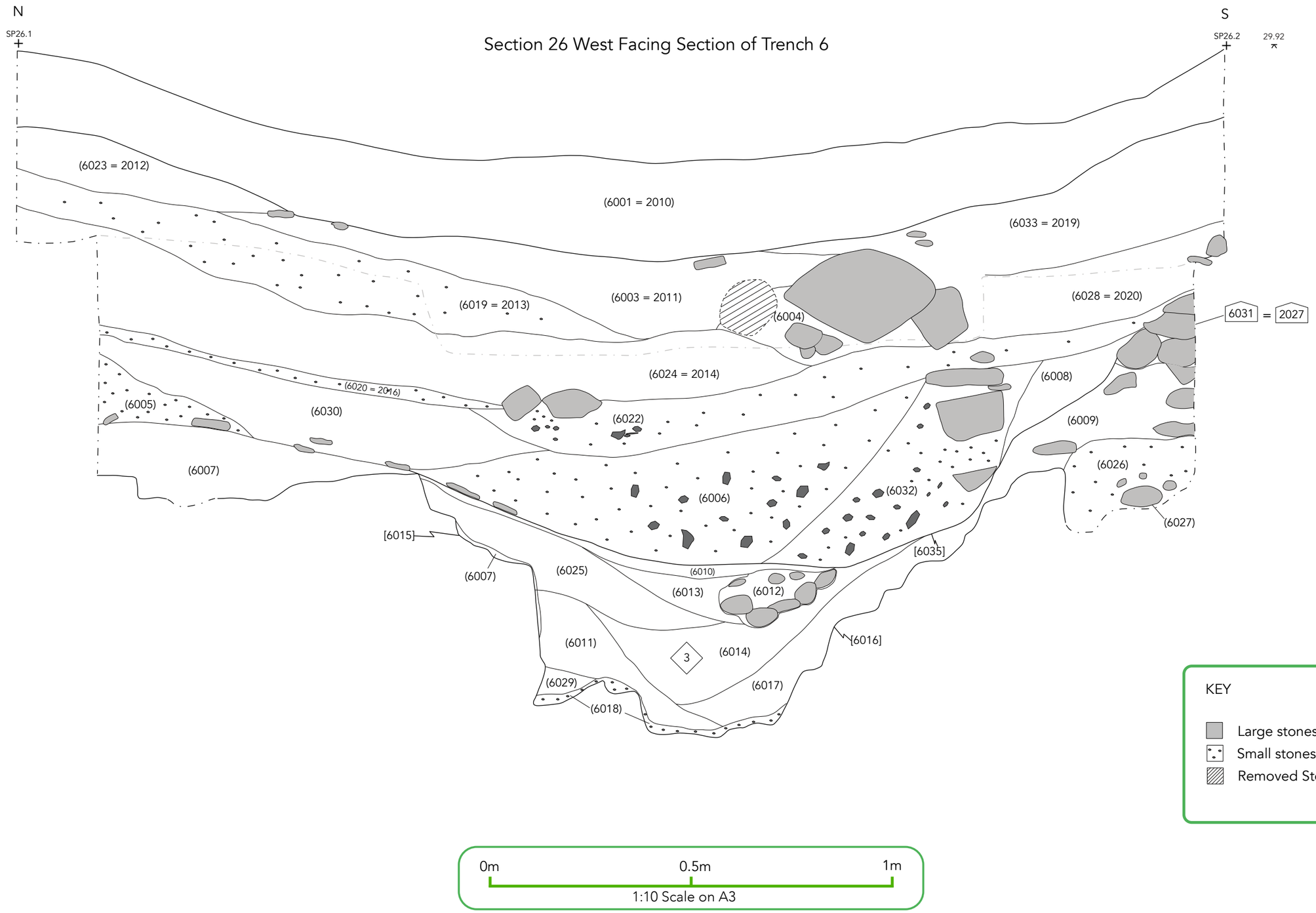


Figure 5. Trench 6, section 26

Complete west facing section of Trench 2 (2021) & Trench 6 (2022)

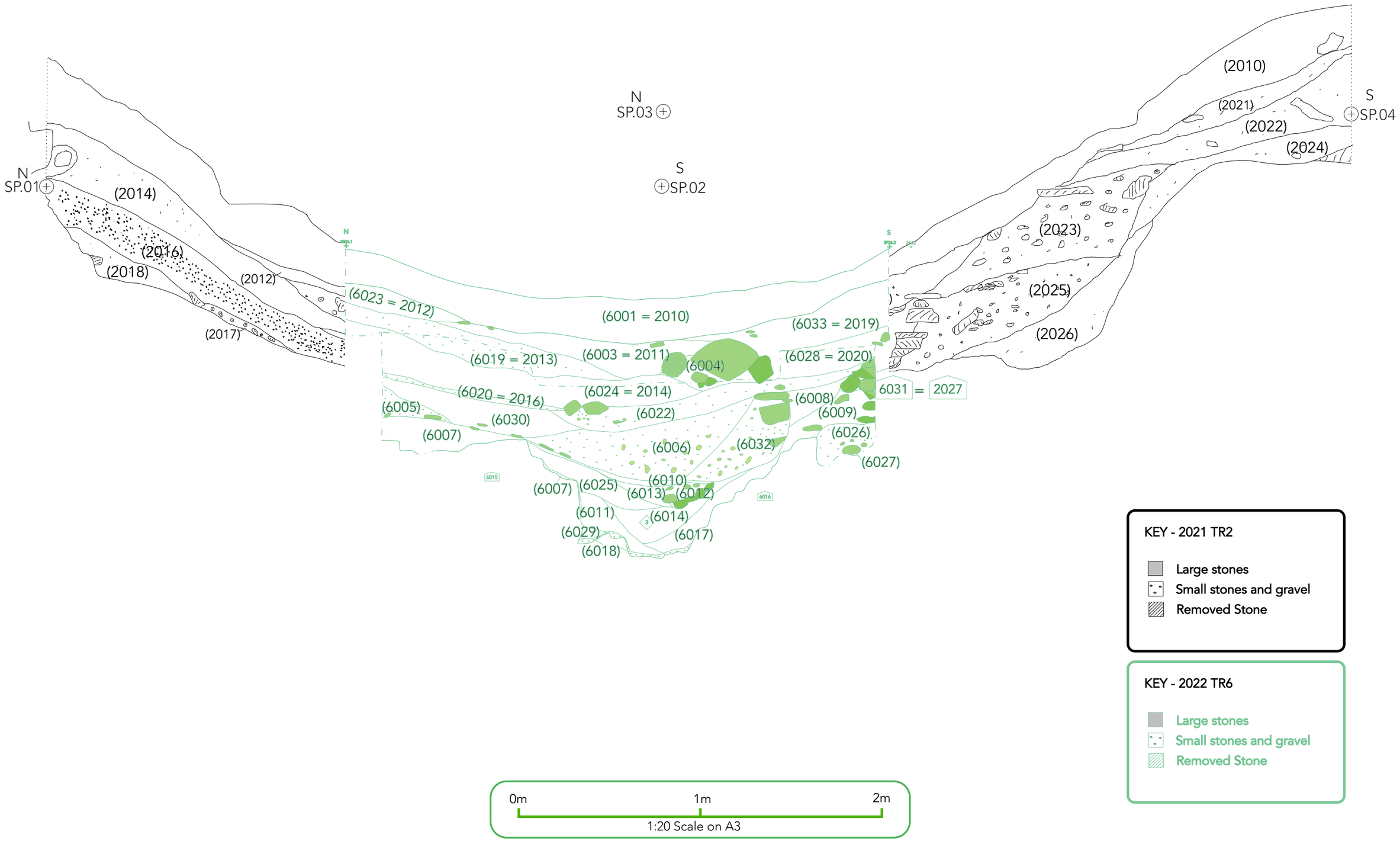
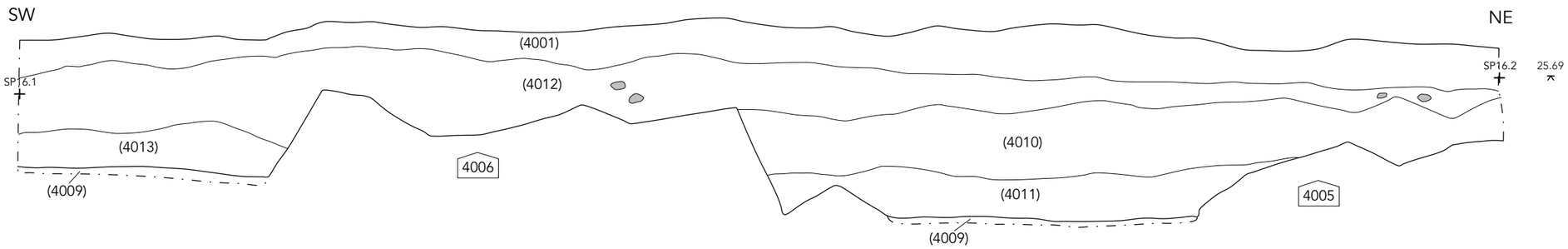
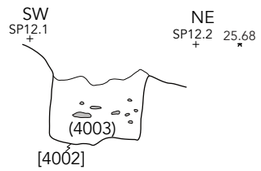


Figure 6. Trench 2 & Trench 6, complete section

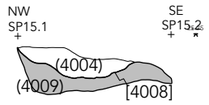
Section 16 Northeast Facing Section of Trench 4



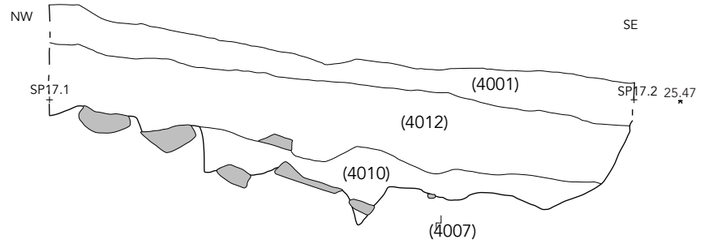
Section 12 Southeast Facing Section of Posthole [4002]



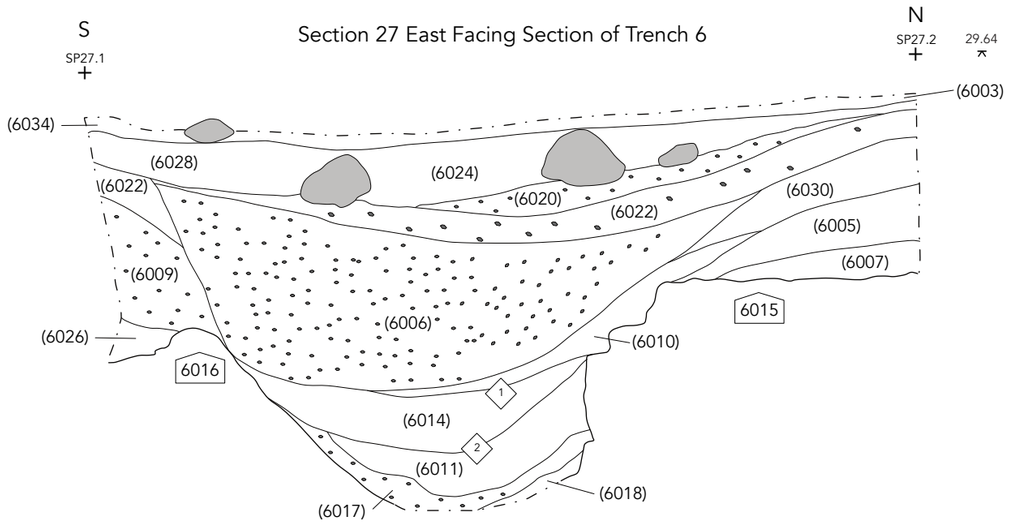
Section 15 Southwest Facing Section of Posthole [4008]



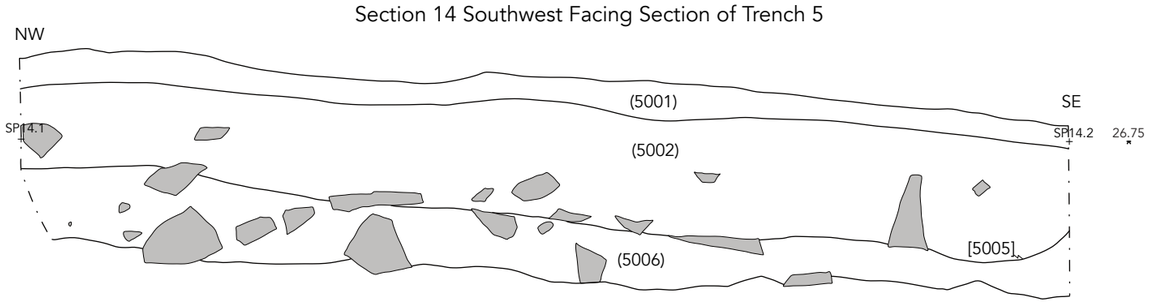
Section 17 Drawing of Southwest Facing Section of Trench 4



