



Sudeley Castle and Gardens

Archaeological Assessment Report

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Purpose of document

This document has been prepared as an Assessment for Sudeley Castle Estate and DigVentures' global community. 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 online database of all written, drawn, photographic and digital data.

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Project summary

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DigVentures is aiming to reduce its per capita carbon emissions.

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The Project Executive for DigVentures was Lisa Westcott-Wilkins with Stephanie Duensing in the role of Project Manager and Site Director, ably supported by Maiya Pina-Dacier as Community Manager, with Ben Swain, Freddy Wannop, Indie Jago and Ginny Cole as Community Archaeologists.

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Finally, this report is dedicated in memoriam of Angie Mathews, who's enthusiasm and passion for the Tudor period and archaeology will be greatly missed by all who were so fortunate to have worked with her on this project.

Executive summary

DigVentures Ltd were invited by Sudeley Castle and Gardens to undertake a crowdfunded community-based archaeological research project at Sudeley Gardens (hereafter 'the Site'). This report details the results of the third field season of a multi-staged project, encompassing an evaluation and assessment stage, followed by final analysis and publication.

Fieldwork took place from 18th to the 30th October 2022. The fieldwork was designed to investigate:

- the extent and significance of the surviving archaeological remains relating to the earlier Tudor garden, and associated renovations to the garden in the late Tudor period.
- the chronology and phasing of the site.
- the nature of the earthworks in relation to excavated archaeology, refining the results from previous investigations and earlier archaeo-topographic and geophysical survey combined with LiDAR and test pit data.
- the site's archaeological and palaeoenvironmental conditions.
- the potential of the archaeology to contribute to syntheses on the form, development and significance of Tudor Gardens.

This report presents results from excavations, incorporating preliminary specialist assessments and a summary of the results to date. The impact of the fieldwork and how findings have contributed to achieving the aims and objectives of the project are discussed, and recommendations for further work given. This report is one of several archive and dissemination products generated by the project, including a digital archive. All products and dig records are available on the project microsite: <https://digventures.com/sudeley-castle/>.

Results summary

Four trenches were excavated in 2022, situated to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure believed to relate to a Tudor Garden and possible garden features:

- Trench 12 focused on an area of earthworks that was initially interpreted as being a garden feature possibly associated with the water channel immediately to the east.
- Trench 13 was located over a linear earthwork that was initially interpreted as being a walkway overlying the earlier garden wall, targeting an area appearing to connect the pond to the central garden, potentially a water channel.
- Trench 14 was a 1 x 1m test pit excavated in a low-lying area to the east of Trench 13, and investigated what was presumed to be an earlier pond feature.
- Trench 15 was a test pit located approximately 7m south east of Trench 12 and targeted the continuation of the wall F801 to the south of Trench 13.

The excavations also revealed a greater length of the wall F801 which was previously identified in Trench 7 in 2019 and again in Trenches 8 and 11 during the 2021 season. Trench 12 opened

a large area to the west of the earlier boundary wall to understand some of the interior deposits within the bounds of the formal garden space, including a mound thought to be a possible viewing platform. The mound itself F1201 was investigated with an L-shaped intervention and showed that it was built from compact earth placed on top of the natural geology. No foundation cut for the mound was observed. There were two tree bowl cuts which were excavated to the north of the mound, F1203 and F1204. Along the western break of slope of the mound was a rubble layer with highly organic deposits which were thought to possibly be an earlier garden path F1205.

Evidence was found within Trench 13 to suggest an earlier water channel had been located in that area, truncating the earlier garden wall and, as such, supporting the interpretation that the water feature was a later installation into the garden landscape. The re-interpretation of the garden boundary wall, demarking the edge of a Tudor formal garden, is further reinforced by further evidence to support that the wall as a whole was demolished and covered when the garden was converted to a wilding or water garden in a later Tudor period.

The digging of a test pit, Trench 14, investigated what has been long presumed to have been a pond feature, potentially associated with the remodelling of the area in the later Tudor period. The addition of Trench 15 and probing with a road iron has provided a good understanding of the position and extent of the wall F801 and reinforced its re-interpreted as a garden wall.

In keeping with the work of previous seasons, all data has been recorded by community participants using a web accessible relational database. This can be explored by following the links throughout the report (and in Appendix 1).

In total, the project received approximately 275 visitors who took place in the guided tours. 164 individuals joining the archaeological team in the trenches. A virtual site tour and digital crowdfunding contribution levels resulted in a further 276 bookings from 18 different countries online. The project succeeded in attracting a new audience for archaeology, with 67% of the in-person participants and 31% of the virtual audience members, having never taken part in archaeology activities before.

As the project moves into the fifth and final year, an Updated Project Design has been produced (bound separately) distilling these results into proposals for four evaluation trenches to characterise possible garden features, to recover dating evidence relating to the different phases of use of the gardens, and to assess the archaeological survival of the Tudor Gardens.

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1 INTRODUCTION

1.1 Project background

1.1.1 DigVentures were invited by Sudeley Castle Estate to undertake a crowdfunded community-based archaeological research project in the Sudeley Castle Gardens to the east of St Mary's Church (hereafter 'the site'; Figure 1). Following consultation with the landowners and Natural England, a project model was devised according to the MoRPHE framework (Management of Research Projects in the Historic Environment, Historic England 2015). This approach has been used to design a multi-staged field research project, encompassing an evaluation and assessment stage and a final publication and presentation stage.

1.1.2 The information contained in this report encompasses third year of evaluation and assessment, completed between 18th and 30th October 2022. The site is designated a Grade II* Historic Park and Garden (List Entry: 1000784) and situated within an area of high significance Natural England SHINE site (GC267). As such, the Project Design (Jago et al 2022) was reviewed by Jo McAllister, Historic England, Toby Catchpole and Rachel Foster, Gloucestershire County Council. The results presented in this report detail that work and have been circulated for peer review and consultation with the wider specialist team.

1.1.3 This document is one of several archive and dissemination products generated by the project, including the digital archive and metadata, the paper archive and the artefact and environmental material recovered and recorded. All archive material is currently held by DigVentures and will, when the project is complete, be deposited with the landowners and freely disseminated through the Historic Environment Record, Gloucestershire,, OASIS and portal project microsite (<https://digventures.com/projects/sudeley/>).

1.2 Project scope

1.2.1 The overarching aim of the fieldwork was to provide a baseline information to contribute to the future management, research and presentation of the site, creating multiple educational and participatory learning experiences for community participants. This was achieved through a community-based archaeological research project designed to understand:

- the extent and significance of the surviving archaeological remains relating to the Tudor gardens and associated garden features.
- the chronology and phasing of the site.
- the nature of the earthworks in relation to excavated archaeology, refining the results from previous investigations and earlier archaeo-topographic and geophysical survey combined with LiDAR and test pit data.
- the site's archaeological and palaeoenvironmental conditions.
- the potential of the archaeology to contribute to syntheses on the form, development and significance of Tudor Gardens.

1.2.2 In addition to the archaeological research objectives, the development stage of the community project aims to raise awareness to the site and its story, engaging actively

with the public throughout. This will be achieved through the involvement of community participants in the archaeological investigations and a public activity programme running alongside.

1.3 Public impact

- 1.3.1 This phase of the project was funded exclusively through public crowdfunded contributions, excavation team assisted throughout by crowdsourced voluntary public participation. Over the course of the 2022 season, 164 adults and children took part in the site activities (dig or geophysics) and 275 castle visitors joined tours out to the trenches, reaching over 100 visitors on the busiest day which saw three site tours for students (year 8) from Winchcombe High School. DigVentures organised a Virtual Tour (45 mins) with 270 participants booking places.
- 1.3.2 During the field investigations, the Sudeley Castle and Gardens archaeology project reached a minimum of 52k individuals on Facebook, 9.9k individuals on Instagram, and 11.9k impressions on Twitter. The average engagement rates were 5% on Facebook, 6% for Twitter, and 10% on Instagram. In addition, there were 213 unique visitors to the [project microsite](#) with more in-depth information including background information, the Dig Timeline, and reports.

1.4 Site description

- 1.4.1 Sudeley Castle is situated on the east side of River Isbourne, a north-flowing tributary of the Warwickshire River Avon in the Cotswolds approximately one mile east of Winchcombe and eight miles north east of Cheltenham, Gloucestershire, England (Figure 1). Located on the western side of the limestone Cotswold escarpment, the site has only received limited archaeological investigation, despite now functioning as a heritage attraction. Sudeley Castle stands in an area of Charmouth Mudstone Formation of the Early Jurassic epoch, in the valley of the Beersmoor Brook, a tributary of the River Isbourne, as it cuts through the limestone, mudstone and siltstone of the Cotswold plateau.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Historical background

- 2.1.1 Sudeley Castle stands at the base of the edge of the Cotswold limestone plateau, well-known as a very rich archaeological landscape. A large number of Neolithic long barrows are known from the surrounding region, such as Belas Knap, worked flints were recovered from around Boilingwell, with prehistoric pottery recorded at Stancombe Wood (GCCHER: 9104, 9108, 9133). Iron Age forts are known at Nottingham Hill, Spoonley Wood, Wadfield Farm, Winchcombe Secondary School and farmsteads at Almsbury, (GCCHER: 20493), while residual Romano-British material from a number of sites across Winchcombe indicates a wide spread of settlement (Cox 2014). A probable Romano-British villa with underlying Iron Age activity may also have been recorded during the pipeline scheme as it crossed Dunn's Hill (GCCHER: 2178). Emma Dent also reports tesserae being found at 'Sudeley Lanes Farm', which could be possibly Sudeley Lawn Farm or Lanes Barn to the east of Sudeley Castle, and also at the lodge site further to the east, while a Roman tombstone or altar stone was

recovered from Stancombe Wood and coins found at various locations around the estate (Dent 1877, 15; GCCHER 2117).

- 2.1.2 In the mid-9th century, Sudeley was the property of King Ethelred. The estate was rich in oak trees and included a royal deer park. Unusually, the property was not confiscated after the Norman Conquest, but remained in the de Sudeley family, descendants of Ethelred. In 1441, Ralph Boteler (d 1473), Admiral of the Fleet, was created Baron Sudeley. His projects included the rebuilding of the Castle and the construction of St Mary's chapel, the Banqueting Hall, the Great Barn, and the Portmare Tower. Following Lancaster's defeat in the Wars of the Roses, in 1469 Boteler was forced to sell the Castle to Edward IV.
- 2.1.3 Architectural analysis of the surviving structure has suggested that the earliest standing elements date to the fifteenth century, although a castle is documented at Sudeley from 1139. The castle is recorded in relation to a number of conflict events during the 'Anarchy' period, apparently as a wider hub of engagements in and around the town of Winchcombe, including Hailes and Postlip. In terms of Late Medieval archaeological evidence, there are 15th century structural remains at Sudeley Castle, the nearby 'Grange' building (Ellis 2008, 88) and the buildings at the 'St Kenelm's Well' complex (SP 0431 2770), which includes the nearby remains of a medieval chapel incorporated into a 19th century house (GCCHER: 2170).
- 2.1.4 Architecturally there is no known fabric at Sudeley Castle that pre-dates the 15th century, and extensive remodeling of the complex in the post-medieval period means that an assessment of the castle's original form and date cannot be ascertained. John Leland who visited Sudeley in 1542 indicated the presence of a manor house at the site of the Castle and that 'the platte is yet seene in Sudeley Parke where it stooode' (Dent 1877, p.58). Emma Dent, who lived at Sudeley Castle, indicated that the location of the possible manor house was potentially known, stating that the 'spot where the Manor-House once stood (as named by Leland) has always been traditionally indicated in the raised broken ground in the field called the Hop-yard, and is distinctly visible from the East Terrace' (1877, p.59). Emma Dent claimed that there was 'a tournament or tilting ground in the vicinity of the Olde Manor House measuring about sixty by forty pace's (ibid p.77).
- 2.1.5 The Gloucestershire Sites and Monuments Record indicates that there was a Manor House present in the area from the Saxon period through to the reign of King Stephen in the 12th century, which is thought to have been located in a field called the Hop-Yard, beyond the east terrace of Sudeley Castle (GCCHER: 2169). This location was investigated by Emma Dent, resident of the Castle during the latter part of the 19th century. Dent combined history, historiography and antiquarian investigation in her work on the Castle and Winchcombe, the Annals of Winchcombe and Sudeley (1877). As part of this, Dent aimed to locate the site of the Manor House that Leland reported seeing. To this end, Dent funded an investigation in 1875, comprising a 'cutting' made to the east of Sudeley Castle 5 under the supervision of Canon Lyson. The excavations recorded the foundations of houses, roads and walls that were interpreted as 'Saxon' in date (Dent 1877, 59, 77). Dent states that 'as the houses of the gentry up to this time and to a much later period, were built chiefly of wood we were not surprised when excavating, in the summer of 1875; the traditional site of the ancient Manor-House to find only debris of foundations and walls' (1877, p.77). Derek Maddock (current Sudeley Castle Archivist) considers that there is no other evidence for the

location of the Manor House other than Dent's work (pers comm). The HER records that the feature published as Manor House (site of) is a 1.6m high irregular shaped mound, grass covered and tree planted and may represent a spoil heap from Lyson's excavations.

- 2.1.6 Jean Bray (previous Sudeley Castle archivist) has indicated that Emma Dent was reputedly looking for the remains of a Saxon Palace/Manor House which may have been the residence of Goda the daughter of Æthelred. Emma interpreted the high-status architecture which was purportedly discovered during the 1875 excavation as belonging to this Anglo Saxon residence (pers comm). This interpretation is what was subsequently recorded on the 25" 1st edition Ordnance Survey map of 1884, presumably as a result of Dent's work. Unfortunately, perhaps as a result of having had an operation in April of the same year, there is no reference to the Hopfield / Hop Yard excavation in Dent's 1875 personal diary, despite various comments concerning Roman digs at Wadfield, Humblebee and Spoonley in previous years (Derek Maddock pers comm). There is an archive of artefacts which relate to Emma Dent, presumably objects she collected from the estate, although none appear to have been recovered during the 1875 excavations. There are a number of clay pipe fragments, the earliest of which are Elizabethan, and some stone implements found from the upper slopes of Humblebee, Belas Knap and Farmcote (Derek Maddock pers comm).
- 2.1.7 Areas of earthwork remains of medieval ridge and furrow are visible in the area around Sudeley Castle. Although the remains of a reputed deserted medieval settlement and Manor House have been supposedly identified to the east of the castle, this interpretation has been challenged by the suggestion that some of these elements may relate to formal gardens connected to the castle (GCCHER: 2169).
- 2.1.8 Leland notes that Winchcombe Abbey formerly held the hillfort at Towbury Hill, identifying it as a castle with double ditches and formerly held by King Offa or Kenulph, although there is no evidence of medieval occupation (Toulmin Smith 1909, 135). It remains possible that references to a castle at Winchcombe may relate to the fortification at Sudeley due to the site's proximity to the town. The extensive park at Sudeley was extant by the 16th century, and the alignment and some of the fabric of the inner park wall may be medieval in origin (GCCHER: 2175), and while the fabric of the outer park wall is probably late post medieval in date, it may too follow a medieval predecessor.
- 2.1.9 Major rebuilding programmes began at the castle under Ralph Boteler in the 15th century, and the church or chapel of St Mary was also constructed or rebuilt at this time (Dent 1877, 118-9), while the 'Tithe Barn' west of the castle also dates architecturally to this century. Leland makes specific reference to the rebuilding of Sudeley Castle by the Boteler, but that it was subsequently sold to Edward IV when the loyalties of the family were suspect and had fallen into ruin by the c.1540 when he visited, having been granted to Winchcombe Abbey by Henry VII (Dent 1877, 136; Toulmin Smith 1908, 55-6). The castle would subsequently become home to the Seymour family, and Henry VIII's final wife Catherine Parr was buried in the Church of St Mary in Sudeley in 1548 having married Thomas Seymour following the king's death in 1547. The future Elizabeth I and Lady Jane Grey also briefly stayed at the castle during this time. Under Queen Mary the castle would pass to John Brydges, 1st Baron Chandos.