Section 27 East Facing Section of Trench 6



Section 14 Southwest Facing Section of Trench 5



KEY

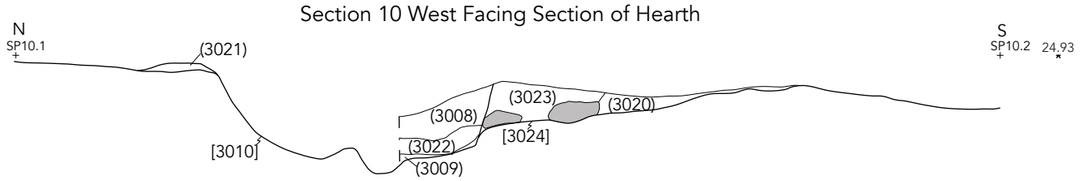
- Large stones
- Small stones and gravel
- Removed Stone

0m 1m 2m

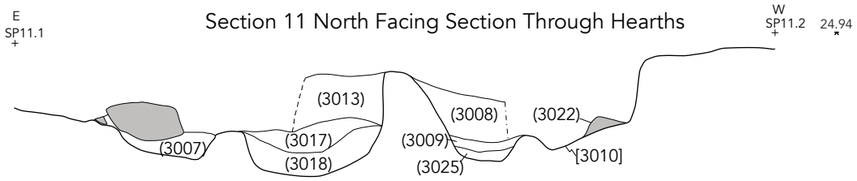
1:20 Scale on A3

Figure 7. Sections Tr4 & Tr5

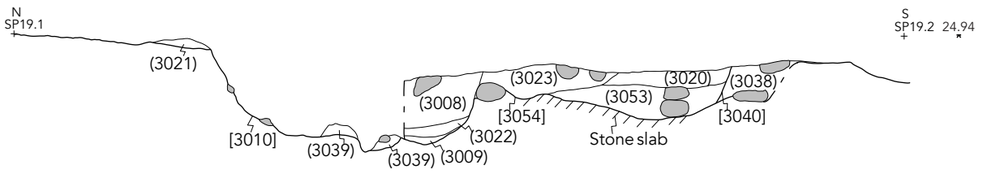
Section 10 West Facing Section of Hearth



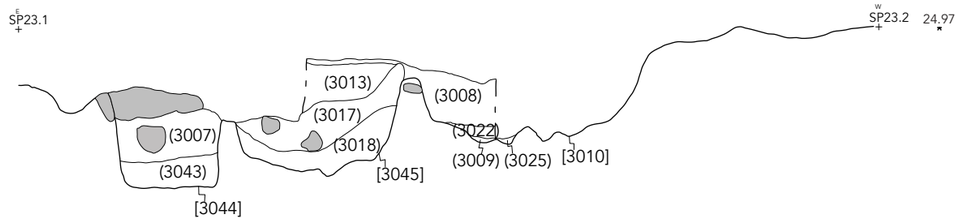
Section 11 North Facing Section Through Hearths



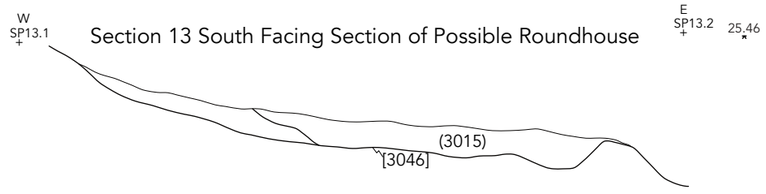
Section 19 West facing section through inter-cutting hearth [3010]



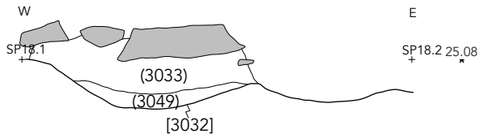
Section 23 North facing section through hearths [3010], [3045] and posthole [3044]



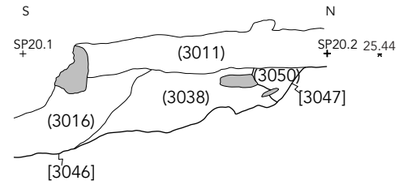
Section 13 South Facing Section of Possible Roundhouse



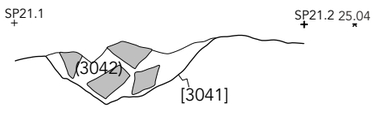
Section 18 South facing section of posthole [3032]



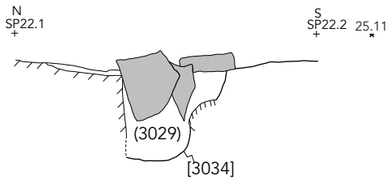
Section 20 East facing section of smithy roundhouse and stone roundhouse



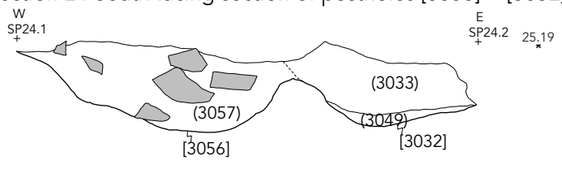
Section 21 North-West facing section of posthole [3041]



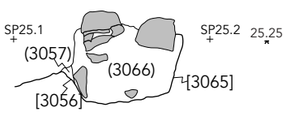
Section 22 West facing section of posthole [3034] near hearth



Section 24 South facing section of postholes [3056] + [3032]



Section 25 Cut of posthole [3065]



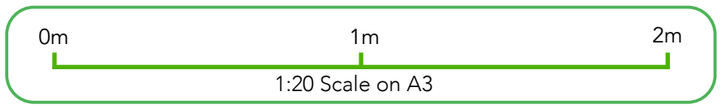
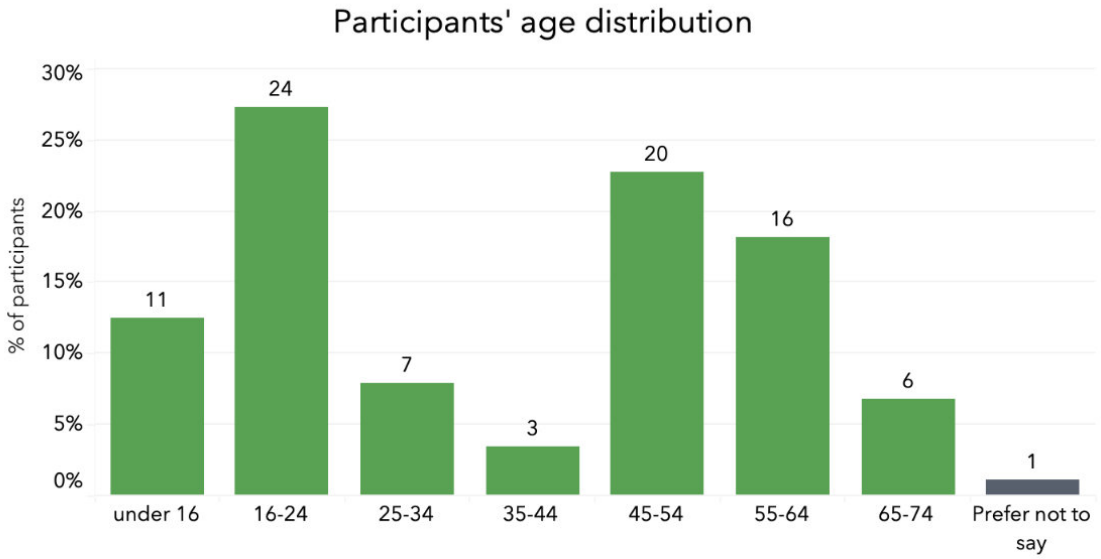
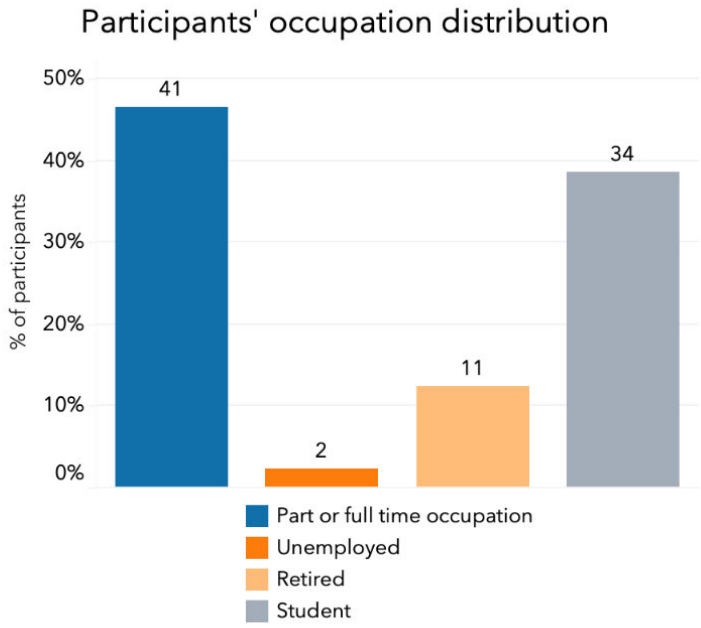
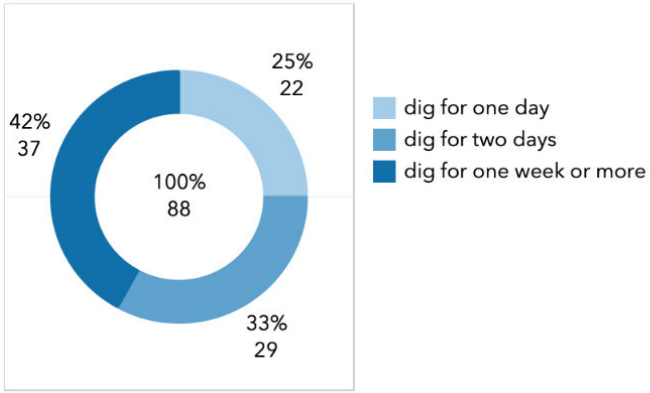


Figure 8. Tr3 sections.







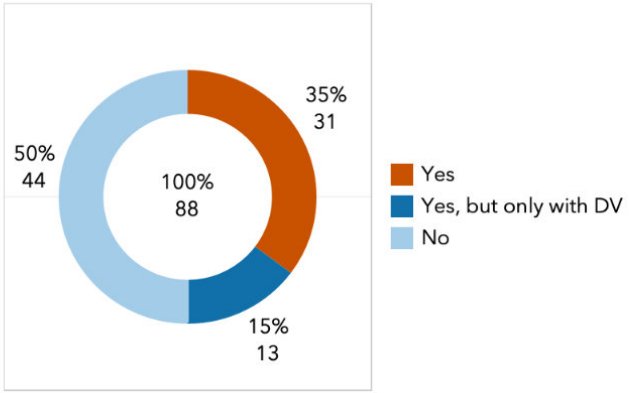


Figure 9. Evaluation of in person participants

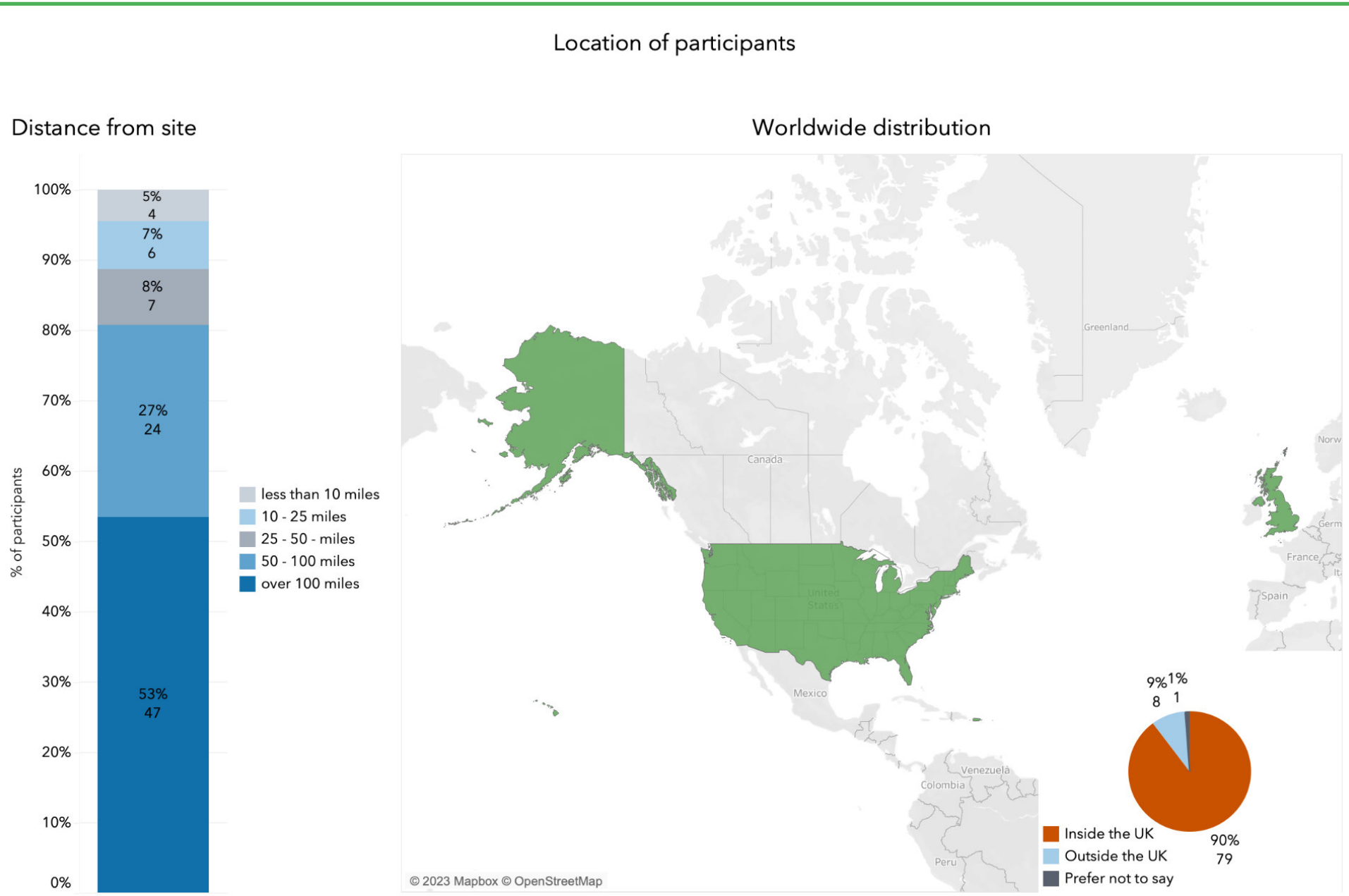


Figure 10. Evaluation of in person participants distance

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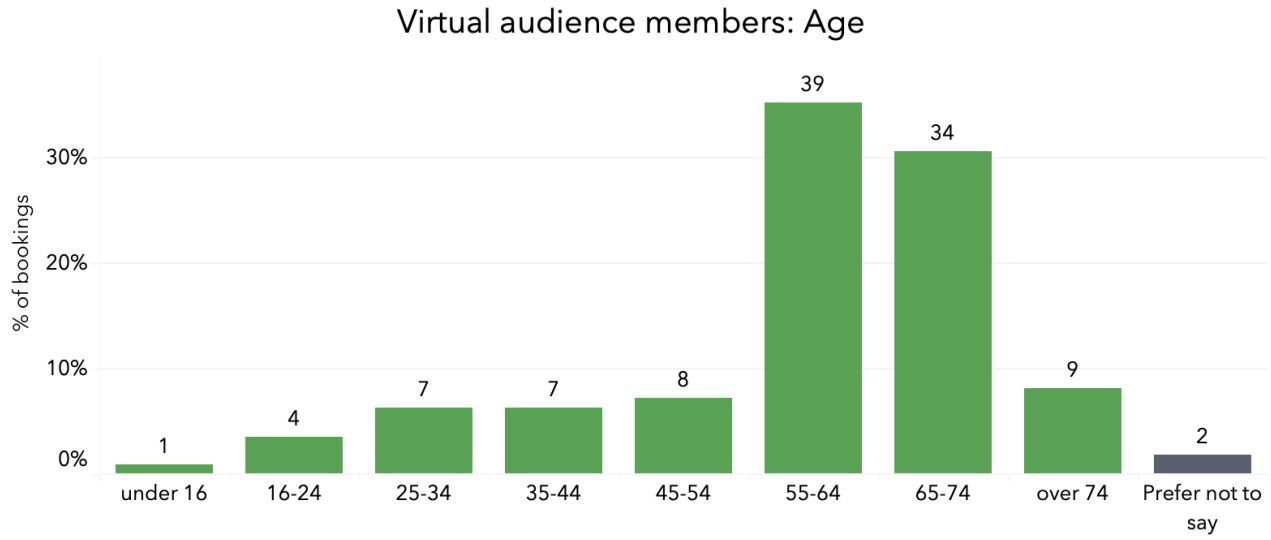

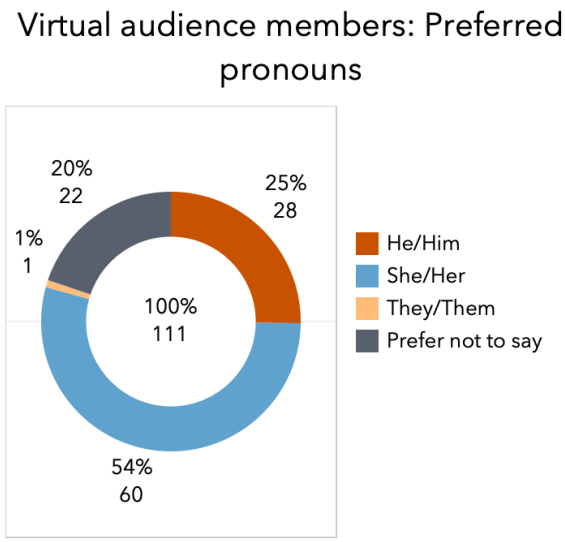

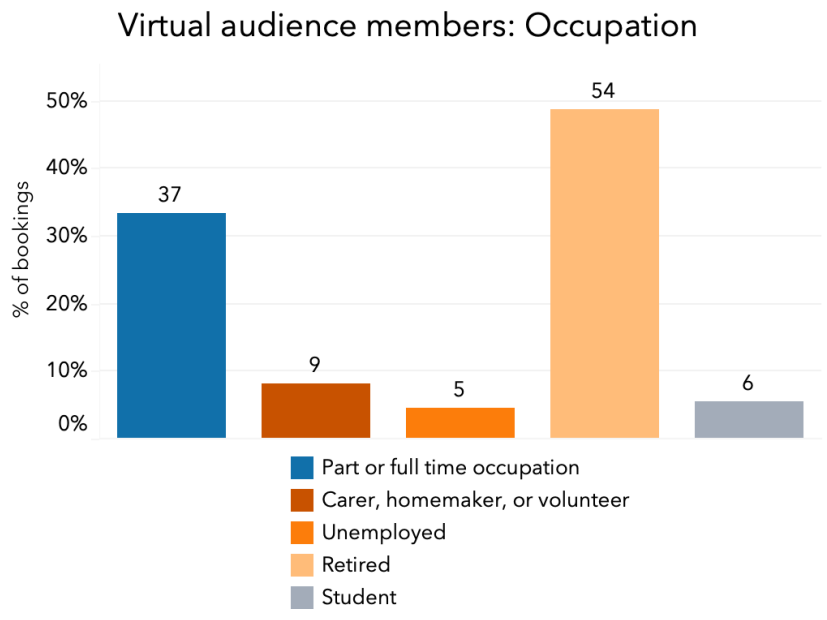

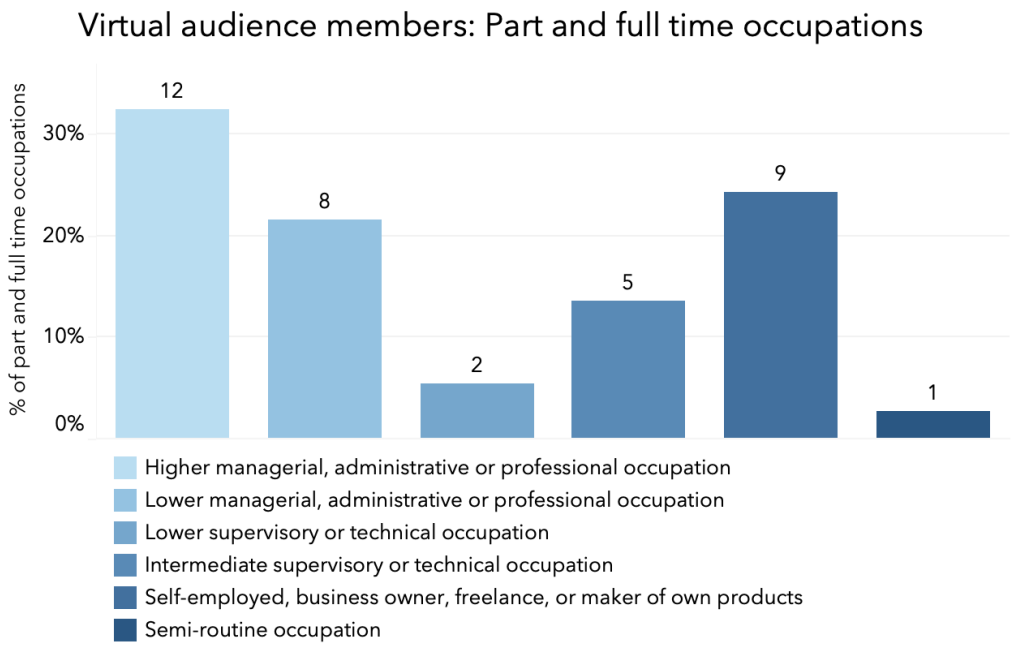

Figure 11. Evaluation of virtual participants background

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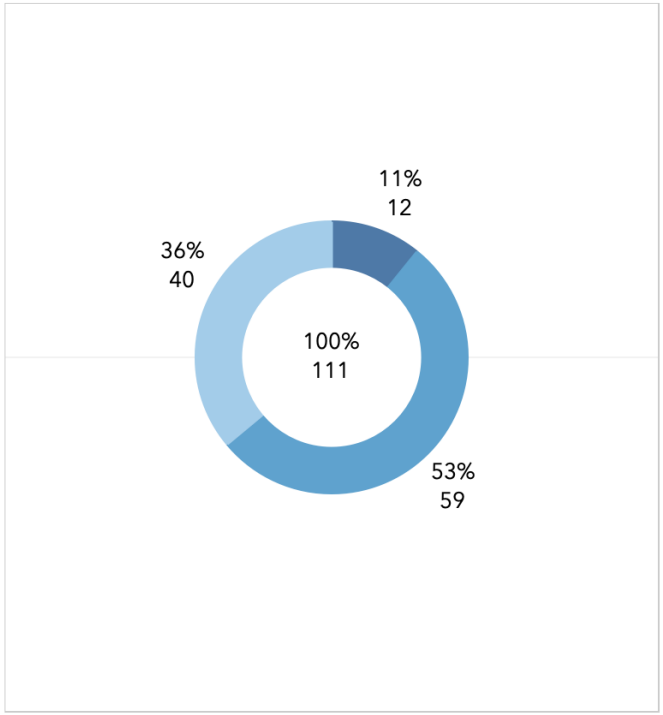
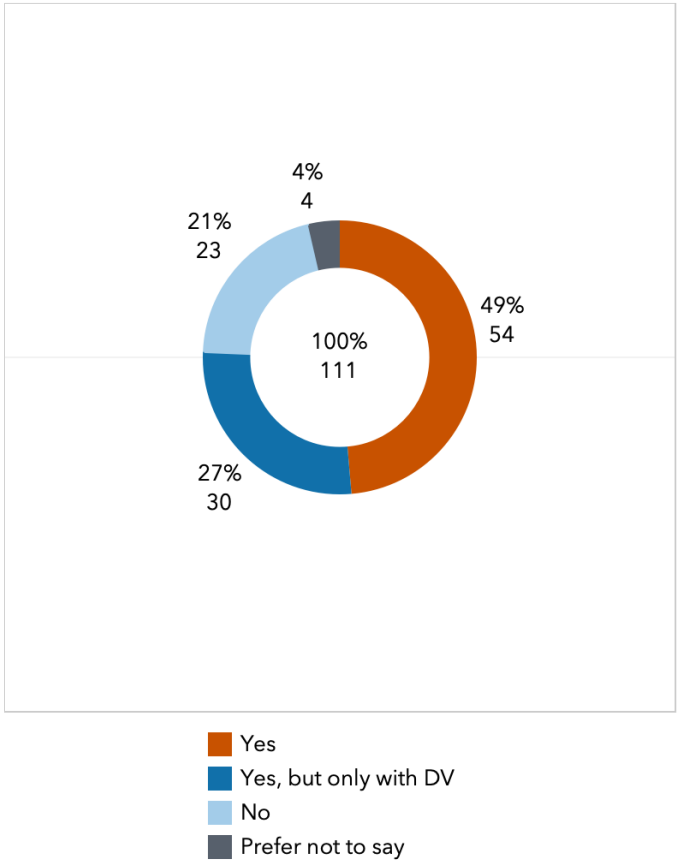
Virtual audience members

Bookings ticket type



Have you done archaeology before?