- 2.1.10 During the reign of Elizabeth I it was his grandson Giles the 3rd Lord Chandos who entertained the Queen on three occasions. The first visit was in August or September 1574 in her progress westward to Longleat, Bristol and Wilton. The second visit was in 1575 on her way to Woodstock. It was between the second and third visits that the country was threatened by the Spanish Armada. Lord Chandos was appointed to collect an army to defend the young trees of the Forest of Dean. Perhaps in recognition of this the Queen visited again in 1592 after the defeat of the Armada (Derek Maddock pers comm). A spectacular three-day feast was held to celebrate the anniversary of the defeat of the Spanish Armada in 1592 (Kolkovich, E. 2016. pp. 73-8). The Queen was welcomed on Saturday with a pageant, especially written for the occasion, followed by bear and bull baiting, mummers, jousts and feasting (Derek Maddock pers comm). On Sunday there was dancing and a specially written play was performed. The High Constable of Cotswold should have been presented the next day but it was too wet. The three-day party has been described as one of the longest in history (Derek Maddock, pers comm). Elizabeth I was in her eighties when she came to Sudeley in 1592. The celebratory banquet is likely to have been a small select affair involving the local aristocracy in a banqueting house. There are no references to the types of garden used for the party events other than a single mention that they are in a garden (Brydges 1815).
- 2.1.11 In the English Civil War, the castle was subject to two major sieges and left ruined in the aftermath. In 1649 Sudeley was slighted by Cromwell's forces. Huge fines were paid and carpenters and stone masons were brought in from the Forest of Dean and removed the wood and stone. The house was systematically dismantled and the stone banqueting house ruined. (Derek Maddock pers comm).
- 2.1.12 The castle was left to ruin until it was purchased in the 1830 by the Dent family who set about the renovation of buildings and gardens, and was later developed as a heritage attraction in the later 20th century (GCCHER: 13732). The area north-west of the castle was utilised as a prisoner-of-war camp during the Second World War (GCCHER: 22898). The title of 'Lord Sudeley' was also revived in the 19th century, but the family seat was established at nearby Toddington Hall.

3 RESULTS OF PREVIOUS FIELDWORK

3.1 Cartographic, topographic and magnetometry survey

- 3.1.1 There is very little early cartographic material for Sudeley or Winchcombe, and even the available tithe mapping lacks information for much of the area. A key feature depicted on early 1st edition 25" maps is an antiquarian identification of the 'Manor House (Site of)' in a square earthwork feature in a field to the east of Sudeley Castle. Analysis of available LiDAR data gives a clear impression of the level of archaeological earthwork preservation in the vicinity of the castle. This includes a range of enclosure forms to the east and south of the castle. There are also surviving fragments of ridge and furrow cultivation, including sections of at least three adjacent furlongs to the east of the castle. A map held by Gloucestershire County Council Archaeology Service depicts Sudeley Castle in 2004 and suggests evidence of buildings in Hop Field, although the lack of a key means it is unclear as to the meaning of other map symbols.
- 3.1.2 During 2014, the University of Exeter carried out an extensive topographic and geophysical survey (Fradley et al 2014). This revealed many anomalies suggestive of

successive phases of activity. The topographical survey indicated that the overall level of preservation of archaeological earthworks at Sudeley Castle is excellent, in part a result of its use as a parkland landscape and an extended period of abandonment as a high-status residence between the 17th and 19th centuries. The key areas of activity can be seen to the east and south-east of the surviving castle structure. The large field to the east of the castle contains the most complete and intricate earthwork complex surveyed, although elements of these complexes continued into the field to the south.

- 3.1.3 Magnetometer survey of the environs of Sudeley Castle identified several additional features of archaeological interest. To the east of the castle the results of the survey were surprisingly limited given the extent of archaeological earthwork preservation. The dominant feature is the extensive linear anomaly running primarily east-west across the site which is iron pipework from the Sudeley Castle water management system. Across the rest of the field a small number of linear features toward the south-eastern corner of the surveyed area correspond with earthwork features recorded as part of the topographic survey.
- 3.1.4 The earthwork remains of a network of formal gardens on the eastern side of the castle, and continuing around its southern and possibly its western face. The clearest evidence is visible set within a large rectangular enclosure on the eastern side of the castle, which have previously been misinterpreted as medieval settlement earthworks (Ellis 2008, 88; GCCHER: 2169), with evidence of a range of sub-divisions into trackways and rectangular garden beds. Excavations by Emma Dent in the 19th century identified the foundation walls of a masonry structure within the north-eastern mound which she interpreted as 'Saxon'.
- 3.1.5 The form of these gardens is comparable with other examples dated to the 16th or early 17th century, as can be seen in many of the examples recorded by Atkyns (1712). The documented conflict at Sudeley in the 1640s and slighted by Cromwell in 1649 provides a highly probable date for when these gardens abandoned. The form of this garden layout subsequently influenced the form of the gardens laid out when Sudeley Castle was re-established as an elite residence in the 19th century. The Church of St Mary was 'restored' in the 19th century, but dates originally to the 15th century, and like the adjacent castle very little is known about its earlier history. It appears that any rural medieval settlement that existed in the vicinity of the church may have been cleared ahead of the development of this garden system. In the 20th century along the length of the balustrade at the boundary of the Queen's Garden two extensive trenches were excavated previously with a gap of 2m between to bury an architectural artwork. All the ground was found to be disturbed behind the balustrade filled with Cotswald limestone fragments. This area was probably made ground relating to the construction of the later garden (Peter May, Groundsman, pers comm).
- 3.1.6 The surveys have indicated that Sudeley Castle was largely remodeled during the 15th and 16th century, leaving few details of its form in the 12th century. Although some possible areas of high potential for future research have been identified which aim to evaluate both the survival and significance of archaeology relating to the development of the Tudor gardens and banqueting house and the contribution that its archaeological evidence could provide to a broader understanding of the landscape, historical and cultural context concerning the creation of these types of gardens (Section 4). The scale and quality of archaeological preservation in the vicinity of the

castle is otherwise excellent, and contains a range of evidence from the Neolithic through to the present.

3.2 2018 test pits

3.2.1 A test pitting exercise was undertaken by DigVentures with community participants in October 2018. Five test pits were excavated in the Sudeley Castle Gardens to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure believed to relate to a Tudor Garden and a banqueting house. The aim was to characterise the structures, recover potential dating evidence relating to their different phases of use and to assess the archaeological survival of the Tudor Garden and banqueting hall (Noon et al 2018). The fieldwork established the depth of archaeological remains buried across the site and has informed the positioning of three new evaluation trenches.

- Test pit 1 was positioned over the top of a linear earthwork possibly representing the northern walkway around the Tudor Garden and on top of a linear geophysical anomaly (on a different alignment) that may be an old water pipe to supply the castle.
- Test pit 2 was positioned over the mound in the north east corner of the garden, labelled on early maps as the site of a Manor House.
- Test pit 3 was positioned over a large mound adjacent to existing castle garden that may once have been a centerpiece to the original garden possibly a water feature.
- Test pit 4 was positioned to investigate earthworks in the middle of the field that were potentially garden features and to see if there was any masonry associated with them.
- Test pit 5 was positioned over the possible site of a Manor House.

3.2.2 The test pit results broadly correspond with the results of the earthwork and magnetometry survey (Fradley et al 2014), confirming the existence of a raised platform and possible garden features likely to relate to an earlier Tudor Garden and a raised mound that was believed to potentially relate to a banqueting house.

3.2.3 Test pit 1 was dug to a depth of 0.48m and revealed a raised bank likely to relate to the northern walkway around the Tudor Garden platform but a possible water pipe was not located. It contained finds of animal bone, tile, a nail, three dressed stones and a stone with traces of mortar, all consistent with general gardening activities located on and around the platform.

3.2.4 Test pit 2 was dug to a depth of 0.94m and revealed a raised bank with a line of stones observed in the section that were roughly dressed. The fill was very mixed indicating that it was either a constructed mound believed to potentially relate to the site of a banqueting house or backfill from a previous excavation interpreted as medieval settlement earthworks and Manor House (GCCHER: 2169, Dent 1877, 59, 77). This interpretation was changed after results of 2021 fieldwork.

- 3.2.5 Test pit 3 was dug to a depth of 0.48m and revealed layers of clay probably relating to the construction of a mound that may have been a centrepiece to the original garden, but a possible water fountain was not located.
- 3.2.6 Test pit 4 was dug to a depth of 0.38m and revealed layers of silty clay with evidence of disturbance probably relating to the construction of garden features with associated masonry comprising several flat stones in the northeast corner that may have been deliberately placed. Finds of an animal tooth, flint, clay pipe and two fragments of nails were not related to any particular features and are consistent with generalized garden activity.
- 3.2.7 Test pit 5 was dug to a depth of 0.56m and revealed a raised bank believed to be a constructed mound either relating to the site of a Manor House or banqueting house

3.3 2019 excavation

- 3.3.1 Two trenches were excavated in 2019, situated to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure likely to relate to a Tudor Garden and a banqueting house. The aim of the fieldwork was to characterise the structures, recover potential dating evidence relating to their different phases of use and to assess the archaeological survival of the Tudor Garden and banqueting house (Noon et al 2019).
- Trench 6 was located to investigate a raised platform and possible garden features likely to relate to an earlier Tudor Garden.
 - Trench 7 was located to investigate a raised mound potentially related to a banqueting house.
- 3.3.2 Trench 6 revealed an outer bank probably functioning as a walkway and an inner bank surrounded by puddle clay lined water filled ditches functioning as a centre piece and probably a very grand water feature such as a fountain been fed by a well. Similar garden layouts have a central water feature or fountain such as Kennilworth (Paula Henderson pers comm).
- 3.3.3 Trench 7 revealed that the mound in the northeast corner was made up of a raised platform with two structural walls and a possible floor with a possible contemporary drain. The walls were interpreted as a building structure. The walls went through a process of collapse which was then robbed out by an antiquarian excavation in 1877 by Canon Lyson funded by Emma Dent. These trenches appear to have removed approximately half of the mound which is likely to now be backfill from Canon Lyson's excavations with the remains of a Tudor raised garden platform and possible banqueting house constructed on top. Based on the 2019 excavations the platform and what was believed to be building remains looked like it fit the classic profile for a banqueting house with hardcore to build up the mound with a clay capping and a small building often 9m x 6m which would comfortably sit on the platform (Paula Henderson pers comm), however, following 2021 fieldwork this interpretation was changed and is discussed below.
- 3.3.4 The Tudor Garden went into a disuse phase after 1649 when the castle was slighted by Cromwell's forces and was then abandoned with the land given over to agricultural activities until it was purchased in the 1830 by the Dent family who set about the

renovation of buildings and gardens. During this renovation material was dumped in the upper fills of the ditches Trench 6 mainly comprising of greenhouse with material continuing to be dumped until 1941 representing convenient levelling activity in the hollows of the ditch. The material finds indicated that the site has been disturbed over time both through the development of the site as a Tudor Garden extension with later agricultural activity and dumping episodes particularly a 19th century greenhouse and including material from renovation activity from 1830.

3.4 2021 excavation

3.4.1 Four trenches were excavated in 2021, situated to the east of St Mary's Church and over an area of earthworks including a rectangular enclosure believed to relate to a Tudor Garden and a banqueting house (Figure 1). The aim of the fieldwork was to characterise the structures, recover potential dating evidence relating to their different phases of use and to assess the archaeological remains of the Tudor Garden and banqueting house (Noon & Casswell 2020, Jago et al. 2022).

- Trench 8 reopened the eastern end of Trench 7 and extended north, east and south to understand the deposits surrounding the wall identified in 2019.
- Trench 9 was located over a linear earthwork that was initially interpreted as being a walkway between twin banqueting halls.
- Trench 10 was a 3 x 2m test pit excavated approximately 8m north of Trench 8 and investigated the edge of the mound.
- Trench 11 was a test pit located approximately 15m south of Trench 8 and targeted the continuation of the wall (F801) to the south of Trench 8.

3.4.2 Trench 8 revealed a greater length of the wall F801 identified in Trench 7 during the 2019 season. No further evidence was found within Trench 8 to suggest a floor surface either side of the wall, the interpretation of the wall forming part of a banqueting house has been discarded. The wall was re-interpreted as a garden boundary wall, demarking the edge of a Tudor formal garden. The wall was demolished and covered when the garden was converted to a wilding or water garden in a later Tudor period. The north extension of Trench 8 revealed evidence of Victorian trenches.

3.4.3 Trench 9 demonstrated that the mound it targeted was constructed in a single phase, and the material used was sourced from one location. It is possible that the material was sourced from a feature to the east that may have been a pond. There was a lens of gravel underneath the topsoil which may have been the walkway.

3.4.4 Trench 10 found more evidence supporting Victorian remodelling and disturbance in the mound. A cast iron drainpipe, and the surface of a Victorian trackway were identified.

3.4.5 The addition of Trench 11 and probing with a road iron has provided a good understanding of the position and extent of the wall F801 and aided in its re-interpreted as a garden wall.

4 PROJECT AIMS & OBJECTIVES

4.1 Background

- 4.1.1 The overarching aim of the archaeological research was to define and characterise the physical extent of the earlier Tudor Gardens and banqueting house through a program of evaluation trenches in order to obtain baseline data that will facilitate its future management, presentation and enjoyment. Four key research aims were identified with a series of objectives which would facilitate evaluation of the survival and significance of archaeology relating to the development of the Tudor gardens and garden features at Sudeley Castle. In addition, research aimed to understand the potential for extant archaeology to provide a broad understanding of the landscape, historical and cultural context concerning the creation of these types of gardens. Our fifth aim articulated the project's ambition to embed community training and participation at its centre. The aims and objectives presented below provided the research and engagement framework for the 2019 archaeological investigations.

4.2 Aims and objectives

- 4.2.1 The overarching aim of the project was to define and characterise the physical extent of the site through a programme of non-intrusive and obtrusive investigation to obtain baseline data that will facilitate its future management.
- 4.2.2 Aim 1 – Define and establish the physical extent and character of the Tudor gardens and associated garden features through non-intrusive survey. This aim was built on previous topographical and geophysical survey work, combined with LiDAR survey overlays in order to establish the layout of the garden and its landscape context. The south of the gardens are obscured by overburden consistent with the disuse of the gardens post-1649 and the utilisation of that area for agricultural purposes up to 1830.
- 4.2.3 The previous results were used to support plans for interventions and enabled us to determine likely features for targeted trenching and addressed the following questions:
- Q1: Can the layout of the site and associated sub-surface archaeology be established by remote survey?
 - Q2: Can we identify any phasing in the topographic or remote sensing anomalies indicative of an extended period of use?
- 4.2.4 Aim 2 – Excavate earthwork and remote sensing anomalies to further understand the date, form and chronology of the Tudor gardens and garden features. In the light of the evidence base collated for Aim 1, this aim was addressed with targeted trenches to answer the following questions:
- Q3: What is the landscape setting and character of the Tudor gardens of Sudeley Castle Estate, and how did this shape its design and development?
 - Q4: To what extent do the archaeological remains at the site survive, and what is the potential of these gardens to inform a greater understanding of the landscape context including their relationship to the garden and other castle buildings?