Do you want to join the DV mailing list?

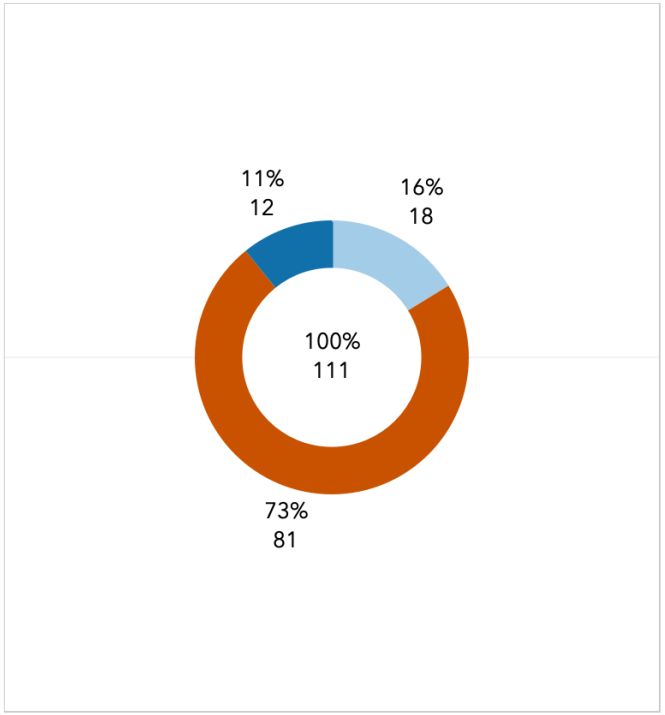


Figure 12. Evaluation of virtual participants

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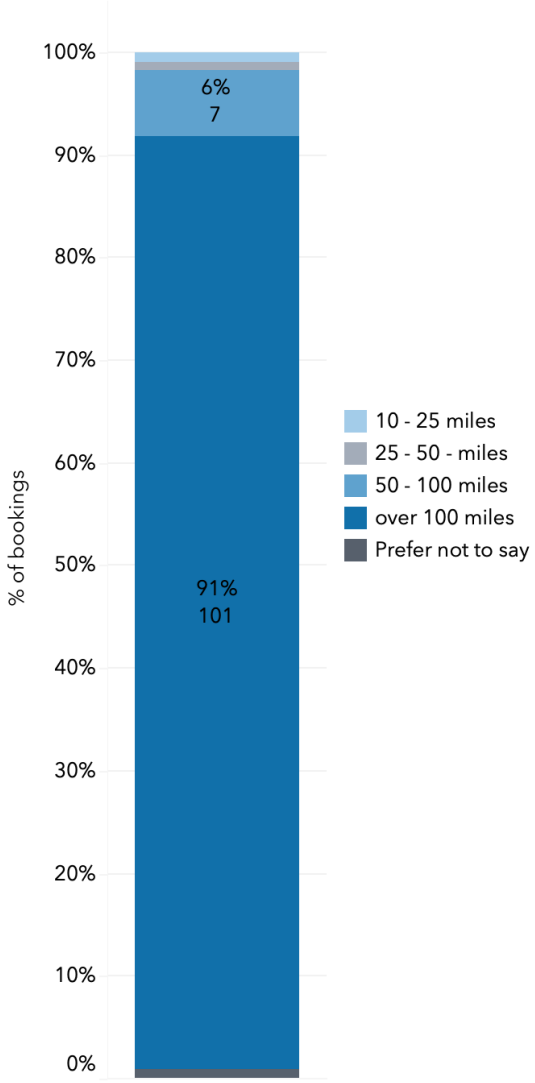
Locations of virtual audience members

Distance from site



Worldwide distribution

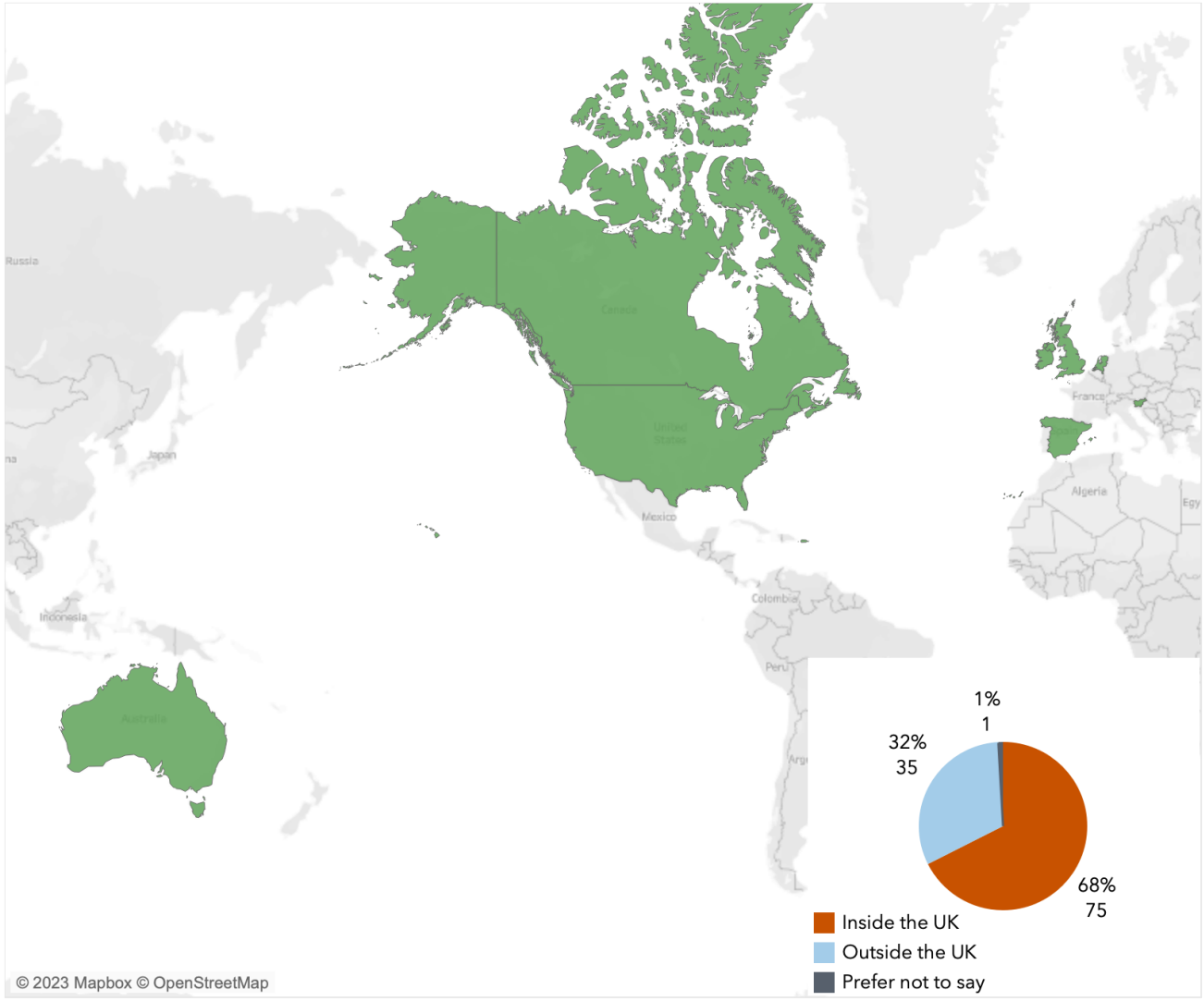


Figure 13. Evaluation of virtual participants distance

Appendices

APPENDIX 1 – TRENCH TABLES

Table 1. Trench 3 Context Descriptions

Trench 3	Dimensions:	17m x 8.5m						
	Orientation:	NNW - SSE						
	Reason for trench:	To further characterise features identified in 2021 evaluation trench (TR1)						
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**	**Link**
3001	Mid brownish grey, friable silt with vegetation roots and less rare small stones	Layer	Topsoil	0	5.75	0.15		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3001
3002	Mid brownish grey, friable sandy silt with frequent flat angular stones of varying sizes and pebbles	Layer	Backfill from 2021 excavations					https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3002
3003	Flat limestone stones which varied in size	Masonry	Possibly a later floor surface, overlying the hearth (F02)	1	0.7	0.14		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3003
3004	Mottled layer. Mixture, mid-blackish brown to mid brownish orange depending on area with compaction being a plastic in some areas, firm in some areas	Layer	Cleaning layer under stone surface 3003				F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3004

3005	Firm, mid- greyish brown, sandy silt with common sub-angular stones	Layer	Sub soil layer. Formed after the abandonment of the site.	16.80+	6.8	0.12		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3005
3006	Friable, mid-orangey brown, silty sand, with very frequent mid-sized irregular shaped stones	Layer	A large rubble layer that collapsed possibly after use of the roundhouse. May be from the roundhouse structure or other later structures.	5.15	2.94		F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3006
3007	Fairly loose, mid brown, clayey silt with occasional gravel	Fill	Fill of post hole [3044] within roundhouse. The roundhouse probably related to the hearth feature located centrally within the roundhouse. This post hole is located immediately adjacent to the hearth, possibly a central post within the roundhouse. The post hole has two fills the basal fill (3043) and the upper fill (3007). The upper fill (3007) had a larger concentration of charcoal, probably due to its close proximity to the hearth.	0.32	0.28	0.08	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3007

3008	Friable, dark blackish brown mottled with red-orange burnt clay, sandy silt with rare gravel inclusions	Fill	Hearth possibly filled when covering the hearth with flagstone floor 3003. Filled with a high density of burnt material, both charcoal and heat affected earth.	0.92	0.89	0.2	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3008
3009	Very soft, dark brownish black, sandy clay matrix supporting charcoal pieces with occasional pieces of burnt clay	Fill	Very high density of burnt charcoal, including large pieces. This layer was predominately underneath stone lining of hearth (3022) with some in between the stones. The charcoal layer probably accumulated during the hearths use and got caught under the stone lining and was therefore not able to be cleared out as easily.	0.57	0.5	0.03	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3009

3010	Sub-circular cut with a sharp break of slope at the top, irregular sides and base.	Cut	Cut of hearth. The ground around the hearth was heat affected (3039), and the fills of the hearth (3025), (3009), (3008) had a very high frequency of charcoal. It was difficult to see the relationships with surrounding hearths in section but in plan it looked as if this was the latest hearth.	0.91	0.87	0.32	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3010
3011	Quite compact, light orangey brown, silty sand with common angular stones	Layer	Plough horizon	8.08	3.32	0.26		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3011
3012		Fill	Occupation layer		0.17			https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3012
3013	Friable, mid brown, sandy clay with rare gravel inclusions, and larger angular stones	Fill	Upper most fill of hearth [3045]	0.55	0.17	0.54	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3013
3014	Loose, mid orangey brown, sandy silt with frequent very large stones	Layer	Rubble layer of previous structure that collapsed. Possibly part of stone roundhouse.	4.65	3.26	0.28	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3014

3015	Friable, light brownish grey, sandy silt with common charcoal flecks and small sub-angular to sub-rounded stones	Fill	This is layer has accumulated during the abandonment phase of the roundhouse. No clear signs that it the layer is "man-made", relatively homogeneous fill suggesting it formed through silting and not a backfill or levelling deposit.	4.4	1.12+	0.12+	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3015
3016	Friable, light brownish grey, sandy silt with common charcoal flecks and small sub-angular to sub-rounded stones	Layer	This is layer has accumulated during the abandonment phase of the roundhouse. No clear signs that it the layer is "man-made", relatively homogeneous fill suggesting it formed through silting and not a backfill or levelling deposit.	3.35	1.90+	0.12+	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3016

3017	Medium sized sub rounded to sub angular stones	Layer	Stone lining of hearth [3045]. There is a deposit underneath the stone lining (3018), this possibly formed by material being trapped under and between the stones when cleaning out the hearth or the stone lining was added after material had already started accumulating in the hearth.	0.55	0.36	0.27	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3017
3018	Moderately soft, dark blackish brown, silty sand with frequent charcoal flecks and pieces	Fill	The deposit is underneath the stone lining (3017). It possibly formed by material being trapped under and between the stones when cleaning out the hearth or the stone lining was added after material had already started accumulating in the hearth.	0.5	0.32	0.23	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3018
3019	Loose, mid orangey brown, sandy silt with occasional small to medium sized stones.	Fill	Thin depositional layer which may be an earlier phase of collapse with smaller pieces of stone.	5.04	4.17	0.07	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3019

3020	Friable, mid greyish brown, silty sand with rare gravel	Fill	Upper most fill of potential stoke hole. However, the shape in plan of this feature wasn't visible so this interpretation is very uncertain.	0.52		0.06	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3020
3021	Fairly compact, mid blackish brown, sandy clay with occasional gravel and frequent charcoal flecks	Layer	charcoal and debris from burning when removed or spilt from the hearth pit and compacted above on the outer surface from walking on the surface	0.34	0.78	0.03	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3021
3022	Mid-sized sub-angular small stones	Fill	Stone lining of hearth [3010]	0.24	0.17	0.05	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3022
3023	Friable, mid-greyish brown, silty sand with rare gravel and frequent charcoal flecks	Fill	Fill of possible hearth [3054]	0.87	0.48	0.48	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3023
3024	Duplicate of [3054]	Cut	Cut of possible hearth	0.69	0.45	0.11	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3024
3025	Loose, very dark blackish brown, silty clay with occasional inclusions of charcoal and rare gravel	Fill	Debris from use of hearth trapped by the stone lining (3022)	0.29	0.12	0.04	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3025

3026	Loose, mid-orangey brown small to medium sub-angular stones supported by sandy silt matrix	Layer	Internal rubble core of a possible inner and outer faced section of wall [3055]	2.5	0.38	Unexcavated	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3026
3027	Relatively loose, mid-blackish brown mottled with orange, silty sand with common gravel and stone pebbles and occasional charcoal flecks	Fill					F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3027
3028	Moderately loose, dark grey brown, sandy silt with moderate small rounded pebbles and occasional charcoal flecks	Layer	Deposited after roundhouse was disused but prior to the collapse of rubble layers (3019) + (3014).	4.4	3.4	0.17		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3028
3029	Quite loose, mid-greyish brown, sandy silt with frequent large rocks	Fill	It is a posthole within a roundhouse, post packing was originally around it but has now fallen into the hole.	0.53	0.53	0.43	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3029
3030	Soft, mid-greyish black, silty sand with occasional gravel and frequent charcoal pieces length	Layer	Thin layer accumulated during occupation	1.67	0.66	0.04		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3030
3031	Duplicate of (3057)	Fill	Potential post hole at the northwest quadrant of the iron working roundhouse				F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3031

3032	Circular post hole with a steep-gradual break of slope at the top, gradual sides, a gradual break of slope at the base and a flat base	Cut	Posthole on northern end of roundhouse, post hole appears to have been packed with stone.	0.49	0.41	0.15	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3032
3033	Friable, dark greyish brown, silty sand with frequent charcoal and occasional small stones	Fill	Fill of post hole with post-packing still largely in place, could have accumulated charcoal during use of building where ironworks were taking place	0.73	0.77	0.09	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3033
3034	Sub-circular post hole with a sharp break of slope at the top, steep-vertical sides, a sharp-gradual break of slope at the base and a flat base	Cut	Cut of post hole. Within roundhouse, probably relates to roundhouse building.	0.53	0.53	0.43	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3034
3035	Moderately loose, mid-greyish brown, sandy silt with occasional small sub rounded to sub angular stone, occasional flecks or charcoal	Fill	Potential pit fill of [3058]	1.9	1.6	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3035
3036	Sub-oval post hole, not excavated	Cut	Possibly a post hole to support a roof central to the round stone based structure.	0.72	0.52	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3036

3037	Moderately loose, dark greyish-brown, clayey sand with frequent medium subangular rocks	Fill	Fill of cut [3036].	0.72	0.52	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3037
3038	Very hard, light greyish yellow, silty sand with common gravel and common sub angular stones	Layer	Natural	Entire Trench	Entire Trench	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3038
3039	Loose, mottled with blackish grey, red, orange and white, sandy silt with charcoal inclusions	Layer	Heat affected natural, caused by prolonged high temperatures caused through use of the hearth.				F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3039
3040	Difficult to see cut in plan, sides were shallow with a flat base that sat on top a large stone slab	Cut	Cut of possible hearth or stoke hole or anvil. Less likely to be a hearth, the ground around it wasn't as heat affected as with the other pits such as [3010], and the fill contained less charcoal. The stone could be an anvil, either utilising natural bedrock or moved to the location.	1.14	0.84	0.15	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3040

3041	Sub-circular post hole with a sharp break of slope at the top, steep-gradual sides, a gradual break of slope at the base and a rounded base	Cut	Cut of posthole, within roundhouse, probably relates to roundhouse building.	0.46	0.36	0.21	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3041
3042	Hard, mid yellowish-brown, sandy silt with frequent large angular rocks and common charcoal	Fill	Posthole located on southern end of roundhouse, large number of large rocks within fill suggests evidence of post-packing.	0.46	0.36	0.21	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3042
3043	Friable, mid-yellowish brown, clayish-silt with occasional small stones	Fill	Fill of post hole [3044] within roundhouse. The roundhouse probably related to the hearth feature located centrally within the roundhouse. This post hole is located immediately adjacent to the hearth, possibly a central post within the roundhouse. The post hole has two fills the basal fill (3043) and the upper fill (3007). The upper fill (3007) had a larger concentration of charcoal, probably due to its close proximity to the hearth.	0.35	0.32	0.12	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3043

3044	Circular post hole with a sharp break of slope at the top, vertical-steep sides, a sharp break of slope at the base and a flat base	Cut	Post hole	0.28	0.35	0.31	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3044
3045	Circular hearth with a sharp break of the slope at the top, steep sides a gradual break of slope at the base, and an irregular base	Cut	Hearth	0.55	0.41	0.37	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3045
3046	Circular hearth with a steep-gradual break of the slope at the top, a gradual break of slope at the base, and an undulating base	Cut	Cut into the natural slope to build up a natural barrier against the elements that was supported by post holes to create an area that was used for the production of Iron.	5.36	0.75	1	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3046
3047	Circular cut for a roundhouse with a sharp break of slope at the top, steep sides. Base not excavated	Cut	Builders cut for a possible stone based round house.	7.5	5.80+	Unexcavated	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3047
3048	Duplicate of 3050	Fill	Fill of cut [3047].	7.5	5.8	Unexcavated	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3048

3049	Moderately hard, mid-orangey brown, silty sand with occasional charcoal pieces and rare gravel	Fill	Fill underneath large rocks suspected to be post-packing. The packing of this post hole does not seem to reach the base - could be debris that was stuck during construction due to charcoal being confined to context above it	0.73	0.55	0.05	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3049
3050	Loose, dark orangey brown, sandy silt with frequent small sub-angular rocks	Fill	Fill of cut [3047].	7.5	5.8	Unexcavated	F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3050
3051	Loose, light yellowish brown, silty sand with frequent medium sub-angular rubble	Layer	Layer of Rubble below the subsoil (3005).	1.77	1.43	0.1		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3051
3052	Loose, light greyish brown, sandy silt with frequent small to medium sub-rounded to sub-angular rocks	Layer	Layer deposit below (3051) with more sparse rubble pieces.	2.57	1.73	0.15		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3052
3053	Hard, light yellowish-brown, sand	Fill	The cut came down onto a large stone slab, (it is unclear if the stone was moved to its current location or if its naturally occurring bedrock), therefore the cut may be to use the stone as an anvil. Or if the stone is natural, it may have been a hearth or stoke hole that's depth was limited by reaching bedrock, however the shape of the cut on the east side follows the	0.55		0.12	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3053

			stone, suggesting it the stone was intentionally part of the feature.					
3054	Cut of possible hearth, with an unclear shape of plan, sharp break of slope at the top, shallow sides, non-perceptible break of slope at the base, and an irregular base	Cut	Cut of possible hearth	0.69	0.45	0.11	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3054
3055	Stones of various sizes ranging from 0.24 m x 0.18 m x 0.1 m to 0.57 m x 0.45 m x 2 m. With flat on outward facing sections of the stone in most of the wall. Random coursed, the south side of the wall the wall had only one stones depth, towards the west this became two stones deep with a rubble core. The outer facing side of the stones on the two stone deep section of the wall appeared to have either been selected to have a flat side of may have been worked to be flat	Masonry	A drystone wall of possible roundhouse built into [3047]. Encloses space with multiple features including possible postholes.	14.49			F04	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3055

3056	Oval post hole with a sharp break of slope break of slope at the top, steep-gradual slope, gradual break of slope at the base, and a flat base	Cut	A Cut through the natural to create the post hole in the iron working roundhouse	0.85	0.33	0.28	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3056
3057	Hard, greyish brown, silty sand with frequent large rocks	Fill	Potential post hole at the northwest quadrant of the iron working roundhouse	0.35	0.35	0.26	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3057
3058	Irregularly shaped pit, unexcavated	Cut	Possible pit on SW quadrant of roundhouse function unclear as unexcavated. may be earlier than roundhouse as appears to be truncated by wall [3055].	1.9	1.6	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3058
3059	Sub-oval pit, unexcavated	Cut	Possible storage pit within the roundhouse however not been excavated	1.47	0.66	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3059
3060	Loose, mid-orangey brown, sandy silt with occasional small sub-angular stones	Fill	Fill deposited prior to the collapse of rubble (3014) but not excavated	1.47	0.66	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3060

3061	Circular pit, unexcavated	Cut	Significant burning within the pit suggests possible hearth feature or use as dump for fire waste	1.78	1.17	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3061
3062	Loose, dark reddish brown, sandy silt with frequent small to medium sub-angular stones, moderate concentrations of charcoal and frequent flecks of charcoal	Fill	Possible waste from fire unclear whether hearth or just waste pit	1.72	1.17	Unexcavated		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3062
3063	Circular post hole, not fully excavated	Cut	Possible post hole may have predated inner face of the wall [3055] but not structure of roundhouse [3047].	0.26	0.16	0.21		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3063
3064	Loose, dark greyish brown, sandy silt with rare charcoal flecks and occasional medium sub-angular stones	Fill	Possibly backfilled before construction of inner face of wall on the W side [3055].	0.26	0.16	0.21		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3064
3065	Sub-oval post hole with gradual break of slope at the tip, sloping sides, gradual-non-perceptible break of slope at the base, and a flat base	Cut	Post setting within (3057)	0.35	0.26	0.24	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3065
3066	Friable, mid-greyish brown, clayey silt with frequent stones	Fill	Post setting within (3057), fill of [3056].	0.35	0.26	0.24	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3066

3067	Sub-circular post hole, not fully excavated	Cut	A likely post setting part of a group of other post holes	0.53	0.4	0.11	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3067
3068	Moderately loose, dark greyish brown, clayey sand with occasional medium to large sub-angular stones	Fill	A likely post setting part of a group of other post holes	0.53	0.4	0.11	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3068
3069	Probable circular pit which extends beyond the LOE. With sharp-gradual break of slope at the top, sloping-steep sides with a gradual-non-perceptible break of slope at the base, concave base	Cut	Possible pit, mostly under the LOE, making it unable to be seen in plan. Probably related to the hearth.	0.79	0.22	0.09	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3069
3070	Loose, mid-orangey brown, sandy silt with occasional small sub-angular stones	Fill	Possible pit, mostly under the LOE, making it unable to be seen in plan. Probably related to the hearth.	0.79	0.22	0.09	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3070
3071	Friable, mid-greyish brown to mid-orangey brown, sandy silt with common gravel	Layer	A spread near the hearths, probably accumulated during the use of the hearths.	1.23	1.35	0.41	F02	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3071
3072	Circular post hole with gradual break of slope at the top, irregular sides, base not seen	Cut	Probably a posthole, if so, it is related to the metalworking roundhouse.	0.6	0.6	0.16	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3072

3073	Moderately firm, mid-greyish brown, sandy silt with occasional medium to large subangular stones	Fill	Probably a posthole, if so, it is related to the metalworking roundhouse.	0.6	0.6	0.16	F03	https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_3073