- Q5: Can we refine the chronological narrative for the site, including the presence of earlier and later features and structures, as defined in Aim 1?
- Q6: Can we understand the date, form and motivation for the creation of the garden and later redesigns of it?
- Q7: Building on previous work undertaken, can we build an understanding of the historical and cultural context of the gardens?

4.2.5 Aim 3 – To understand the site’s archaeological and palaeoenvironmental conditions. This aim comprised the assessment of archaeological finds and samples recovered during excavations, using appropriate palaeoenvironmental and archaeological techniques to establish preservation and significance.

- Q8: What is the current state of the archaeological and palaeoenvironmental material across the site?
- Q9: How well do deposits and artefacts survive, and how deeply are they buried?
- Q10: What is the range and spatial patterning of artefacts recovered from the gardens and can this inform our understanding of the use of the landscape and utilisation of wider resources?
- Q11: Can we increase our understanding of the structures and environment of the Tudor gardens at Sudeley Castle Estate?

4.2.6 Aim 4 – Making recommendations, undertaking analysis and publication. This aim required all data from Aims 1-3 to be collated, with an integrated analysis of the archaeological and palaeoenvironmental resource at Sudeley Castle Estate to make 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?

4.2.7 Aim 5 – Creating opportunities for people and communities. In addition to the archaeological research of the project, achieving public engagement and benefits for the local community members, school children and visitors to the area to get involved and learn more about the archaeology of Sudeley Castle Estate were key targets embedded within this project.

4.2.8 As part of the overarching project, volunteers were provided with opportunity’s which an important component of the defined aims. Key objectives included:

- Engaging volunteers in undertaking archaeological investigation and delivering educational activities.

- Training volunteers in archaeological fieldwork, incorporating workshops and masterclasses, and provide training in post-excavation analysis and digital recording techniques.
- Providing access to the site via guided tours around the archaeological trenches to introduce the importance of the site.
- Co-producing a digital archive and resource for the project website with community participants.
- Creating and broadcasting social media updates about the archaeology and our finds so everyone can follow the excavations as they progress.
- Providing access to artefacts via a pop-up finds room to enable visitors to experience and learn about post-excavation processes.

5 METHODOLOGY

5.1 Project model

- 5.1.1 The archaeological fieldwork was carried out in accordance with the methodology defined in the Updated Project Design (Jago et al 2022). All work was undertaken in conjunction with best practice, national guidelines and published standards (CIfA 2014).

5.2 Excavation methodology

- 5.2.1 Excavation took place between 18th and 30th October 2022, principally designed to address the research questions associated with Aims 2 and 5 (Section 4.2). This entailed a program of targeted interventions outlined in the Updated Project Design (Jago 2022). Four trenches were excavated in 2022, situated to the east of St Mary's Church and over an area of earthworks including a sub-circular area believed to relate to a Tudor Garden and a possible central viewing platform or associated with a central water feature (Figure 1). The aim of the fieldwork was to characterise the elements and features of the garden, recover potential dating evidence relating to their different phases of use and to assess the archaeological remains of the Tudor Garden (Duensing et al. 2022, Jago et al. 2022).
- 5.2.2 All trenches, except contingency Trench 15, were located using a GPS prior to the commencement of work using the results of pre-existing non-invasive survey data (Fradley et al, 2014) and a programme of test pitting. The extents of all the trenches were recorded with a GPS after excavation. Machine excavation of trenches 12 and 13 was carried out using a 8 tonne 360 tracked digger, fitted with a toothless ditching bucket, removing the overburden to the top of the first recognisable archaeological horizon, under the constant supervision of an experienced archaeologist. Trenches 14 and 15 were deturfed and topsoil removed by hand.
- 5.2.3 Trenches were subsequently hand-cleaned, planned and photographed prior to hand excavation. 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.

- 5.2.4 A complete drawn record of the trenches comprised of both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights were produced. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix 1. 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 (ie Trench 6, 6001+, Trench 7, 7001+). Features have been specified in a similar manner, pre-fixed with the letter F (ie Trench 6, F601+, Trench 7, F701+). It should be noted that this convention was continued on for consistency across the records, however, where a single feature extends across more than one trench, the initial feature number has been retained in an attempt to minimise the duplication of records and for clarity for the wider site interpretation.
- 5.2.5 All interventions were surveyed using a dGPS tied into the Ordnance Survey grid. All recording was undertaken using the DigVentures Digital Dig Team recording system. Digital Dig Team is DigVentures' bespoke, cloud-based, open data recording platform, designed to enable researchers to publish data directly from the field using any web-enabled device (such as a smartphone or tablet) into a live relational database. Once recorded, the born-digital archive is instantly accessible via open-access on a dedicated website and published to social profiles of all project participants (community, professional and specialist). Links to all individual trench, feature and context records are provided in Appendix A, from where all associated finds, samples, plans, sections, photographic records and 3D models can also be explored.

5.3 Animal bone

Hannah Russ

- 5.3.1 The vertebrate 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 (Hillson 2003; 2005). Quantification for mammal remains used the diagnostic zone method as presented by Dobney and Rielly (1988). 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. Sheep (*Ovis aries*) and goat (*Capra hircus*) and equid (*Equus* sp. - horse/donkey/mule) distinctions were also not considered. Fragments of 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.
- 5.3.2 This assessment was undertaken in line with published standards and guidelines (Baker and Worley 2019; ClfA 2014), the updated project design (Noon and Casswell 2021) and with reference to the South West England Research Framework for the Post-Conquest Medieval Period (Rippon and Croft 2008).

5.4 Ceramics

Stephanie Duensing

- 5.4.1 All artefacts collected in the field were recovered by hand. All hand-retrieved finds were examined. They were identified, quantified and dated to period. The artefacts were examined by eye or under x20 magnification. Fabrics were categorised and dated using appropriate published typologies for the specific material type for Gloucestershire county.
- 5.4.2 The results from assessment of this assemblage are discussed in relation to assemblages from other local and regional sites.
- 5.4.3 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).

5.5 Architectural stone

Elizabeth Foulds

- 5.5.1 The fragments of architectural stone were recorded in a Microsoft Access database. Where possible, all fragments were identified by material and object type using the FISH Thesaurus for materials, archaeological objects and periods. All fragments were described, counted, weighed and recorded in a single data table. Dimensions were recorded where object type could be established.
- 5.5.2 The architectural stone finds recording and reporting was completed in accordance with the national finds standards and guidance (English Heritage 2008, Chartered Institute for Archaeologists (CIfA) 2014; Chartered Institute for Archaeologists (CIfA) 2021).
- 5.5.3 References are made in text to 'SF' numbers and 'ID' numbers, which correspond to the data supplied in Appendix 3. Dates given in the data spreadsheet should be read as 'circa'.

5.6 Health and safety

- 5.6.1 All work was carried out in accordance with DigVentures' Health and Safety Policy and in line with standards defined in The Health and Safety at Work etc. Act 1974 and The Management of Health and Safety Regulations 1999, and in accordance with the SCAUM (Standing Conference of Archaeological Unit Managers) manual Health and Safety in Field Archaeology (1996) and DigVentures Health and Safety Policy.

6 EXCAVATION RESULTS

- 6.1.1 All digital context and feature records have been archived on the Digital Dig Team system and can be reviewed here: <https://digventures.com/sudeley-castle/ddt/browser.php>.

6.2 Introduction

- 6.2.1 During 2022 four evaluation trenches were investigated. The principal purpose of these excavations were to redefine and establish the precise physical extent and nature of any buried archaeology (Aim 2) and to establish the current state of preservation of the in situ archaeological and palaeoenvironmental material (Aim 3). Each trench was designed to address a specific research objective, and these are discussed with the excavation results below. Figures 1-3 shows the overall location of each targeted area, and Figures 4-9 provide illustration of individual trenches containing archaeological features and images of the features. Detailed descriptions of each context are included in Appendix 1, organised by trench number.

- 6.2.2 The Castle and Estate have been through numerous developments in the past c. 600 years. Queen Catherine Parr (1512-1548) is buried here beside St Mary's Church, and the gardens are thought to be the site of a Banqueting Hall used by Elizabeth I for entertaining. The focus of the 2022 excavation was also in the Hop-yard field. Four trenches were excavated targeting earthworks likely related to the later Tudor garden renovation. Trench 12 targeted a sub-circular anomaly and mound visible in LIDAR. Trench 13 investigated the remains of a north-south running wall identified in Trench 7, 8, and 11 in the 2019/21 seasons to further investigate the hypothesis that this was the remains of an earlier garden boundary wall. Trench 14 was located in a low-lying point to the east in Hop-yard field in what was thought to be possible fishponds, and it was intended to confirm this hypothesis. Trench 15 was located using road irons to determine any resistance indicating that the wall might have continued on the other side of the truncated ditch, to attempt to establish the southern limit of the earlier garden wall.

6.3 Trench 12

- 6.3.1 Trench 12 opened a large area to the west of the earlier boundary wall to understand some of the interior deposits within the bounds of the formal garden space. The trench was excavated by machine to remove of the topsoil and some of the subsoils. The trench was originally proposed to measure 20m x 10m but was reduced due to tree canopy and accessibility to be 20 x 7m on the NW end.
- 6.3.2 Respecting the southern edge of the break of slope on top of the mound there was a stone rubble linear F1201, which was the first feature identified in Trench 12. This was excavated to the west of the wall but did not appear to be part of an articulated structure. The mound itself F1202 was also investigated with an L-shaped intervention to establish a cross-section to show its composition and see if any dating could be obtained. The natural geology, (12009), was a cornbrash sedimentary stone, was observed at a depth of 0.37m with the garden soils (12008) and topsoil (12001) lying on top. Mound F1202 was built from a deposit of moderately compact clayey silt with frequent limestone pieces throughout, (12007), placed on top of the natural geology. No foundation cut for the mound F1202 or the stone rubble F1201 were observed.

There were two tree bowl cuts which were excavated to the north of the mound, F1203 and F1204. The tree bowl cut [12006] was to the NW and was deeper and contained a friable silty fill (12004). The tree bowl [12005] was to the NE and was less deep and contained a very compact silty clay fill (12003). Along the western break of slope of the mound was a rubble layer with highly organic deposits which were thought to possibly be an earlier garden path F1205 around the base of the mound F1202. Due to the limits of the tree canopy, the trench was only able to uncover about a 1m wide strip to the west of the mound, so this feature remains somewhat uncharacterised due to the limited visibility.

6.4 Trench 13

- 6.4.1 Trench 13 measured 16 x 5m and was positioned to target a possible water channel leading from large depressions to the east of the earlier garden wall F801, which are thought to be fishponds. Very little depth was excavated across the northwest and southeast portions of the trench, the topsoil (13001) was removed to expose the continuation of wall F801 in the NW corner of the trench, which was context (13008) in this trench. Additional probing with road irons suggest that the wall probably continues at least five metres further south of Trench 13, where it is then truncated by the ditch F1301. As was seen in Trench 8 in 2021, there were large dressed and carved stone fragments contained within the clay mound material covering over the wall F801 in this location as well. The stone from this trench also included many pieces with a ball rose(s) carvings which have been interpreted as mortifies often found in ecclesiastical settings. This again supports that the stone may have originated from Winchcombe abbey and may have been moved to the site during the dissolution of the monasteries. The stone carvings showed little signs of weathering which further supports that the stone from the rubble dumps are not demolition from the wall F801.
- 6.4.2 Ditch F1301 was a large SE-NW aligned depression which appears on LIDAR and connects to the possible fishponds to the east of the formal garden. Excavations confirmed this was a ditch of considerable depth, reaching 1.49m below current ground level at its deepest point.
- 6.4.3 A Victorian drainage cut, F1302, truncated the earlier ditch, F1301. The cut of this drainage was [13011] which was cut to the base of the earlier ditch where a horseshoe terracotta drainpipe SF82 was recovered. The Victorian land management excavations removed part of the wall rubble which was seen to slump into the earlier ditch fill, likely remains of the removed section of F801 during the renovations to the garden covering the earlier wall. This was then backfilled with a dense capping clay deposit (13016). This further reinforces the interpretation that the original function of the depression was to channel water towards the formal garden, and the later Victorian actions was an attempt to reclaim the landscape and prevent water ingress.

6.5 Trench 14

- 6.5.1 Trench 14 was located in a low-lying point to the east in Hop-yard field in what was thought to be possible fishponds, and excavation aimed to confirm this hypothesis. Beyond topsoil (14001) which was 0.16m thick, several layers of silty clay were identified (14002), (14003), and (14004). These layers cumulatively made up 0.78m of depth and were very similar to each other. The distinction in colour between them was highly diffused, which supports an interpretation that the area was silted up gradually

over time. The soil therefore displayed very similar characteristics in all layers encountered, becoming gradually more clay rich and waterlogged as the natural gravels were approached. Natural was identified at the base of the test pit (14005), 0.94m below ground level. The trench only had finds from the topsoil and subsoil which consisted of 4 sherds of 19th century pottery, some clay tobacco pipe fragments and ceramic building material fragments (i.e. brick, tile or drain pipe).

6.6 Trench 15

- 6.6.1 Trench 15 was a small 2m x 2m test pit excavated by hand approximately 7m east of the SE corner of Trench 12, and 12.5m south of where F801 exited the Limit of Excavation (LOE) in Trench 13 to the south. Trench 15 was located using road irons to determine any resistance indicating that the wall might have continued on the other side of ditch F1301, to attempt to establish the southern limit of the earlier garden wall. Wall F1501 was present in the trench and is almost certainly the continuation of F801, but probing indicated it abruptly stops just slightly south of this last trench LOE. Including all aspects of the wall which were excavated in the previous field seasons, this gives an overall length of over 60m to this earlier garden wall. Trench 12 and 13

7 ARTEFACTS

7.1 Summary

- 7.1.1 The excavations at Sudeley Castle Gardens yielded an assemblage of 114 pottery sherds (Appendix 2), 17 fragments of architectural stone, 52 metal objects, seven fragments of glass, 22 clay pipe fragments (Appendix 3), and 227 fragments of animal remains comprising mammals, birds and molluscs (Appendix 4).
- 7.1.2 The finds recovered from the excavations have greatly increased the understanding of the character of the site and provided preliminary dates to the construction of the gardens and subsequent activity occurring on site. The finds assemblage has been assessed by the appropriate specialists, the results are discussed below.