Table 2. Trench 4 Context Descriptions

Trench 4	**Dimensions:**	7m x 2m						
	Orientation:	NE-SW						
	Reason for trench:	To investigate the nature of the sub-oval positive enclosure anomaly at the northern end of the site identified on the geophysics						
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**	**Link**
4001	Friable, dark greyish brown, sandy silt with dense grass roots	Layer	Topsoil of trench 4	5.74	2	0.1		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4001
4002	Sub-circular post hole with sharp break of slope at top, vertical sides, sharp break of slop at the base and a flat base	Cut	Post hole cut or set into a stone foundation [4006]	0.29	0.25	0.28		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4002
4003	Friable, mid-brownish grey, sandy silt with common small-medium sub-angular stones at base - potentially packing stones and flecks of charcoal.	Fill	Fill of posts hole	0.29	0.25	0.28		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4003

4004	Firm, dark blackish brown, sandy silt with frequent small - medium sub-angular stones with large charcoal flecks	Fill	Cut of posthole with a lot of burning throughout deposit. Located close to rubble wall on South side of trench 4006	0.44	0.4	0.12		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4004
4005	Mostly compact, loose around the edges, light brownish grey, sandy silt with frequent gravel, interspersed with larger rocks and very frequent roughly hewn sub-angular stones	Layer	Possible foundation walls to support a wooden superstructure.	2.12	0.93	0.31		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4005
4006	Very compact, light brownish grey, sandy silt with frequent gravel and sub-angular rocks	Layer	Stone layer that appears to be a wall that has had material moved through ploughing. Potentially a wall seen in the geophysics	1.78	1.33	0.22		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4006
4007	Quite compact with patches of looser soil, light greyish brown, sandy silt with mostly large elongated smooth rounded stones with patches of gravel surrounding	Layer	Possible area of worked stones - might be whetstones. Potentially used for storing as part of a workshop?	0.84	0.24	0.13		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4007
4008	Sub-circular post hole with a gradual break of slope at the top, very shallow sides, a	Cut	Potential interior post hole in line with potential outer post hole in potential wall [4006]	0.47	0.38	0.12		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4008

	shallow break of slope at the base and a rounded base							
4009	Compact, mid-brownish orange mottled with greyish brown patches, clayey sand with frequent gravel and common sub-angular stones	Layer	Natural			0.05+		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4009
4010	Compact, mid-brownish grey, sandy silt with common sub-angular gravel	Layer	Gravel deposit above natural, that appears to have not been disturbed by ploughing. Lowest deposit in trench	2.8	2.00+	0.36		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4010
4011	Very compact, orangey brown, silty sand with common flat sub-angular stones	Layer	Consolidation layer upon the cut surface interior of presumable structure or shelter.	2	2	0.22		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4011
4012	Firm, light brownish grey, clayey silt with rare gravel with rare small sub-angular stones	Layer	Plough soil from farming, below the topsoil.	6.74+	2.00+	0.4		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4012
4013	Friable to compact, mid-orangey brown, clayey silt with small pieces of gravel and stone	Layer	Subsoil	2	1.22	0.1		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_4013

4014	Sub-circular post hole not excavated	Cut	Possible posthole in [4005]	0.35	0.28	na		
4015	Sub-circular post hole not excavated	Fill	Possible posthole in [4005]	0.35	0.28	na		

Table 3. Trench 5 Context Descriptions

Trench 5	**Dimensions:**	1m x 6.5m						
	Orientation:	WNW - ESE						
	Reason for trench:	To further characterise features identified in 2021 evaluation trench (TR1)						
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**	**Link**
5001	Friable, mid-greyish brown, silty sand, with rare sub-angular stones and rooting	Layer	Topsoil in trench 5	6	3	0.13		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5001
5002	Friable, greyish brown, sandy silt with rare small sub-rounded stones	Layer		6	3	0.4		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5002
5003	Firm, yellowish brown, sandy silt	Layer	Natural	6	0.5	0.75+		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5003

5004	Dry stone wall running SE-NW with stones varied in size largest: 0.22x0.21x0.03 smallest: 0.06x0.04x0.03. Stones very roughly hewn	Masonry	Potential wall with a singular coursing in some places. Might have been an enclosure of some kind	0.78	0.11	0.62		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5004
5005	Cut not visible but assumed to be there	Cut						https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5005
5006	Firm, mid-greyish brown, sandy silt with common sub-angular medium-large stones	Layer	Quite a thick stone layer, possibly related to rubble of a structure? Only a couple roughly hewn but most seem a bit random and unworked.	6	0.5	0.75		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_5006

Table 4. Trench 6 Context Descriptions

Trench 6	**Dimensions:**	3m x 2.5m						
	Orientation:	N - S						
	Reason for trench:	To continue to excavate the ditch from 2021 evaluation trench (TR2)						
Context	**Description**	**Type**	**Interpretation**	**Length (m)**	**Width (m)**	**Depth (m)**	**Feature**	**Link**
6001	Compact, dark blackish brown silt with roots and gravel inclusions	Layer	Topsoil of rampart trench	3.0+	1.0+	0.07		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6001

6002	Compact, mid brown, mixed clayey sandy silt with roots, gravel and mixed rubble inclusions	Fill	Backfill of Trench 2	2.5m	1.0+	0.48		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6002
6003	Loose, light brown, sandy silt with regular medium angular stones	Fill	Upper fill of ditch	1.54	1.0+	0.19		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6003
6004	Firm, mid-yellowish brown, clayey silt with sub-angular boulders and large stones	Fill	Fill of ditch, with tumble of large stones and boulders	1.0+	0.65	0.16		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6004
6005	Firm, mid brownish orange, clayey silt with no inclusions	Fill	Fill of ditch, orangey brown clay lens	0.45+	1.00+	0.17		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6005
6006	Firm, mid brown, sandy silt with frequent medium angular cobble-type stones and rubble	Fill	Rubble fill of ditch	1.3	1.0+	0.32		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6006
6007	Firm, yellowish brown, sandy silt with occasional small gravel	Fill	Yellow platform deposit associated with second rampart	1.0+	0.8	0.21		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6007
6008	Firm, mid-orangey brown, clayey silt with frequent grit and gravel inclusions	Fill	Mid orangey brown clay deposit associated with first rampart	1.0+	0.39	0.19		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6008
6009	Friable, mid-yellowish brown, clayey silt with occasional small sub-angular gravel	Fill	Fill of ditch, close to wall at south end of ditch	1.0+	0.62	0.19		https://ddt.digventures.com/caerfai/micro_vie

								w.php?item_key=cxt_cd&cxt_cd=CHE_6009
6010	Soft, mid to dark brownish, clayey silt	Fill	Thin layer of alluvial hill wash	1.05	1.0+	0.03		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6010
6011	Soft, mid brownish, clayey silt with occasional iron panning	Fill	Soft, mid brownish grey clayey silt with iron panning, deposited in one of the 'steps' of 6015	1.0+	0.52	0.2		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6011
6012	Soft, mid brownish, clayey silt	Fill	Cluster of stones below (6010)	1.0+	0.36	0.12		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6012
6013	Soft, mid brownish, silty sand	Fill	Sandy lens of ditch fill, under (6010) and around (6012) cluster of stones	1.0+	0.19	0.14		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6013
6014	Firm, mid greyish brown, silty clay with occasional charcoal flecks	Fill	Clay deposit on south side of ditch, under (6013) sandy layer	1.0+	0.71	0.19		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6014

6015	E-W aligned possible stone wall with multiple courses or 'steps' with S facing face exposed at N end. Stones are flat and unworked ranging between 0.4m - 0.2m wide, 0.3m - 0.1m tall and unknown - 0.1m deep. Packed with yellow silty clay almost like bonding.	Cut or Masonry	Possible stone wall or enhanced geological feature below footing of rampart at north end of trench	1.08+	1.0+	0.60+		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6015
6016	E-W aligned cut, seemingly lined with stone multiple courses (some of which have slipped), N face exposed at S end. Possibly natural fracturing from freeze/thaw, otherwise rough, unworked blocks of flat stones used for facing. Sizes range between 0.4m - 0.2m wide, 0.2m - 0.15m tall and 0.15m - 0.05m deep. Possibly bonded with yellow silty clay.	Cut or Masonry	Stone lining associated with rampart at south end of trench, possibly just the natural geology/bedrock at the base of the ditch cut	1.04+	1.0+	0.66+		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6016
6017	Firm, mid greyish brown, clayey silt with occasional iron panning	Fill	Silty clay layer below (6014)	1.0+	0.74	0.55		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6017
6018	Firm, mid yellowish brown, clayey silt	Fill	Yellowish brown clayey silt layer below (6017)	1.0+	0.36	0.02		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6018

6019	Firm, light brown, sandy silt with regular small subangular stone and gravel inclusions	Fill	Gravel lens below (6003)	1.1+	1.0+	0.18		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6019
6020	Firm, light brown, sandy silt with regular small subangular stone and gravel inclusions	Fill	Gravel lens below (6004) - Equivalent to (2016)	1.01+	1.0+	0.04		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6020
6021	Voided	N/A	N/A	N/A	N/A	N/A		
6022	Firm, mid brown, sandy silt with regular medium flat and angular stone inclusions	Fill	Silty lens with rubble below (6024) and (6004) and above (6030) and (6006)	1.81+	1.0+	0.14		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6022
6023	Friable, mid grey brown, silty clay with regular stone and rooting inclusions	Fill	Silty lens below (6001). Equivalent to (2012)	1.0+	1.0+	0.46		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6023
6024	Firm, light yellowish brown, clayey silt	Fill	Clayey silt layer below (6019). Equivalent to (2014)	2.26+	1.0+	0.24		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6024
6025	Firm, mid-yellowish brown, sandy silt with occasional small and mid-sized sub-angular stones	Fill	Silty layer below (6006) and above step of wall (6015)	Unknown	0.34	0.15		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6025
6026	Loose, mid orangey brown, sandy silt	Fill	Silty fill behind/inside south cut [6016]	1.0+	0.32+	0.23+		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6026

6027	Sub angular/rounded, rough or naturally smooth rubble fill or core with sizes ranging 0.15m - 0.2m wide, 0.2m - 0.1m tall and 0.05m - 0.2m deep.	Masonry	Cluster of stones in fill of south wall (6016)	1.0+	0.1	0.06		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6027
6028	Mid brown clayey silt with moderate amount of stone	Fill	Silty layer below (6033) at south end of trench. Construction layer of southern rampart mound — highly compact. Equivalent to (2020)	1.0+	0.61+	0.17		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6028
6029	Firm, mid yellowish brown, clayey silt with occasional medium flat stones similar to those in 6015	Fill	Fill at base of ditch, with rubble. Possible early consolidation or primary fill.	1.0+	0.17	0.07		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6029
6030	Firm, mid-yellowish brown, clayey silt with occasional medium sub-angular flat stones	Fill	Silty lens with occasional flat rubble, below (6022) and above (6006)	1.14	1.0+	0.18		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6030
6031	Sub angular/rounded, rough or naturally smooth rubble fill or core with sizes ranging 0.15m - 0.2m wide, 0.2m - 0.1m tall and 0.05m - 0.2m deep.	Fill	Masonry at south end of ditch. Equivalent to 2027	1.0+	0.20+	0.17		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6031
6032	Firm, mid brown, sandy silt with frequent medium angular cobble-type stones and rubble	Fill	Early collapse episode of southern rampart bank	1.0+	0.62	0.38		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6032

6033	Mid grey brown clayey silt with high amount of rooting	Fill	Hill wash—Upper most sedimentary process on north face of southern rampart - Equivalent to (2019)	1.14	1.0+	0.19		https://ddt.digventures.com/caerfai/micro_view.php?item_key=cxt_cd&cxt_cd=CHE_6033
6034	void	N/A	N/A	N/A	N/A	N/A		
6035	Possible recut within ditch [6035] fill	Cut	Possible recut within ditch [6035] fill	1.75	1.0+	0.42		
6036	Bedrock	Layer	Natural geology	2.5+	1.0+	N/A		