7.2 Architectural stone

Elizabeth Foulds

- 7.2.1 The assemblage of worked stone consisted of 17 fragments (9,490g) of stone in total, which were hand-collected over the course of the excavations. Fragments have been given a catalogue ID number to facilitate discussion (see Table 6). Most fragments were architectural and consistent with a medieval date of activity. All fragments were tentatively identified as limestone, were in good condition, and were found in three of the four excavated trenches
- 7.2.2 Fragments of stone carved moulding are the most frequent type of worked stone collected. The largest fragment is from a tracery (ID 31). One of the fragments has an attached ball flower (ID 43). Two of the fragments have traces of paint, plaster or limewash (ID 36 and ID 37). Six fragments of stone block or possible stone blocks were collected. These fragments all have at least one face and most exhibit tool marks. Some faces were finished smooth while others were textured. ID 38 has a rectangular channel cut into one of the faces that measures 9.3mm to 9.8mm. The mouldings and block fragments are all very consistent in appearance, stone type, and style. The

carved mouldings in particular are consistent with medieval architectural stonework and ball flowers are characteristic of Gothic architecture.

- 7.2.3 Three fragments are from roof tiles (ID 33–35). All three have partial attachment holes. These three fragments are very consistent in appearance and are slightly different to the stone used for the mouldings and blocks described above, as they were made from a slightly rougher material. These may be medieval in date.
- 7.2.4 There is one unidentifiable stone object that consists of a roughly circular disc with one smooth finished face (ID 1). It has a centrally placed perforation. Objects, such as this one, are sometimes described as spindle whorls, but it is unusual in form. It may be a fragment from some larger object.
- 7.2.5 The majority of the assemblage was collected from Trench 13, with smaller collections recovered from Trench 12 and 15. No finds came from Trench 14.
- 7.2.6 Trench 12 investigated the interior of the formal garden. The three roof tiles were recovered together from a layer (12010). The block fragment (ID 32) was found in a dump of rubble on the mound.
- 7.2.7 The investigation at Trench 13 aimed to excavate a possible water channel that may be related to the possible fishponds. Most stone finds were recovered from layer (13003), which was described as rubble possibly from the collapse of wall (13008). This includes five moulding fragments and three block fragments. The perforated stone object (ID 1) was recovered from the fill (13004) of ditch (13006) that may be slumped topsoil/subsoil.
- 7.2.8 Trench 15 aimed to locate the southern limit of the garden wall. Four fragments were recovered from this trench including two fragments of moulding (ID 36 and ID 37) both with traces of paint or plaster. There were also two possible block fragments, one of which had a channel cut into the face (ID 38). All were recovered from a rubble layer (15002) considered to be the results of a wall collapse or demolition.

Discussion

- 7.2.9 The assemblage mainly presents architectural stonework. Many of these stone fragments were decorative in nature, while others may have been more functional (i.e., the roof tiles, stone blocks). The moulding fragments are indicative of medieval architectural styles and the roof tiles would also fit in with this period. Ball flowers are a decorative element that began to be used as part of the Decorated Gothic architectural style of the later 13th century and flourished in the 14th century.
- 7.2.10 Similar architectural stonework was recovered during the 2021 excavations at Sudeley Castle (Foulds 2022). It is thought that stonework was brought from nearby ecclesiastical sites and was repurposed at Sudeley Castle for the construction of the Tudor banqueting house. Suggested sources have been Winchcombe Abbey (Benedictine) and Hailes Abbey (Cistercian), which were demolished following the dissolution of the monasteries by Henry VIII. Based on known construction dates, Hailes Abbey may be the more likely source as it was constructed in 1277, which places it within the Decorated Gothic phase start date, whereas Winchcombe Abbey was rebuilt in 1239, which places it within the Early English Gothic style dates. Early English Gothic style did not utilise ball flowers as a decorative element. Based on the ball

flowers present at Sudeley Castle, this may make Hailes Abbey the more likely source but this can only be tentative for now until additional work can be carried out on the assemblage. Further research on the architecture at both abbeys will be needed, including investigation of possible later building phases at Winchcombe Abbey and a characterization of the architectural styles present at both sites.

- 7.2.11 In addition to the chronological indicators and the connection with local ecclesiastical buildings, the architectural stonework has the potential to enhance our understanding of the Tudor banqueting house. Further analysis may help us to understand what the building looked like and whether specific elements were selected over others.

7.3 Metalwork

Stephanie Duensing

- 7.3.1 In total, 62 metal items were recovered, comprised of 57 iron (Fe) objects, one metal alloy button (12001), one aluminium pull tab, one brass shell casing (12001), and one lead (Pb) unidentified object. All metalwork was 19th century or recovered as residual finds from the unstratified material, topsoil (12001), (13001), (15001) and deposits (13002) and (13004), layers associated with the later use of the area in the 19th century. The material making up the assemblage is listed in a full catalogue of metalwork in the Appendix. A brief description of the notable metalwork finds of likely postmedieval antiquity is given below.

- 7.3.2 Iron nails make up the bulk of this assemblage, accounting for 49 out of 62 items. These were all recovered in 19th century or later deposits. A worn, ferrous arrowhead and a possible pen knife were recovered from topsoil (12001) in TR12, and an iron washer and part of a potential cast iron pipe in Victorian clay capping (13002) in TR13. The rest of the ferrous material was unidentifiable.

- 7.3.3 A 17th century silver cufflink featuring a flaming heart pierced by two arrows was also recovered from topsoil (12001) in TR12. Examples of this cufflink or button have been recorded on the Portable Antiquities Scheme database, with a description matching the one found exactly, except only one circular section was recovered from Sudeley in 2022,

"...the object consists of two circular button-like sections with designs of a flaming heart pierced by crossed arrows on each part. These are joined at their backs to a link which is sealed closed. Hearts form a common set of symbols on cufflinks from the post-medieval period, often in conjunction with other signifiers such as flames, arrows, blood or a combined symbol formed of these elements. A similar design bearing a crowned pair of hearts is associated with Charles II and the restoration of Stuart rule, or alternately with his marriage to Catherine of Braganza (as detailed in LON-131065)."

- 7.3.4 With the exception of the silver button, it is unlikely that further work would efficiently add to the understanding of the site or further address the questions in the project design. The material does not require any special conservation and retained material can be safely stored in a stable environment.

7.4 Clay pipe

Stephanie Duensing

- 7.4.1 In total, there were 22 fragments in the assessment weighing a total of 52.7g. Nine fragments were recovered from TR12, from topsoil (12001); five from TR13, four came from topsoil (13001) and one from (13002), fill of a 19th century or later clay capping overlying a Victorian horseshoe-drainpipe trench cut; and eight from TR14, all from subsoil (14002). The fragments belonged to different clay pipes dating from the 18th to 19th century AD. All of the fragments had low significance in terms of research aims of the site due to the superficial point of discovery.
- 7.4.2 It is unlikely that further work would efficiently add to the understanding of the site or further address the questions in the project design. The material does not require any special conservation and retained material can be safely stored in a stable environment.

8 POTTERY

Stephanie Duensing

8.1 Introduction

- 8.1.1 The assemblage totalled 114 artefacts weighing 434g (Appendix 2). Finds came from 10 stratified contexts. They could be dated by eye and are consistent with an early post medieval date. Condition for older material was moderate and abraded; this is likely to be due to a combination of the deleterious effects of the site soils as well as historic post-depositional disturbance. More recent material appears in moderate to good condition; this is likely to be due to a combination of the more robust material as well as less post-depositional disturbance.

8.2 Results

- 8.2.1 Fabrics consisted of 19 different types of coarse earthen ware and refined earthen wares. Refined wares made up the majority of the assemblage, accounting for 45% by count and 37% by weight of the total material recovered. The fabrics recovered are described by using the Gloucester TF Codes (<https://glospot.potsherd.net/docs/intro>) and are described in the catalogue below:

Late medieval onwards

TF41B Oolitic limestone tempered ware: The main inclusions are rounded oolitic limestone fragments up to several mm. across. There is very little quartz sand, and the surfaces often have a smooth texture, and micaceous glitter. Handmade and Wheel-thrown, reduced or oxidized although most commonly oxidized on both surfaces or totally.

TF52 Malvernian-glazed wares (unglazed element): often finer (fewer and smaller inclusions) than TF40 (above). Handmade or Wheel-thrown, oxidized or reduced, 12th to 17th century (Vince 1977a).

TF54 Micaceous, quartz-free, glazed wares: An iron-rich fabric, usually very fine textured and always having a distinct micaceous sparkle. Wheel-thrown and oxidized. Five groups can be recognized with this fabric, 15th to 18th century (Vince 1977b).

TF55 Late post-medieval yellow-glazed, cream-bodied earthenware: Inclusionless fabric with an even, clear lead glaze (appears yellow). Wheel-thrown or moulded, oxidized. (The glaze is usually crazed (covered with fine cracks) and some pieces are stamped on the base (Victoria Ironstone ware, Derbyshire), 19th to 20th century.

TF59 Later Surrey wares: Iron-free clay with fine sand temper and clear, or copper-stained-lead glaze. Wheel-thrown, often sparse glaze cover.

TF60 Black-glazed cups or 'Cistercian ware': Iron-rich fabric, with occasional sand inclusions. Wheel-thrown, usually overfired, thick, iron-rich glaze, usually very thin-walled vessels.

TF63 Miscellaneous flower-pot wares: Iron-rich clay, with or without sand inclusions. Wheel-thrown or moulded, oxidized.

TF66 Porcelain: Translucent fabric, white with glass-like fracture. Very finely made, little signs of manufacture, glaze is always total except for bases.

TF67 Staffordshire white salt-glazed stoneware: Iron-free fabric, fired to stoneware. Wheel-thrown, knife-trimmed.

TF69 Staffordshire, and Bristol 'creamware', and later whitewares: White inclusionless fabric. Wheel-thrown, total clear glaze, 19th to 20th century.

TF71 Staffordshire transfer-printed wares: White inclusionless fabric. Wheel-thrown, total clear glaze over many varieties of decorative patterns, colours and techniques, 19th to 20th century.

TF72 Staffordshire and Bristol moulded slipware: Variegated fabric, normally low iron content with brown and white slip cover which is then 'combed' giving a feathered pattern. Usually moulded.

TF74 Staffordshire and Bristol iron-glazed wares: The fabric varies from cream to buff, and from soft to very hard (almost stoneware) and is similar to TF58,72,73, in most cases. Some sherds are in a finer fabric. Wheel-thrown, with a thick, streaky glaze in shades of brown, but can be almost black. White slip used rarely for decoration.

TF77 Whieldon ware: Another Staffordshire product - a very fine white fabric with mottled grey-brown glaze. Wheel-thrown or moulded. Sometimes brown clay is mixed into the fabric to give a marble appearance (agate ware).

TF80 Ashton Keynes ware: Post-medieval, sand-tempered, kitchen wares. (Cirencester B fabric). Characterized by fine sand temper, iron and large limestone inclusions. Clear, iron-flecked glaze, 16th to 18th century.

TF99 Late Medieval jug fabric: Fairly iron-rich, sand-tempered (mainly milky quartz). Mainly hard-fired fabric. Wheel-thrown.

TF120 Wedgwood Black basalt wares: Very hard fabric with black, green or terracotta red polished surfaces, 18th to 19th century.

TF123 Denby type stoneware (fine): Very hard grey surface and core; dense texture, mid-19th century.

- 8.2.2 Trench 12: Three contexts in Trench 12 produced pottery from 15 different fabric types; the earliest of these contexts stratigraphically was possibly associated with the later Tudor landscaping activities. This context was the fill (12003) from an intentionally planted tree. There were two small fragments of pottery in this fill, one of which was from the medieval period (TF41B), which was very badly degraded indicating it was residual within the feature. There was also a fragment of Ashton Keynes ware (TF80), a common pottery type for the area from the 16-18th centuries. The mound deposit had a stoney deposit on the top (12007) which contained one frag of whiteware (TF69).
- 8.2.3 The rest of the material from Trench 12 was recovered in the topsoil (12001). The topsoil produced the bulk of the material from this assemblage, accounting for 56% of the total material collected. Fragments of two late medieval wares were recovered, two fragments of Micaceous, quartz-free, glazed wares (TF54) and three fragments of Late Medieval jug fabric (TF99), both common in the 15th century. The rest were 18th century onwards in date, clearly associated with the Victorian phase of use.
- 8.2.4 Five contexts in Trench 13 produced pottery from 15 different fabric types representing 33% of the total assemblage. These were all from contexts which dated to the 19th century, but did contain some earlier sherds, which likely shared a regional origin. Namely, one fragment of Malvernian ware was recovered which is in production between 12-17th century. Along with the two fragments of Ashton Keynes ware, this supports activities in the area overlapping with the 16th century proposed works on the Tudor garden space, later disturbed by Victorian activities.

8.3 Significance

There is relatively little that can be gleaned from an assemblage made up of material from secondary deposition. This assemblage produced insight in three key areas: first, it demonstrates that these soil horizons are in fact redeposited rather than natural; second, the ceramic evidence can help narrow down the periods of activity in the phases of relandscaping or construction; and third, it demonstrates the breadth of time and the wider range of materials which were in use in the surrounding area over time.

8.4 Conclusions

- 8.4.1 The artefacts are consistent with a late medieval and early post medieval date, and this is by far the likeliest scenario, but a later post medieval date cannot be wholly excluded due to the residual nature of the material.
- 8.4.2 Excluding the topsoil finds, this is a relatively modest assemblage and it is hard to offer certainties given the size and condition of the fragments. However, we can say that the fragments were residual at the time of deposition, likely from waste linked to activities from the estate and immediately surrounding area. Many of the earlier fabrics recovered are from utilitarian typologies whose function is linked with domestic

cooking and storage overwhelmingly, but could also relate to vessels used to carry traded commodities.

9 FAUNAL REMAINS

Hannah Russ

9.1 Introduction

- 9.1.1 Animal remains comprising mammals, bird and molluscs (227 fragments) were recovered via hand collection during the archaeological excavations (Appendix 4). Animal bone and shell recovered during excavations at the Site in 2018, 2019 and 2021 (SUD18, SUD19 and SUD21) have already been assessed elsewhere (Russ 2019; 2022). This assessment includes quantification of the animal bone and shell assemblages, identification at species level where possible, an assessment of significance and recommendation(s) for any further work.

9.2 Results

- 9.2.1 Animal bone (32 fragments, Table 8) was recovered from Trenches 12, 13 and 15 and included the remains of equid (*Equus* sp. – horse/donkey/mule), domestic cattle (*Bos taurus*), sheep/goat (*Ovis aries*/*Capra hircus*) and dog (*Canidae*). Some of the recovered fragments could only be identified within size-based clade (ungulate) and class (mammal) groups (12.5% by count, n=4). A longbone shaft fragment from a medium sized bird was also recovered from Trench 13, context 13009. No fish or amphibian remains were recovered.
- 9.2.2 Mollusc shell (195 fragments) included remains of marine, terrestrial and fossil taxa, Table 9. Two fragments of marine shell from Trench 12, context 12002 were from an edible/European oyster (*Ostrea edulis*). The terrestrial mollusc shells represented five species: the garden snail (*Cornu aspersum*), brown- and/or white-lipped snail (*Cepaea* sp.), strawberry snail (*Trochulus striolatus*), cellar snail (*Oxychilus* sp.) and amber snail (*Succinea putris*). Taphonomic assessment – animal bone

Bone surface preservation and fragmentation

- 9.2.3 Bone surface preservation varied throughout the assemblage from 'excellent' to 'very poor' (categories 1-5). Most of the specimens displayed 'good' surface preservation (65.6% by count, n=21). Fragmentation was moderate throughout the assemblage with some partial bones and teeth recovered and some re-fitting fragments of single specimens.

Butchery

- 9.2.4 Two bones from Trench 12 had evidence for carcass processing in the form of cut- and chop-marks. A cattle radius from Trench 12 context 12002 had chop-marks, while a sheep/goat humerus shaft from Trench 12 context 12010 had both chop and cut marks. Site-wide evidence for carcass processing was low.

Animal interaction

- 9.2.5 No evidence for carnivore or rodent activity was observed.

Pathology

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

Burning and calcination

- 9.2.7 Two fragments of burnt bone were recovered from Trench 13, context 13004. Neither specimen could be identified any further than being consistent with medium/large sized mammal.

Potential for measurements

- 9.2.8 No bones were sufficiently complete to allow measurement for size estimation.

Potential for ageing and sexing

- 9.2.9 No bones or teeth were suitable for estimating age at death or identifying sex.

9.3 Discussion

- 9.3.1 The mammal and bird remains recovered were consistent with those expected from archaeological sites in England dating from the Bronze Age onwards (Baker and Worley 2019, 3). They represent food waste, demonstrated by the presence of remains of animals associated with meat production with cut- and/or chop-marks, as well as working/companion animals, such as equid and dog. The oyster shell provides scant evidence for the consumption of marine resources sourced at some distance from the estate, adding to the evidence recovered during previous excavations at the site (Russ 2019; 2022).
- 9.3.2 Fossil shell material is consistent with that expected for the solid geology of the site and represent fossils disturbed from the solid geology through centuries of human activity at the site. Terrestrial mollusc shell was hand collected during excavations at Castle Park in 2021 and 2022. In total, 13 fragments of terrestrial molluscs shell represented 11 individual snails.
- 9.3.3 Five species were recorded, the white and/or brown lipped snail, garden snail, strawberry snail, an unidentified species of cellar snail and amber snail. Remains of the white and/or brown-lipped snail dominated the terrestrial snail shell assemblage; these are catholic species occurring in a wide range of environmental conditions and habitats (Evans 1972, 171-175). Combined with the difficulty in distinguishing members of this genus at species level from their shells, especially in juveniles (Evans 1972, 70), which form part of the Sudeley Castle assemblage, the white and/or brown-lipped snail remains do not provide any specific information that could contribute to the reconstruction of past environments at the Site. The garden snail, thought to be introduced to the British Isles by Romans in the first century CE (Evans 1972, 200), was the most frequently recorded species. This species is now widely distributed across England, associated with habitats created by people (synanthropic), i.e., they are rare in natural environments (Evans 1972, 201). The strawberry snail is considered a shade-loving species but is also associated with habitats created by people (Evans 1972, 176, 201). Single specimens of cellar and amber snail suggest the presence of damp

habitats, with the amber snail being recognised as a marsh species (Evans 1972, 199). Taken as an assemblage, the terrestrial snail are consistent with what might be expected in formal gardens close to human settlement/residence.

10 PAELEO-ENVIRONMENTAL

Rosalind McKenna

10.1 Introduction

10.1.1 A programme of soil sampling was implemented during the excavation, which included the collection of soil samples from sealed contexts. The aim of the sampling was:

- To assess the type of preservation and the potential of the biological remains
- To record any human activities undertaken on the site – both domestic and industrial
- To provide information on the past environment of the area
- To provide material for radiocarbon dating.

10.2 Results

10.2.1 A single flot from sample processing and a single hand-collected charcoal fragment are the basis of this investigation. Charred plant macrofossils were present in two of the samples and the results of this can be seen in Table 1 below. The preservation of the charred remains was very poor.

10.2.2 Indeterminate cereal grains were recorded within the sample and were identified based on their overall size and morphological characteristics and were the most abundant remain recorded.

10.2.3 The sample produced an extremely small suite of plant macrofossils, both in terms of quantity and diversity. Due to this fact, other than to state their presence in the samples and therefore the surrounding environment, nothing of further interpretable value can be gained.

10.2.4 Charcoal fragments were present in the samples, scoring a '2' on the semi quantitative scale. The preservation of the charcoal fragments was poor. Identifiable remains were however present in the hand-collected charcoal sample. The results of this analysis can be seen in Table 2 below.

10.2.5 The total range of taxa comprises oak (*Quercus*). This taxon belongs to the groups of species represented in the native British flora. A local environment with an oak dominant woodland is indicated from the charcoal from the site. As seen in Table 2, oak is the only identifiable recorded remain within the sample. It is possible that this was the preferred fuel wood obtained from a local environment containing a broader choice of species.

10.2.6 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.

10.3 Discussion

- 10.3.1 The samples produced some environmental material of interpretable value, with the plant macrofossils from one sample, and the identifiable charcoal remains from the hand-collected charcoal sample.
- 10.3.2 The remains of plant macrofossils recovered from the sample showed the presence of indeterminate cereal grains, a chaff fragment and an indeterminate weed seed. However, as they were recorded in such small quantities, other than to state their presence in the sample and therefore the surrounding environment, little of further interpretable value can be gained. It is possible to state that plant macrofossils were present and utilised at the site.
- 10.3.3 As 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.
- 10.3.4 The charcoal remains showed the exploitation of a single 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). 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). 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.
- 10.3.5 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.

11 PUBLIC IMPACT

Johanna Ungemach

Profiles for all project participants have been archived on the Digital Dig Team system and can be reviewed at <https://digventures.com/dig-team/sudeley-castle/> and by clicking on each individual profile.

11.1 Introduction

11.1.1 This section details the social impact of the Sudeley Castle and Gardens public programming for virtual and in-person visitors and project participants over the course of October 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).

11.1.2 Public engagement was integral to the project design of the Sudeley Castle and Gardens excavation as one of the project aims and objectives (Aim 5: Creating opportunities for people and communities). The project was designed to achieve 'public engagement and benefits for the local community members, school children and visitors to the area to get involved and learn more about the archaeology of Sudeley Castle Estate' by providing opportunities for volunteers. Targets for engagement also included 'daily guided tours around the archaeological trenches to introduce the importance of the site to Sudeley Castle visitors', and 'creating and broadcasting social media updates about the archaeology and [...] finds so everyone can follow the excavations as they progress' (Jago et al 2022, p19f).

11.2 Public programming

11.2.1 A carefully designed programme of public participation was planned for the course of the two weeklong project, creating different levels of engagement for adults and young people. Participation and training of venturers in the trench and the geophysics workshops were serviced to National Occupational Standards:

- Excavation training for adults (18th until 30th October 2022) – 54 participants
- Six 'DigCamps' for children (aged 6-11) and parents (20th, 21st and 22nd October) – 77 participants (88 bookings). Due to torrential rain, the DigCamp on the morning of the 21st was cut short and the afternoon session was cancelled. A different date was offered to families, but 11 chose not to attend.
- 'DigClub' for teenagers (aged 12-16) and parents (23rd October) – 19 participants
- Two Geophysics training workshops for existing participants (22nd and 23rd October) – 14 participants
- Daily site tours (18th until 30th October 2022) – 125 participants
- Three site tours for students (year 8) from Winchcombe High School (20th October) – approx. 100 participants

- Special site tour with author and historian Alison Weir (23rd October) – 50 participants
- Virtual site tour (26th October) – 270 bookings
- Digital engagement strategy for 6 digital crowdfunding contributors and the wider community

11.2.2 DigVentures' own digital engagement strategy for the excavation was designed to keep the digital crowdfunders, as well as 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/Sudeley-Castle/timeline/> (241 unique visitors for the duration of the excavation). Also available on the timeline, featuring several finds from the excavation, is the 2022 dig season wrap up (<https://youtu.be/cAUf8oavdds>). The excavation was further covered by the Tudor Places magazine in the November 2022 edition (issue 04), and by Radio Winchcombe with Beverley Harrell.

11.2.3 From 18th until 30th October 2022, the Sudeley Castle and Gardens excavation reached a minimum of 52k individuals on Facebook, 9.9k individuals on Instagram, and 11.9k impressions on Twitter. The average engagement rates were 5% on Facebook, 6% for Twitter, and 10% on Instagram. In addition, there were 213 unique visitors to the project microsite with more in-depth information: <https://digventures.com/projects/sudeley-castle/> including background information, the Dig Timeline, and reports.

11.2.4 Whilst these results demonstrate a public appetite for the Sudeley Castle and Gardens 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.

11.3 Evaluation methodology

11.3.1 The Sudeley Castle and Gardens community was separated into three broad categories: in-person project participants, and virtual audience members who both joined the project through a formal booking process, and informal site visitors who visited in their own time and took part in guided tours. 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 Figure 17). 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.

- 11.3.2 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 (Figure 18) 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.
- 11.3.3 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 440 in total), but in-person participants were also interviewed post experience (89% completion rate, or 146 in total). The age and professional background of participants was derived through digital analytics, with occupational categories for virtual audience members derived from the Office for National Statistics. The six digital crowdfunding contributors were not asked for their preferred pronouns or whether they want to join the DigVentures mailing list and are not represented in these results for virtual audience members. Neither was this question asked for in-person participants. 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.
- 11.4 Social impact – in-person participants**
- 11.4.1 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 to take part in recording the excavation, as well as in geophysical surveys. Participants who crowdfunded the project, could take part for any length of time starting from a taster day and culminating in twelve days, depending on their contribution level. Accessible half-day DigCamp sessions were offered to children between 6 and 11 years and accompanying guardians to give them a taste of the work happening in the trench. The DigClub session for teenagers lasted for 5 hours, which was a slightly shorter day than that of the adults.
- 11.4.2 All training followed DigVentures' ClfA-endorsed Field School curriculum and is designed in line with National Occupational Standards (NOS). 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. Figure 1 shows the distribution of participants' active involvement with the excavation, illustrating that the majority of participants (89%, or 146 in total) stayed for only one day. This is in part due to the relatively high number of DigCamps and DigClubs on offer. Only, 2% of participants, or 4 in total stayed for the entire duration of the excavation, which provided them with more opportunities to learn different skills and intensify their learning experience.
- 11.4.3 The age of participants ranged from children aged 6 to people in their mid 70s. Figure 12 illustrates that up until the mid 70's, all age groups were represented on site, with more than half the participants having been aged younger than 45 years (75%, or 95

in total). This is likely due to the high number of sessions offered for families, which is also illustrated in the large share of participants under 16, which made 31% alone. The data shows that the Sudeley Castle and Gardens excavation provided engagement opportunities for younger people as well as older participants. Participants further represented a variety of part or full-time occupations (46%, or 75 in total) and retirees (10%, or 17 in total). Another 38% of participants, or 63 in total were students, either of compulsory educational age or those attending university. The low percentage of people without paid employment (4%, or 6 in total) is likely because the excavation was crowdfunded and participation opportunities were neither free of charge nor easily affordable without regular income (see Figure 12).

- 11.4.4** Examples of professions included for example adoption social worker, artist, banker, barrister, builder, care worker, chief operating officer, civil engineer, civil servant, commissioning director, construction management, data engineer, delivery driver, drug safety, examiner, fundraiser, gardener, general practitioner, lawyer, librarian, logistics supervisor, pensions officer, physicist, postwoman, preschool teacher, psychologist, radiographer, receptionist, registered nurse, sculptor/bagpiper, social worker, software engineer, software tester, solutions architect, speech therapist, teacher, translator, vet, video engineer, warehouse worker and writer. 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).
- 11.4.5** Participants joined the project from all over the United Kingdom. Only 9%, or 14 in total lived within 25 miles of Sudeley Castle. The vast majority of people who joined the dig travelled between 25 and 100 miles (73%, or 121 in total) to have the opportunity to take part in the project. 16% of participants, or 27 in total joined from even further away and live over 100 miles away from Sudeley Castle. Of these, 5 individuals travelled from outside the UK and joined the excavation from Australia, Switzerland and the United States of America (see Figure 13).
- 11.4.6** 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 67% of participants, or 110 in total having never taken part in archaeology activities before (see Figure 12).

11.5 Social impact – virtual audience

- 11.5.1** A virtual component was added to the Sudeley Castle and Gardens excavation to reach a wider audience. People who wanted to support the crowdfunding campaign but couldn't or didn't want to participate in the excavation, could contribute financially to become a digital supporter and be kept up to date with developments on site (six contributors). A virtual site tour took place on 26th October free of charge resulting in 270 bookings. When booking a virtual ticket, people were asked to complete a short questionnaire to understand the socio-economic background of virtual audience members.

- 11.5.2 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 (39% or 105 in total) (see Figure 15). This was especially useful for people from overseas who live in different time zones. The virtual tour received 66 individual live views. People who initially booked for the live event, but changed their mind later, also received a recording.
- 11.5.3 The majority of people who witnessed the project online preferred the pronouns she/her (70% or 192 in total) and, in contrast to the in-person participants, were primarily over the age of 54 (73%, or 179 in total) and also included individuals aged 75 and older. The virtual audience members represented primarily a variety of part or full-time occupations (65%, or 98 in total) and retirees (49%, or 163 in total). The remainder were students, either of compulsory educational age or those attending university (6%, or 16 in total), or people in long-term unemployment, carers or homemakers (9%, or 26 in total, see Figure 14). 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 14 illustrating that the virtual components were preferred by several people with lower income, but also favoured 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.
- 11.5.4 The virtual component removed geographical barriers of access and made the experience more inclusive, which is shown in 36% of the bookings and contributions, or 98 in total coming from outside the UK and 58%, or 160 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, North America and Asia, and made them aware of the archaeology of Sudeley Castle. Virtual audience members comprised residents of 18 different countries, namely Armenia, Australia, Canada, England, Germany, Hong Kong, Ireland, Isle of Man, the Netherlands, New Zealand, Northern Ireland, Romania, Scotland, Serbia, Spain, Switzerland, the United States of America and Wales (see Figure 16). Almost a third of the virtual audience members were new to archaeology with 31% of individuals, or 86 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 87% of people, or 239 in total expressing their wish of being informed about upcoming events (see Figure 15).

12 DISCUSSION

12.1 Introduction

- 12.1.1 Excavation at Sudeley Castle focused on the results of the previous seasons trenching and non-invasive surveys. Trench 12 investigated the raised mound between the linear eastern raised mound (investigated in Trench 13) and the centre of the formal gardens identified on LiDAR imagery, believed to be the remains of a viewing platform.

Trenches 13 and 15 targeted further extents of the wall identified in Trench 7 in 2019 and Trench 8 in 2021, an earlier Tudor garden wall forming the eastern boundary for an earlier garden layout. This trench not only aimed to establish the extent of the wall across the area, but also to investigate what appeared to be a possible channel connecting the garden to possible water features to the east. Trench 14 investigated the theory that the low-lying area to the southeast of the wall may be the remains of fish or ornamental ponds connected by the possible channel in Trench 13.

12.2 Project Aim 1

12.2.1 The aim was to refine and establish the physical extent and character of the Tudor gardens and associated garden features through employing resistivity survey on the formal garden. This aim was built on previous topographical and geophysical survey work, combined with LiDAR survey overlays in order to establish the layout of the garden and its landscape context.

12.2.2 During this stage of the project, we were able to refine the data previously obtained and thus identify better targets for future exploration (Q1). However, we were unable to identify any clear phasing in the topographic or remote sensing anomalies indicative of an extended period of use (Q2).