APPENDIX 2 – FINDS CATALOGUE

Table 5. All Finds

Context Number	Object Material	Quantity	Weight (g)	Notes
3001	Animal Bone	1	1	Burnt
3001	Flint	4	21	
3001	Stone	3	260	Slingstones
3002	Animal Bone	38	7	Burnt with charcoal pieces
3002	Charcoal	19	5	Includes bone fragments
3002	Flint	12	49	
3002	Other	1	12	Fired/burnt Clay
3002	Pot	1	5	
3002	Slag	2	14	
3002	Stone	1	1	
3002	Stone	5	339	Slingstones
3004	Charcoal	30+	63	Includes bone fragments
3004	Flint	3	6	
3004	Stone	4	274	Slingstones
3005	Animal Bone	7	1	Burnt
3005	Charcoal	11	2	
3005	Flint	8	53	
3005	Other	7	140	Fired/burnt Clay
3005	Slag	3	46	
3005	Stone	1	11	Spindle Whorl
3005	Stone	3	407	Slingstones
3006	Stone	2	200	Slingstones
3007	Pot	1	5	
3008	Animal Bone	32	13	Burnt
3008	Charcoal	30+	30	Includes bone fragments
3008	Stone	1	84	Slingstone
3009	Flint	1	251	Unbroken/knapped
3013	Animal Bone	12	4	Burnt
3013	Charcoal	20+	17	Includes bone fragments
3014	Animal Bone	39	6	Teeth
3014	Charcoal	20+	19	
3014	Other	1	6	Either bone or wood
3015	Animal Bone	13	1	Burnt
3015	Charcoal	10+	10	
3015	Flint	2	7	
3015	Stone	1	64	Slingstone
3015	Stone	1	649	Hammerstone
3016	Animal Bone	140	4	
3016	Charcoal	30+	50	Includes bone fragments
3019	Animal Bone	6	2	Teeth
3023	Charcoal	20+	16	
3023	Pot	1	46	Crucible fragment

3026	Animal Bone	1	<1	Burnt
3026	Pot	1	19	
3027	Animal Bone	7	<1	Burnt
3028	Animal Bone	9	5	
3028	Animal Bone	30+	8	Unburnt partial mandible in fragments
3028	Animal Bone	29	1	Teeth
3028	Animal Bone	22	4	Teeth
3028	Charcoal	6	4	
3028	Shell	56	6	Includes flecks of charcoal
3035	Animal Bone	2	<1	Burnt
3037	Animal Bone	17	<1	
3050	Animal Bone	6	5	Teeth
3056	Charcoal	8	1	
3062	Charcoal	18	5	
4004	Charcoal	10+	6	
4007	Stone	13	18372	Potential hone stones, SF8
5001	Flint	9	70	
5001	Stone	2	151	Slingstones
6006	Stone	1	957	Cut stone
6006	Stone	1	21	Slingstone

APPENDIX 3 – WORKED STONE

Table 6. Summary of assemblage by object type, count and weight.

Object type	Count	Weight (g)
Bangle	1	6.2
Spindle whorl	1	10.9
Rubber	1	884.8
Grinder	1	648.8
Other utilised	4	7,365.00
Possible slingstones	22	1,802.90
Natural	10	11,176.10
Total	**40**	**21,894.70**

Table 7. Summary of assemblage by object type and trench by count.

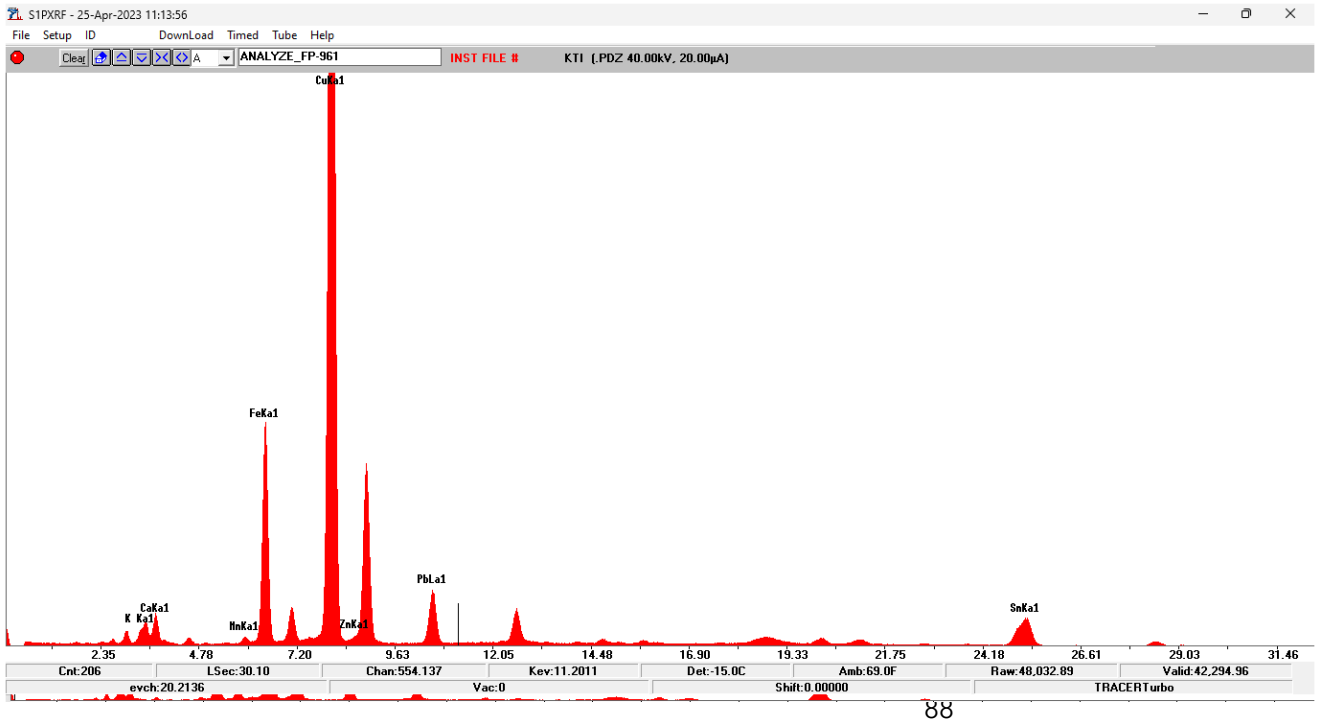
Material	Trench 3	Trench 4	Trench 5	Trench 6
Bangle	1	-	-	-
Spindle whorl	1	-	-	-
Rubber	-	1	-	-
Grinder	1	-	-	-
Other utilised	-	4	-	-
Possible slingstones	19	-	2	1
Natural	1	8		1
Total	**23**	**13**	**2**	**2**

APPENDIX 4 – METALLURGY

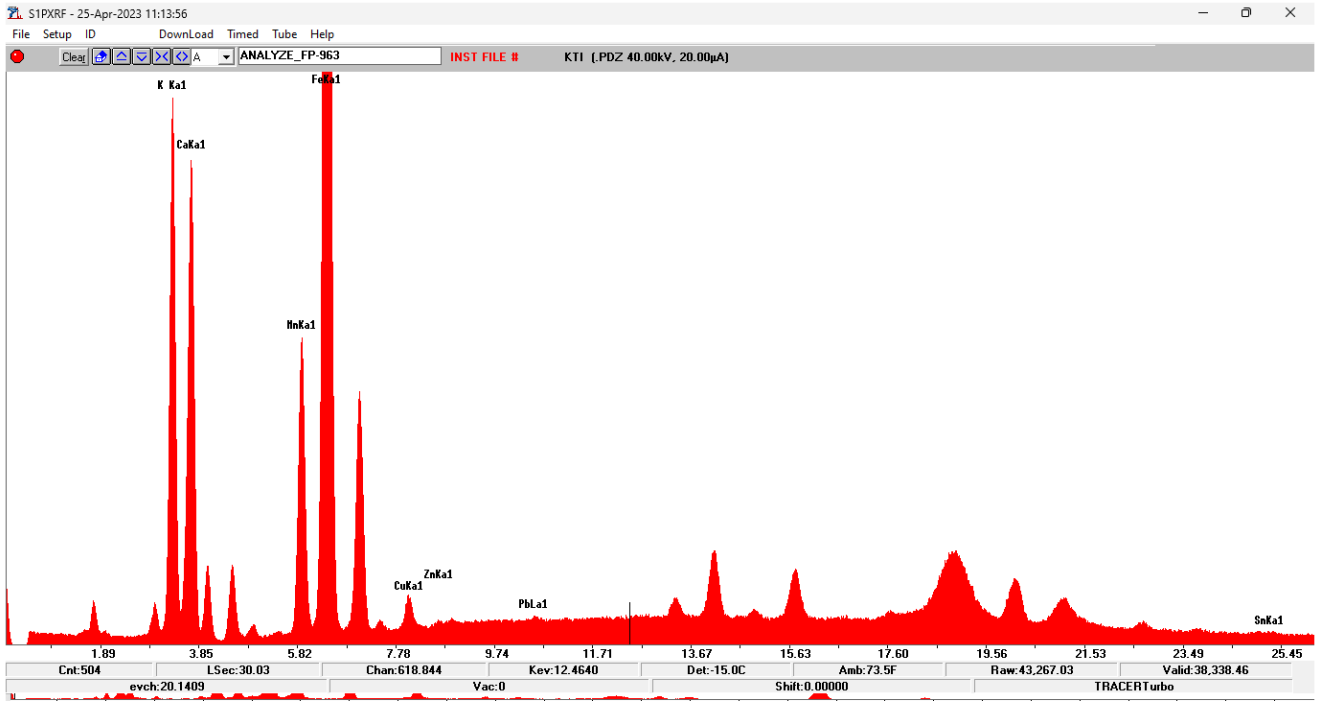
Table 8. Catalogue of the slags recovered in 2022 (weight in grams).

Context	Finds Number	Smith Slag Count	Smith Weight	Slagged Lining Count	Slagged Lining Weight	Crucible Count	Crucible weight
3002		2	14				
3005							
3023	13			3	46	1	45.4
Total	**13**	**2**	**14**	**3**	**46**	**1**	**45.4**

Appendix 4, Figure 1 - HH-XRF spectrum derived from the internal surface of the crucible (Context 3023, FN 13)



Appendix 4, Figure 2 - HH-XRF spectrum derived from the external surface of the crucible (Context 3023, FN 13)



APPENDIX 5 - FAUNAL REMAINS

Table 9. Summary of mammal and marine mollusc remains.

	Mammals									Marine molluscs			
				Ungulates			Mammals			Bivalves	Gastropods		
Context	Cattle	Sheep/ goat	Pig	Large	Small	Unsized	Large	Medium/ large	Medium	Mussel	Common limpet	Dog whelk	Total
3001							1						1
3002			2					1	36				39
3005								6	1				7
3008	8						4	22	1				35
3013							2	6	4				12
3014	11			14	8	3		1	2				39
3015								4					4
3016	139							2					141
3019	9												9
3025									8				8
3027									7				7
3028	30	47		24	1		12	126		23	77	3	343
3035		1				1							2
3037								17					17
3050	6												6
Total	**203**	**48**	**2**	**38**	**9**	**4**	**19**	**185**	**59**	**23**	**77**	**3**	**670**

APPENDIX 6 – PALAEOENVIRONMENTAL RESULTS

Table 10. Summary of flot results by count and weight (grams).

Context	Sample	Flot weight (g)	Material	Count Estimate	Count	Weight (g)
3006	23	3.95	Charcoal < 2mm	–	–	1
			Charcoal >2mm	–	–	1.97
			Charred seeds	–	1	<0.5
			Grain	–	7	<0.5
3007	11	36.35	Charcoal < 2mm	–	–	9.75
			Charcoal >2mm	–	–	19
			Earthworm capsules	–	1	<0.5
			Grain	25-50	–	0.44
3008	9	17.11	Charcoal < 2mm	–	–	5
			Charcoal >2mm	–	–	4.41
			Charred seeds	–	–	0.07
			Metalworking waste	–	–	0.39
3009	10	36.03	Charcoal < 2mm	–	–	9.45
			Charcoal >2mm	–	–	11.27
			Charred seeds	–	17	0.13
			Metalworking waste	–	–	0.53
3018	12	0.49	Charcoal < 2mm	–	10	0.5
			Grain	–	12	0.5
3029	18	3.31	Charcoal < 2mm	–	–	1.34
			Charcoal >2mm	–	0	0.77
			Charred seeds	–	7	<0.5
			Grain	25-50	–	<0.5
			Metalworking waste	–	17	<0.5
3030	17	5.57	Charcoal < 2mm	–	0	0.64

Context	Sample	Flot weight (g)	Material	Count Estimate	Count	Weight (g)
			Charcoal >2mm	–	0	2.94
			Grain	25-50	–	<0.5
4003	14	4	Charcoal >2mm	–	0	0.42
			Grain	–	1	<0.5
			Invertebrates	–	12	<0.5
4004	20	12.88	Charcoal < 2mm	–	0	3.38
			Charcoal >2mm	–	0	5.9
			Charred seeds	–	2	<0.5
			Grain	25-50	–	0.73
			Shell	–	1	<0.5
6011	16	0.72	Charcoal < 2mm	–	0	0.8
			Charcoal >2mm	–	14	0.11
			Charred other	–	7	<0.5
			Charred seeds	–	8	<0.5
			Seeds (recent)	–	1	<0.5
6014	15	1.17	Charcoal < 2mm	–	0	<0.5
			Charcoal >2mm	–	0	0.74
			Charred seeds	–	7	<0.5
Total					**125**	**82.18**

Table 11. Summary of all finds from heavy fraction/residues.

Context	Sample	Material	Count Estimate	Count	Weight (g)
3006	23	Bone	–	3	1
		Charcoal	–	5	0.1
		Lithic/flint	–	1	0.1
		Magnetic material	–	–	11
3007	11	Bone	25-50	0	9
		Charcoal	–	12	0.1
		Magnetic material	–	–	50
3008	9	Bone	25-50	0	12
		Magnetic material	–	–	39
		Shell	–	1	0.1

3009	10	Bone	–	6	2
		Magnetic material	–	–	17
3018	12	Bone	–	16	2
		Charcoal	–	17	0.1
		Magnetic material	–	–	18
3029	18	Bone	–	4	1
		CBM	–	1	3
		Charcoal	–	2	0.1
		Magnetic material	–	–	16
3030	17	Magnetic material	–	–	12
4003	14	Magnetic material	–	–	14
4004	20	Bone	–	20	1
		Magnetic material	–	–	17
6011	16	Charcoal	–	9	0.1
		Iron	25-50	–	2
		Iron	–	3	0.1
		Magnetic material	–	–	1.5
		Worked stone	–	2	152
6014	15	Charcoal	25-50	0	0.1
		Worked stone	–	4	0.1
		Magnetic material	–	–	7
		Total		**106**	**388.5**

Table 12. Plant Macrofossils - complete list of taxa recovered.

Sample Number	9	9	9	9	10	
Context Number	3008	3008	3008	3008	3009	
Feature Number	3010	3010	3010	3010	3010	
Feature Type	Hearth	Hearth	Hearth	Hearth	Hearth	
Sub sample	Flot	Finds from flot – charred seeds	Finds from flot – Charcoal <2mm	Finds from flot – Charcoal >2mm	Flot	
LATIN BINOMAL						COMMON NAME
Urtica spp.					1	Nettles
Chenepodium / Atriplex spp.		5			1	Goosefoot / Orache
Stellaria media (L.) Vill		2				Common chickweed
Polygonum lapathafolium L.			2			Pale persicaria
Medicago / Melilotus / Trifolium		2				Melilots / Medicks / Clovers
Centaurea cyanus L.					1	Cornflower
Carex spp.		2				Sedge
POACEAE		2			2	Grass family
Indeterminate Cereal		12	8	6	1	Indeterminate Cereal
Indeterminate Cereal Glume base	4		15		10	Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork	81		90		110	Indeterminate Cereal spikelet fork
Indeterminate Cereal clum			1			Indeterminate Cereal clum
Indeterminate	1				1	Indeterminate

Sample Number	10	10	10	11	11	
Context Number	3009	3009	3009	3007	3007	
Feature Number	3010	3010	3010	3014	3014	
Feature Type	Hearth	Hearth	Hearth	Posthole	Posthole	
Sub sample	Finds from flot - charred seeds	Finds from flot – Charcoal <2mm	Finds from flot – Charcoal >2mm	Flot	Finds from flot – charred seeds	
LATIN BINOMAL						COMMON NAME
Chenepodium / Atriplex spp.	2	4		1	1	Goosefoot / Orache
Polygonum spp.	2	4				Knotweed
Fallolpia convovulus	2	2				Black bindweed
Rumex spp.		1			1	Docks
BRASSICACEAE	1					Cabbage family
Medicago / Melilotus / Trifolium	1	2				Melilots / Medicks / Clovers
POACEAE		1				Grass family
Indeterminate Cereal	7		5		86	Indeterminate Cereal
Indeterminate Cereal Glume base	2	32		6	16	Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork		188	1	110	57	Indeterminate Cereal spikelet fork
Indeterminate Cereal clum			2			Indeterminate Cereal clum
Indeterminate chaff fgt.					1	Indeterminate chaff fgt.

Sample Number	11	11	12	12	14	14	
Context Number	3007	3007	3018	3018	4003	4003	
Feature Number	3014	3014			4002	4002	
Feature Type	Posthole	Posthole	Hearth	Hearth	Posthole	Posthole	
Sub sample	Finds from flot – Charcoal <2mm	Finds from flot – Charcoal >2mm	Flot	Finds from flot – charred grain	Flot	Finds from flot – charred seed	
LATIN BINOMAL							COMMON NAME
Indeterminate Cereal	20	10	1	11		1	Indeterminate Cereal
Indeterminate Cereal Glume base	37		1				Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork	183		1		1		Indeterminate Cereal spikelet fork
Indeterminate Cereal detached embryo	1						Indeterminate Cereal detached embryo
Indeterminate chaff fgt.	2						Indeterminate chaff fgt.

Sample Number	15	15	15	16	16	
Context Number	6014	6014	6014	6011	6011	
Feature Number						
Feature Type	Ditch	Ditch	Ditch	Ditch	Ditch	
Sub sample	Flot	Finds from flot – charred seeds	Charcoal : 2-4mm	Finds from flot – charred seeds	Finds from flot – charred plant material	
LATIN BINOMAL						COMMON NAME
Rumex spp.				1		Docks
BRASSICACEAE				1		Cabbage family
POACEAE	3					Grass family
Indeterminate Cereal		5		3		Indeterminate Cereal
Indeterminate Cereal Glume base						Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork	1					Indeterminate Cereal spikelet fork
Indeterminate chaff fgt.	1		5		7	Indeterminate chaff fgt.

Sample Number	17	17	17	18	18	18	
Context Number	3030	3030	3030	3029	3029	3029	
Feature Number							
Feature Type	Layer	Layer	Layer	Posthole	Posthole	Posthole	
Sub sample	Flot	Finds from flots – charred grain	Finds from flots – Charcoal <2mm	Flot	Finds from flot – Charred seeds	Finds from flots – Charred grain	
LATIN BINOMAL							COMMON NAME
Urtica spp.				1			Nettles
Polygonum lapathafolium L.					1		Pale persicaria
Rumex spp.					1		Docks
BRASSICACEAE					3		Cabbage family
POACEAE			1	2			Grass family
Indeterminate Cereal		7				16	Indeterminate Cereal
Indeterminate Cereal Glume base		3		2			Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork	1	12	6	24		9	Indeterminate Cereal spikelet fork
Indeterminate chaff fgt.	1					1	Indeterminate chaff fgt.
Indeterminate		1			11		Indeterminate

Sample Number	18	18	20	20	20	
Context Number	3029	3029	4004	4004	4004	
Feature Number						
Feature Type	Posthole	Posthole	Posthole	Posthole	Posthole	
Sub sample	Finds from flots – Charcoal <2mm	Finds from flots – Charcoal >2mm	Flot	Finds from flot – Charred grain	Finds from flots – Charcoal <2mm	
LATIN BINOMAL						COMMON NAME
Polygonum lapathafolium L.	1					Pale persicaria
Rumex spp.				1		Docks
BRASSICACEAE					1	Cabbage family
POACEAE			5	18	9	Grass family
Indeterminate Cereal	2	4	3	139	42	Indeterminate Cereal
Indeterminate Cereal Glume base	1		3	5	18	Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork	1		20	11	52	Indeterminate Cereal spikelet fork
Indeterminate chaff fgt.			1			Indeterminate chaff fgt.

Sample Number	20	23	23	23	23	
Context Number	4004	3006	3006	3006	3006	
Feature Number						
Feature Type	Posthole	Layer	Layer	Layer	Layer	
Sub sample	Finds from flots – Charcoal >2mm	Flot	Finds from flots – Charred grain	Finds from flots – Charcoal <2mm	Finds from sample – Charcoal >2mm	
LATIN BINOMAL						COMMON NAME
POACEAE		2				Grass family
Indeterminate Cereal	4		7	3	2	Indeterminate Cereal
Indeterminate Cereal Glume base				1		Indeterminate Cereal Glume base
Indeterminate Cereal spikelet fork		1		3		Indeterminate Cereal spikelet fork

Table 13. Charcoal - complete list of taxa.

Sample Number		9	10	11	11	12	14
Context Number		3008	3009	3007	3007	3018	4003
Feature Number		3010	3010	3014	3014		4002
Feature Type		Hearth fill	Hearth fill	Posthole	Posthole	Hearth fill	Posthole
Sub sample		Finds from flots – Charcoal >2mm	Finds from flots – Charcoal >2mm	Finds from flots – Charcoal >2mm	Charcoal >4mm	Charcoal >4mm	Finds from flots – Charcoal >2mm
No. fgts.		200+	600+	500+	12	17	49
Max. size (mm)		12	24	27	12	13	8
Latin	Vernacular						
Corylus avellana	Hazel	41	100		2	11	8
Quercus	Oak	23		100	4	5	
Indeterminate	Indeterminate	36			6		41

Sample Number		15	15	16	17	18	18
Context Number		6014	6014	6011	3030	3029	3029
Feature Number							
Feature Type		Ditch fill	Ditch fill	Ditch fill	Occupation layer	Posthole	Posthole
Sub sample		Finds from flots – Charcoal >2mm	Charcoal >4mm	Finds from flots – Charcoal >2mm	Finds from flots – Charcoal >2mm	Finds from flots – Charcaol >2mm	Charcoal >4mm
No. fgts.		51	35	14	100+	100+	2
Max. size (mm)		11	8	7	20	9	12
Latin	**Vernacular**						
Salix / Populus	Willow / Poplar			2			2
Corylus avellana	Hazel	5	5		68		
Quercus	Oak	12	3	9		17	
Indeterminate	Indeterminate	34	27	3	32	83	

Sample Number		20	23	23
Context Number		4004	3006	3006
Feature Number		4002		
Feature Type		Posthole	Occupation layer	Occupation layer
Sub sample		Finds from flots – Charcoal >2mm	Finds from flots – Charcoal >2mm	Charcoal >4mm
No. fgts.		300+	100+	5
Max. size (mm)		24	15	8
Latin	Vernacular			
Salix / Populus	Willow / Poplar			4
Corylus avellana	Hazel		27	
Quercus	Oak	100	19	1
Indeterminate	Indeterminate		54	

Table 14. Charcoal (sieved) - complete list of taxa recovered.

Sample Number							
Context Number		3002	3002	3004	3005	3008	3008
Feature Type		Layer	Layer	Layer	Layer	Hearth fill	Hearth fill
No. fgts.		3	8	36	11	100+	32
Max. size (mm)		16	14	18	21	24	17
Latin	Vernacular						
Salix / Populus	Willow / Poplar						
Corylus avellana	Hazel	1	4				15
Quercus	Oak	2	4	36	11	52	
Indeterminate	Indeterminate					48	17

Sample Number							
Context Number		3013	3013	3014	3015	3016	3016
Feature Type		Hearth fill	Hearth fill	Layer	Layer	Layer	Layer
No. fgts.		24	33	100+	26	21	22
Max. size (mm)		27	21	14	21	19	24
Latin	Vernacular						
Salix / Populus	Willow / Poplar						9
Corylus avellana	Hazel	2	4		26		
Quercus	Oak	15	16	44		3	4
Indeterminate	Indeterminate	7	13	56		18	9

Sample Number							
Context Number		3016	3023	3028	3056	3062	4004
Feature Type		Layer	Hearth fill	Layer	Posthole	Pit or hearth fill	Posthole
No. fgts.		100+	100+	66	8	18	100+
Max. size (mm)		25	23	36	18	22	21
Latin	Vernacular						
Corylus avellana	Hazel	3	7			18	35
Quercus	Oak	16	93	13	8		
Indeterminate	Indeterminate	81		53			65

Table 15. Components - complete list of components recovered.

Sample Number	9	10	11	12	14	15	16	17	18	20	23
Context Number	3008	3009	3007	3018	4003	6014	6011	3030	3029	4004	3006
Feature Number	3010	3010	3014		4002						
Feature Type	Hearth	Hearth	Posthole	Hearth	Posthole	Ditch fill	Ditch fill	Layer	Posthole	Posthole	Layer
Bone fgts.	1										
Charcoal fgts.	3	4	4	2	2	2	2	2	3	3	3
Earthworm egg capsules	1	1	1	1	2	1	1	1	1	1	1
Insect fgts.	1	1	1		2	1	1	1	1	2	2
Plant macros. (charred)		2	2	1	1	1		1	2	2	1
Plant macros (modern)		1								1	
Root/rootlet fgts.	4	3	2	4	4	4	4	4	4	4	4
Sand	3	4	3	3	3	3	2	2	2	2	3
Snails											

APPENDIX 7 – THEORY OF CHANGE