12.3 Project Aim 2

12.3.1 The evidence from this stage of excavation confirmed that wall F801 originally seen in Trench 7 and 8 did indeed extend to this area, connected to the earlier formal gardens, further supporting the suggestion that it was once the limits of the formal gardens. Further excavation in the deposits covering the wall have provided more evidence to support the redeposition of a large amount of high-status 14th century architectural rubble over the top of the Tudor wall. While there was some animal bone and shell evidence suggesting some food consumption, this was not in sufficient quantity to suggest activities solely devoted to food or feasting were taking place in the area (Q3, Q4, Q6).

12.3.2 The historical and cultural context of the Tudor garden is comparable with the inward-looking gardens of the medieval period that gave way to more grandiose layouts with open and interlinked designs. The inspiration for these great houses in the 16th century were based in their architectural predecessors, such as medieval castles, bishop's palaces, and fortified manor houses (Henderson 2005: 11). Formal garden compartments are a feature of Renaissance gardens rarely seen in Britain until Henry VIII created his royal gardens such as at Hampton Court and Tudor gardens dating as early as the 1530's usually relating to royal residences (Fradley et al, 2008: 55). Other Tudor gardens known from earthwork remains or documentary evidence suggest that they were one piece of a much larger formal landscape (Ibid: 25). The major changes to Tudor design of these spaces began in the first half of the 16th century, largely in the removal of the service buildings from the entrance court with an ever-growing focus on the aesthetic aspects of design and symmetry (Q7) (Henderson 2005: 12).

12.3.3 Much of what we know of the earlier examples from the late 15th and early 16th century are from palaces built by Henry VII and Henry VIII, many of which were built on the site of earlier medieval structures (Ibid: 16). This is important to note in regards to the fashion being to adapt and modernise on an existing base, rather than to start

from scratch. This adding on to an earlier design or augmenting it to suit the changing taste of the new owner can be seen to have been employed multiple times throughout the 16th century in the gardens alone (Q3, Q5, Q6, Q7).

- 12.3.4 In 1577, William Harrison first published his *Description of England* as part of Holinshed's *Chronicles*, reissued a revised version in 1587. In his revised version, he describes among other things, the houses of the royals, nobles and aristocrats.

"Heretofore also the houses of our princes and noble men were often glazed with Berill (an example whereof is yet to be seen in Sudeley Castle and in divers other places with fine crystal, .. More over the mansion houses of our country towns and villages (which in champaine ground stand altogether by streets, & joining one to an other, but in woodland soils dispersed here and there, each one upon the several grounds of their owners) are built in such sort generally, as that they have neither dairy, stable, nor brewhouse annexed unto them under the same roof (as in many places beyond the sea & some of the north parts of our country) but all separate from the first, and one of them from an other. And yet for all this, they are not so far distant in sunder, but that the goodman lying in his bed may lightly hear what is done in each of them with ease, and call quickly unto his many if any danger should attach him." (Harrison 1587: Chap. XII. Of the Maner of Building and Furniture of Our Houses)

- 12.3.5 This passage mentions Sudeley Castle by name as one of the "houses of our princes" with particular focus given to the glazing in the windows. But beyond his singling out of Sudeley Castle by name, he goes on to describe how the fashion had by then become established to have the ancillary buildings separate from the main residence ("that they have neither dairy, stable, nor brewhouse annexed unto them under the same roof...but all separate from the first, and one of them from an other"). This would have meant that in medieval estates such as Sudeley Castle, the earlier versions would have to have been significantly altered. The removal of these service buildings from within the main living space allowed the expansion of these estates to spill out over the earlier perimeter walls for these earlier versions of the manor, castle or palace (Henderson 2005: 19).

- 12.3.6 Natural was reached within Trench 13, enabling a better understand of the phasing on site. The wall (13008) **F801** was the earliest feature identified on site, built directly on the natural clay. No dating evidence was found within or below the wall. The wall was demolished and the mound still present today was constructed over the surviving remains. The rose ball carvings, also found during the 2019 and 2021 seasons, come from contexts separate from the wall and represent a later phase of dumped stone and not demolition. The ball flower carvings point to a 14th century date for the initial crafting of the architectural material found within this mound construction over wall, but mixed in with later 15th to 16th century material **F801** (Q5).

12.4 Project Aim 3

- 12.4.1 The stones found in Trench 8 are notable due to their good state of preservation, with relatively unworn carvings and in one case even surviving paint. This indicates a quick transition from the interior of a structure to being buried. This may support the interpretation that these are stones from Winchcombe Abbey, moved after the

dissolution of the monasteries. In this case they may have been used to cap the mound over the wall F801 (Q8, Q9).

- 12.4.2 The animal bone evidence recovered does not indicate that Trench 8 was located over a site of feasting. This further reduces the likelihood that the platform Trench 8 was targeting was the site of an Elizabethan banqueting hall. The presence of fallow deer remains suggests that at some point the site and/or the surrounding area may have been used as a deer park for the purposes of hunting (Q10, Q11).
- 12.4.3 The small assemblage of residual pottery found throughout the earthwork deposits confirm they were created using redeposited soils. The pottery assemblage although small mostly consisted of utilitarian wares, more likely related to the work at the castle and not to a feasting site (Q10, Q11).

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 Conclusions

- 13.1.1 The principle aims of this investigation were to further refine the character of the Tudor gardens and associated garden features (Aim 1) and to characterise the site (Aim 2) with a programme of archaeological excavation. The project was successful in furthering these aims. This season of excavation provided strong evidence to support the interpretation of a phased Tudor garden seen mostly in Trench 13.
- 13.1.2 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 Sudeley Castle. In total, the project received approximately 275 visitors who took place in the guided tours. 164 individuals joining the archaeological team in the trenches. A virtual site tour and digital crowdfunding contribution levels resulted in a further 276 bookings from 18 different countries online. The project succeeded in attracting a new audience for archaeology, with 67% of the in-person participants and 31% of the virtual audience members, having never taken part in archaeology activities before.
- 13.1.3 The project attracted a diverse community of people from the local area as well as further afield. The Sudeley Castle and Gardens 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 ClfA. The insights gained from this evaluation have established a clear community need and demand for more archaeological work at Sudeley Castle and further evaluation will analyse the deeper motivations and impact of the public engagement programme.

13.2 Recommendations for further finds analysis

- 13.2.1 Due to the significance of the architectural fragments, particularly the decorative stonework, it is recommended that the assemblage is included in an analysis level report. Such a report should combine the results from all completed field seasons and discuss the assemblage at a site level as well as within a wider context of appropriate contemporary medieval assemblages. The following is required to contribute to the

production of an integrated analysis level report based on the 2022 fieldwork excavations:

- worked stone should be analysed by a geologist to provide stone identifications.
- comparison of stone identification and stylistic features from hand collected fragments with stone identification from other fragments thought to have been robbed from Winchcombe Abbey.

13.2.2 Based on the current understanding of the architectural stonework assemblage (prior to the completion of any identification work by a geologist), a number of fragments from the 2022 excavations will be fully illustrated within the final report. Selection of material to illustrate will be based on completeness and suitability for illustration, unique objects on site, and to show the range and variations in the assemblage. Due to the significance of the site the architectural stone assemblage and in discussion with the receiving archive repository, worked and/or identifiable fragments of stonework should be retained and deposited.

13.2.3 No further work is recommended for the animal remains from Sudeley Castle recovered in 2022. When all excavations are completed, the bone and shell assemblages from all years will be combined into one report for final grey literature reporting and/or publication. Further research on the deer park at Sudeley Castle and the consumption of tongue may contribute to further understanding of the role of animals on the Estate and in the diet of those living on or around it. The animal remains will be retained for the duration of the project with proposals for selection for long term preservation made after the completion of any analysis and publication works.

13.2.4 It is unlikely further work on the metalwork, pottery, clay pipe, or glass, would yield useful information with respect to the project design. The pottery and non-ferrous metal, namely the silver coin, should be retained and incorporated into the site archive for long term preservation. The material does not require any special conservation and retained material can be safely stored in a stable environment.

13.3 Recommendations for further field investigation

13.3.1 A final phase of fieldwork is suggested to characterise possible garden beds and features from the interior garden space in the formal area of the garden. Part of this work should be to recover dating evidence relating to the different phases of use of the gardens, and to assess the archaeological survival of the Tudor Gardens as well as derive as much information about the Tudor garden architecture as possible.

13.3.2 The earth resistance survey performed in this 2022 field season added to the existing magnetometer geophysical data collected by Exeter University (Fradley 2009). Earth resistance results revealed new data to target which will assist with these aims.

13.3.3 An Updated Project Design provides a detailed outline of intended fieldwork intended to be delivered in 2023 (Duensing 2023).

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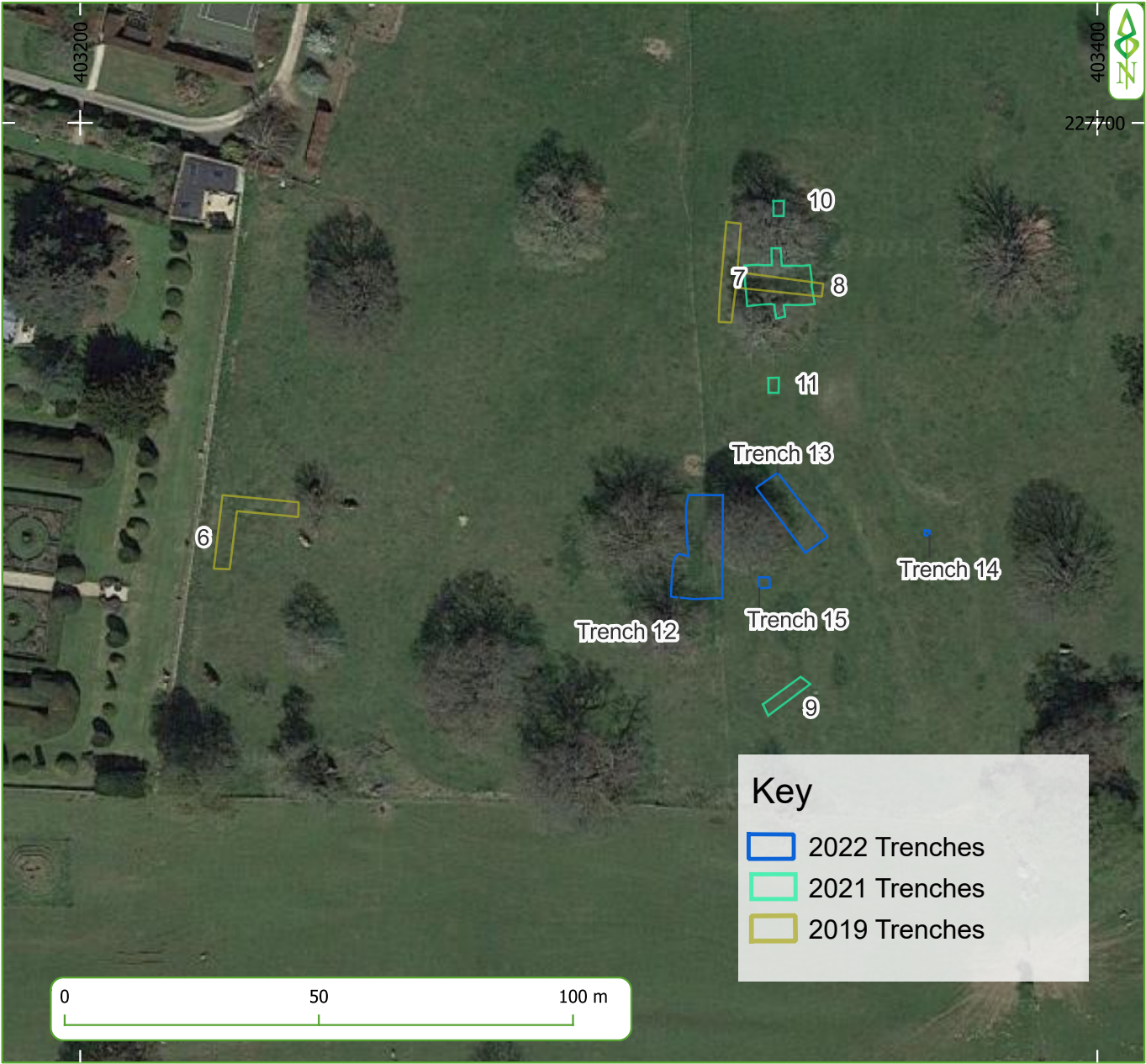
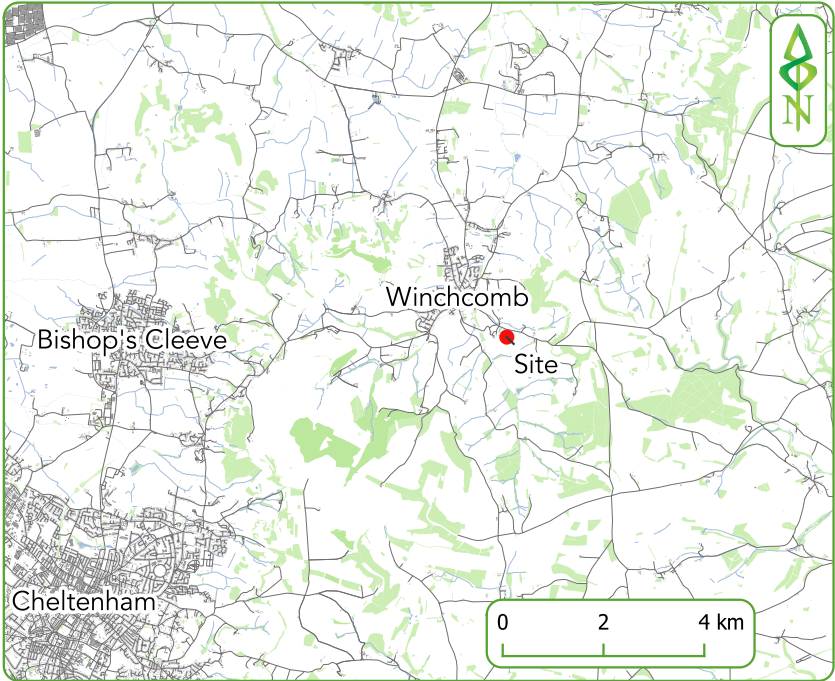


Figure 1. Site location

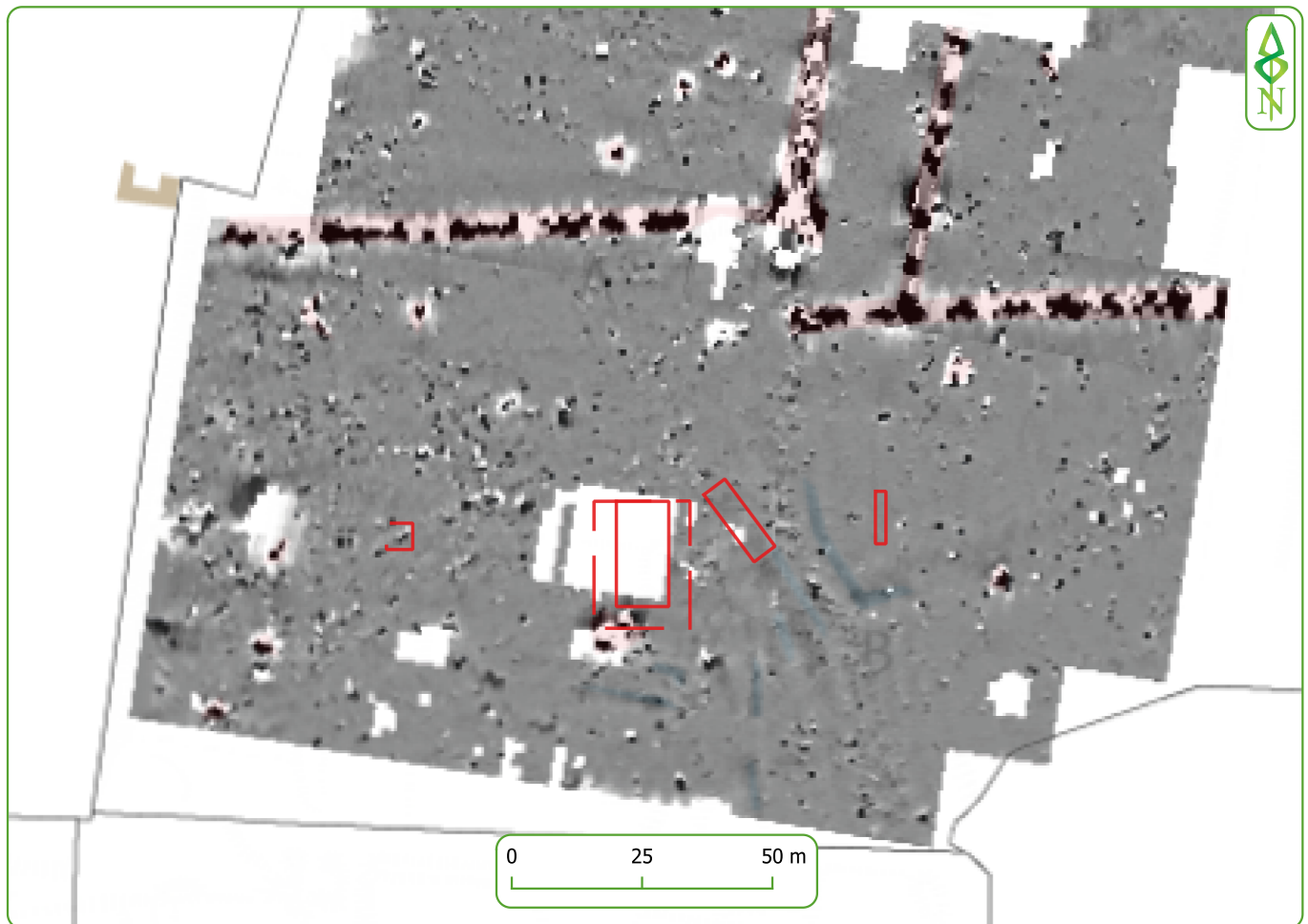


Figure 2. 2022 trench locations overlying earthwork & geophysical magnetometer survey 2009 (University of Exeter)

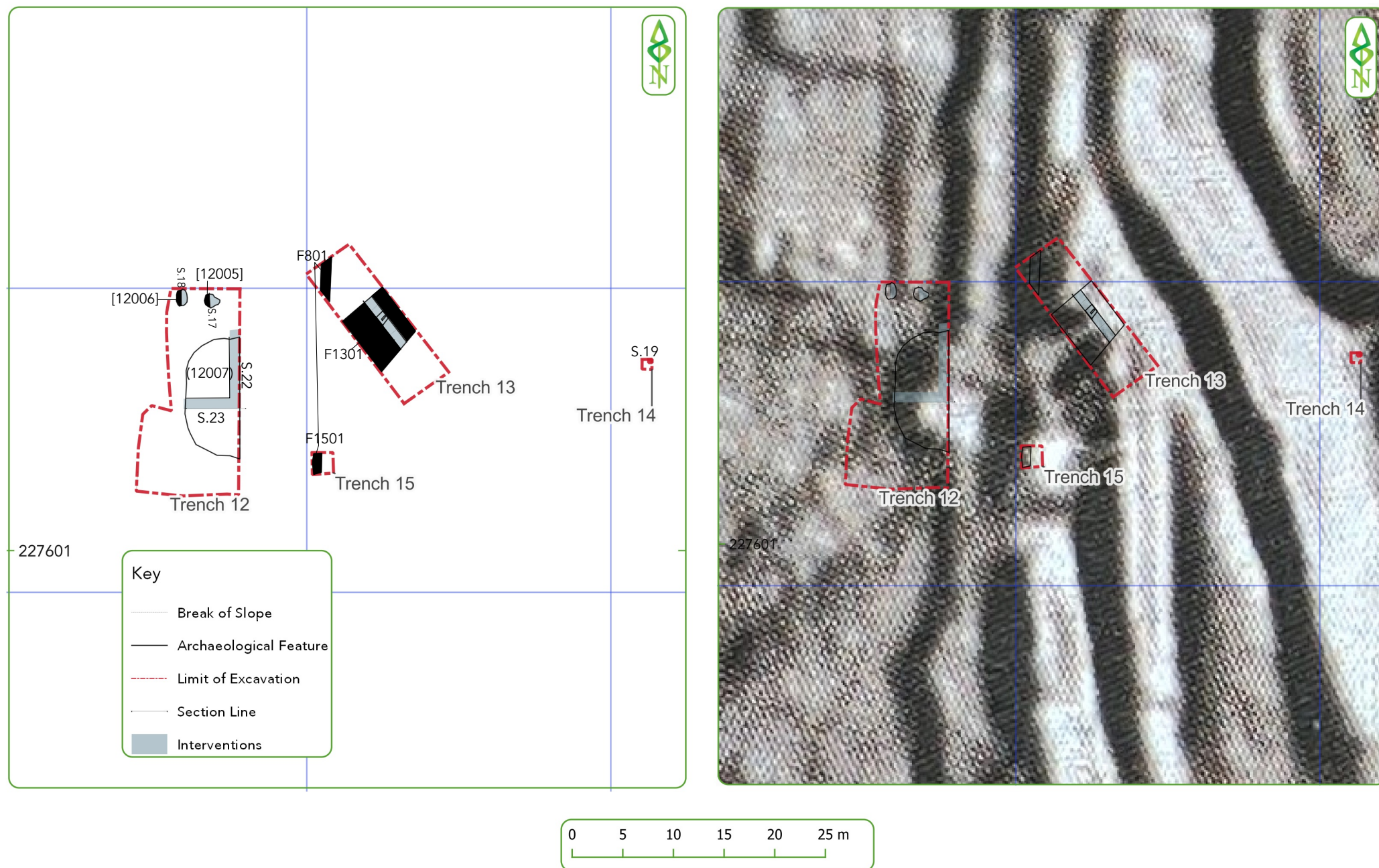


Figure 3. Trench locations over LIDAR



West facing section of Trench 12



North facing section of Trench 12



Oblique photo of mound in intervention in Trench 12

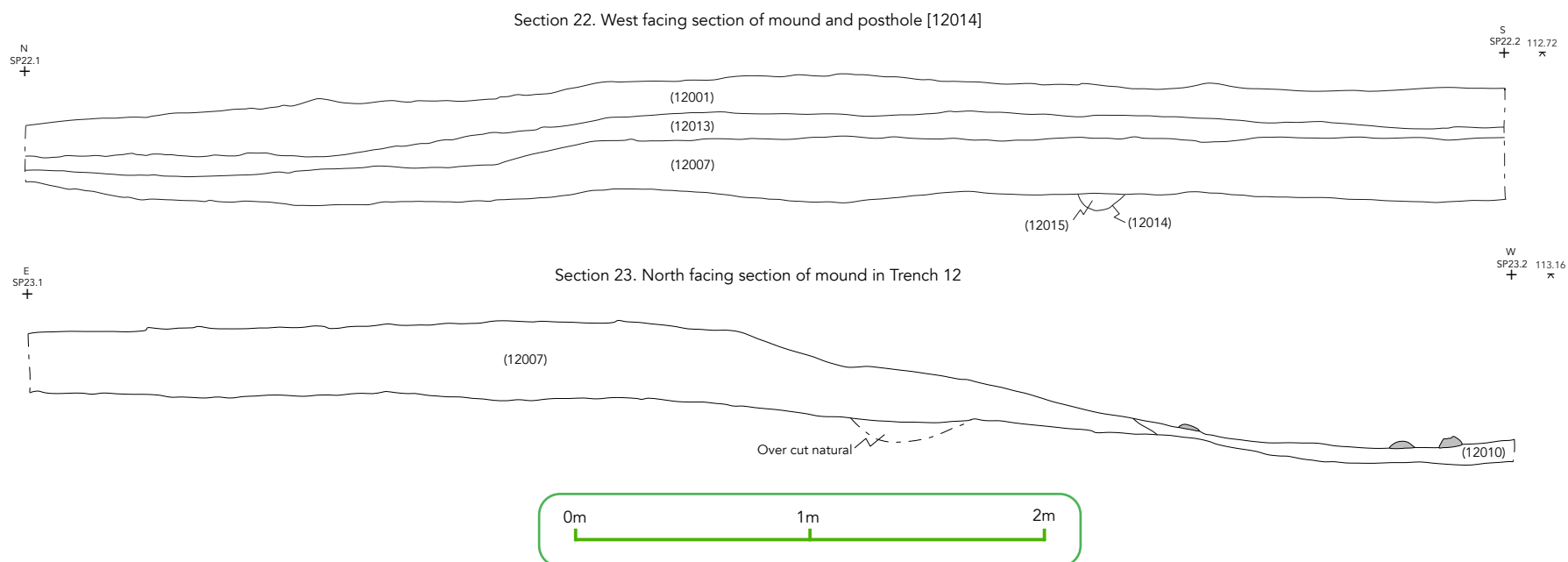


Figure 4. West and North facing sections through mound in Trench 12

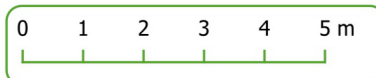
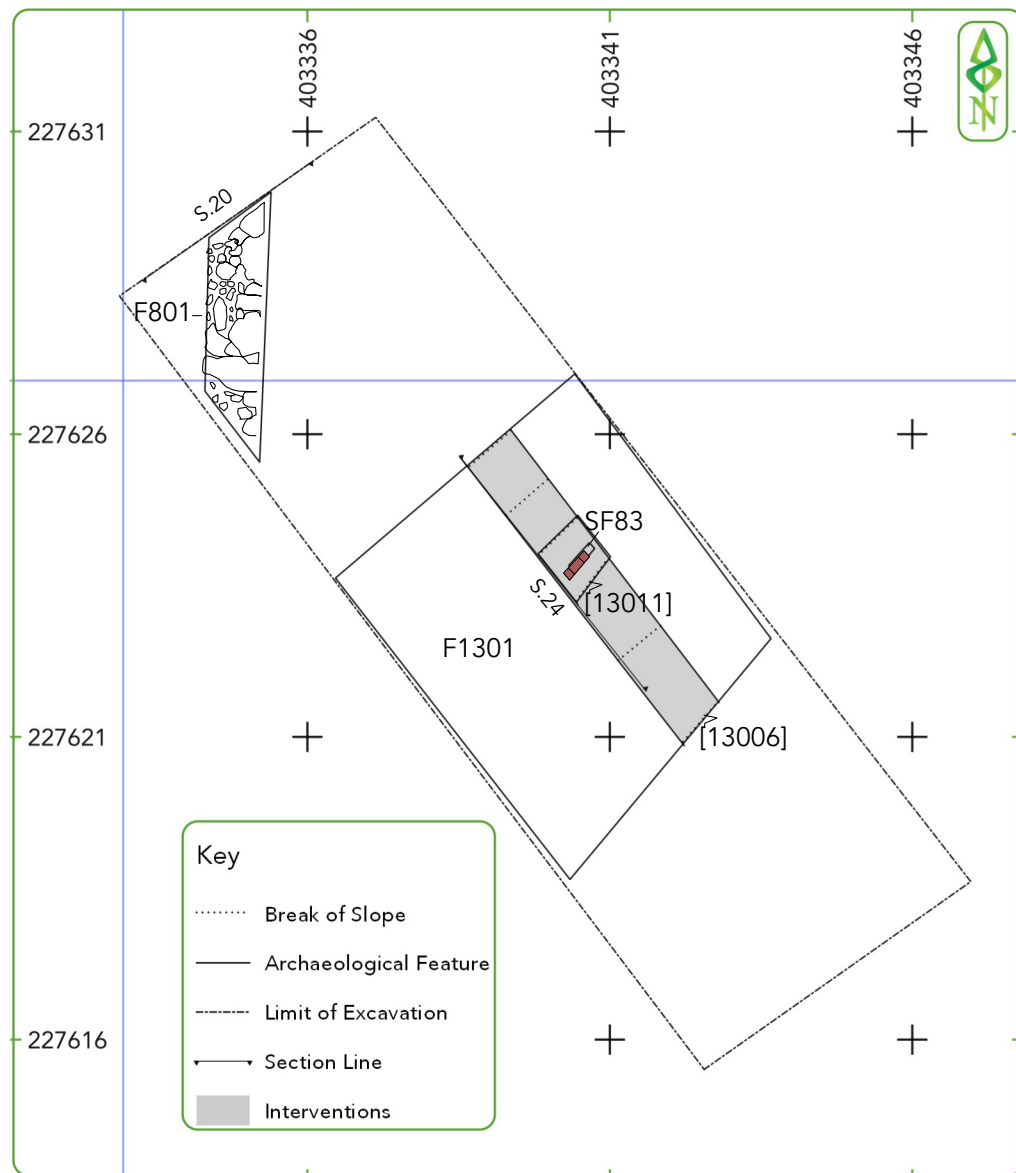
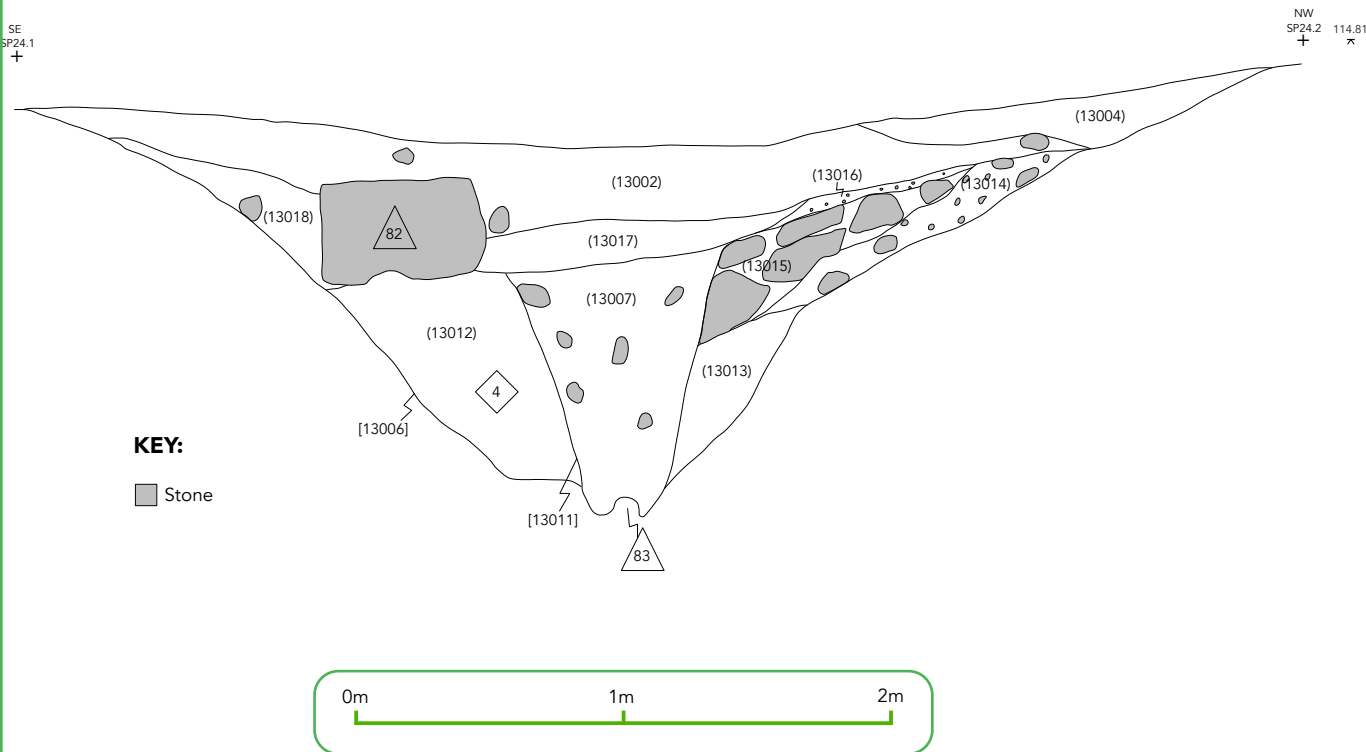


Figure 5. Trench 13 detail plan view and orthophoto

Section 24. North-East facing section of ditch [13006] and pipe trench [13011]



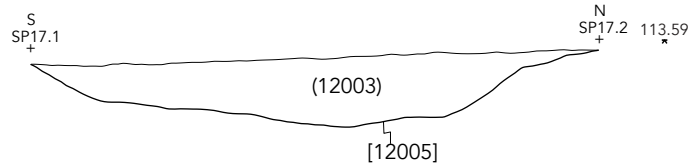
East facing section through Trench 13, ditch [13006]



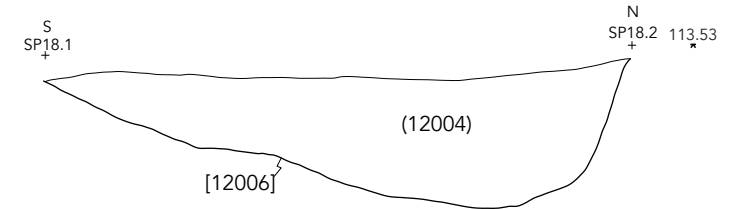
South looking photo of Trench 13, ditch [13006]

Figure 6. East facing section Trench 13

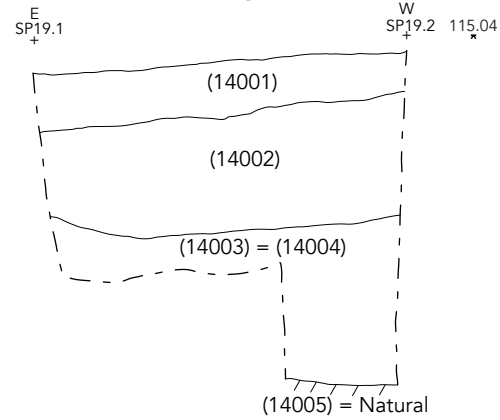
Section 17 East facing section of tree bowl [12005]



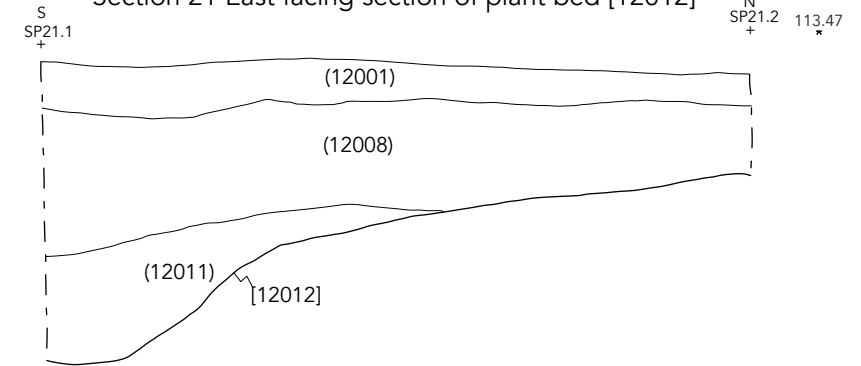
Section 18 East facing section of tree bowl [12006]



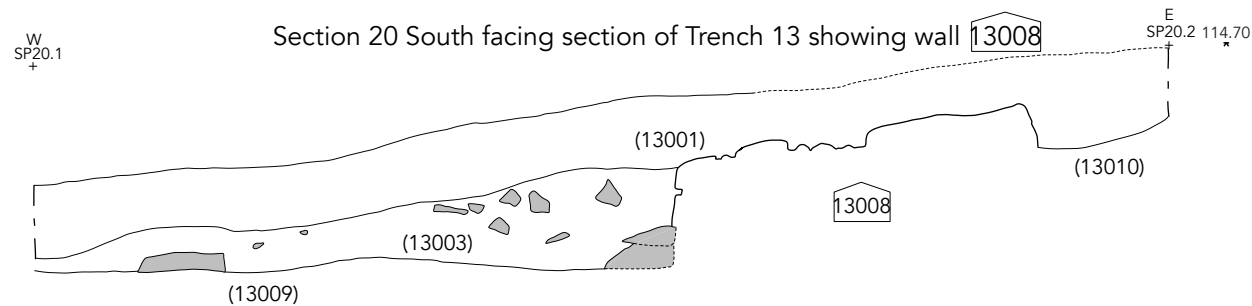
Section 19 South facing section of Trench 14



Section 21 East facing section of plant bed [12012]



Section 20 South facing section of Trench 13 showing wall [13008]



KEY:
■ Stone

Figure 7. Sections 17 - 21



Section 17 - tree bowl [12005]



Section 18 - tree bowl [12006]



Section 19 - South facing section of TR14



Section 20 - Wall F801 in Trench13



Section 21 - Sondage showing plant bed [12012]

Figure 8. Record photos of sections 17 - 21



Trench 14 post excavation



Trench 15 post excavation



Trench 12 post excavation, view North



Trench 12 post excavation, view South



Trench 13 post excavation, view South



Trench 13 post excavation, view North

Figure 9. Record photos of Trenches 12-15



Angie and Saskia cleaning back rubble on the first days on site



Saskia finds a metal arrowhead



Geophysics workshop venturers are all smiles



Community Archaeologist Freddy shows venturers how to trowel



Venturer works to unearth wall in Trench 13

Figure 10. Community photos of ventures



DigCamp investigate rubble spread (12003) in Trench 12 with Community Archaeologist Freddy



Angie finds worked stone in ditch [13006]



DigCamp learn how to trowel back, come rain or shine!



DigClub excavate the wall in Trench 13



Richard and Shelby excavate the extension of the wall in Trench 15

Figure 11. Community photos of venturers

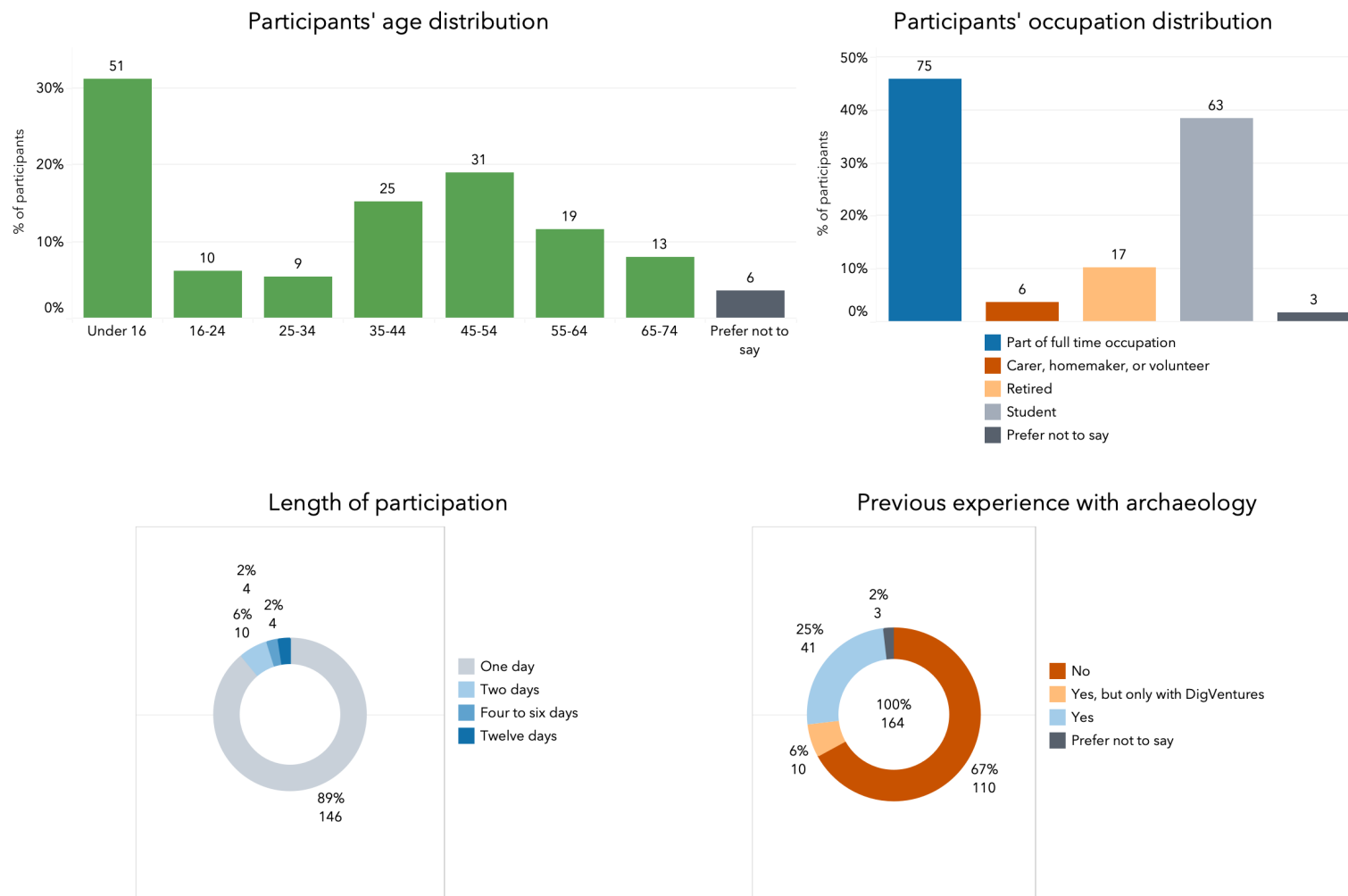
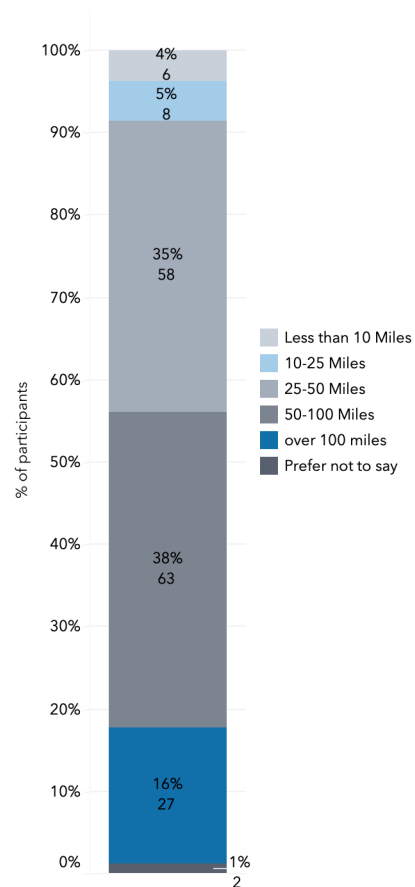


Figure 12. Socio-economic background of field ventures

Location of participants

Distance from site



Worldwide distribution

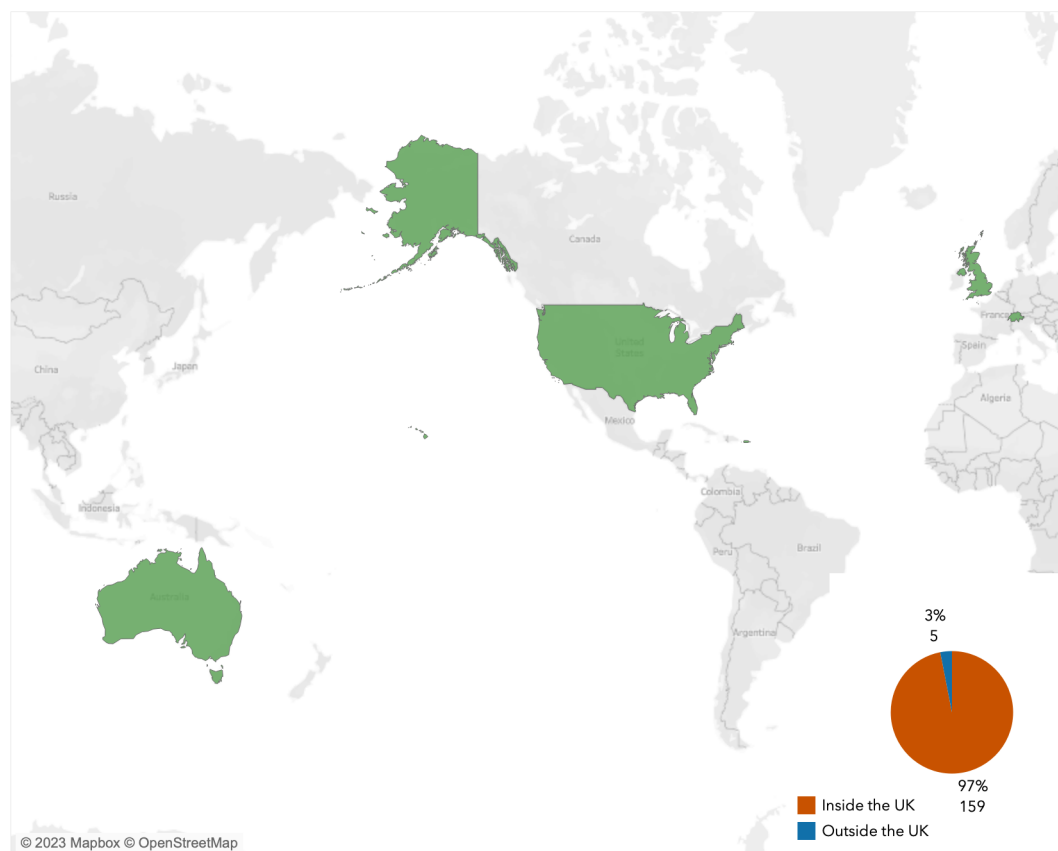


Figure 13. Home location of field ventures

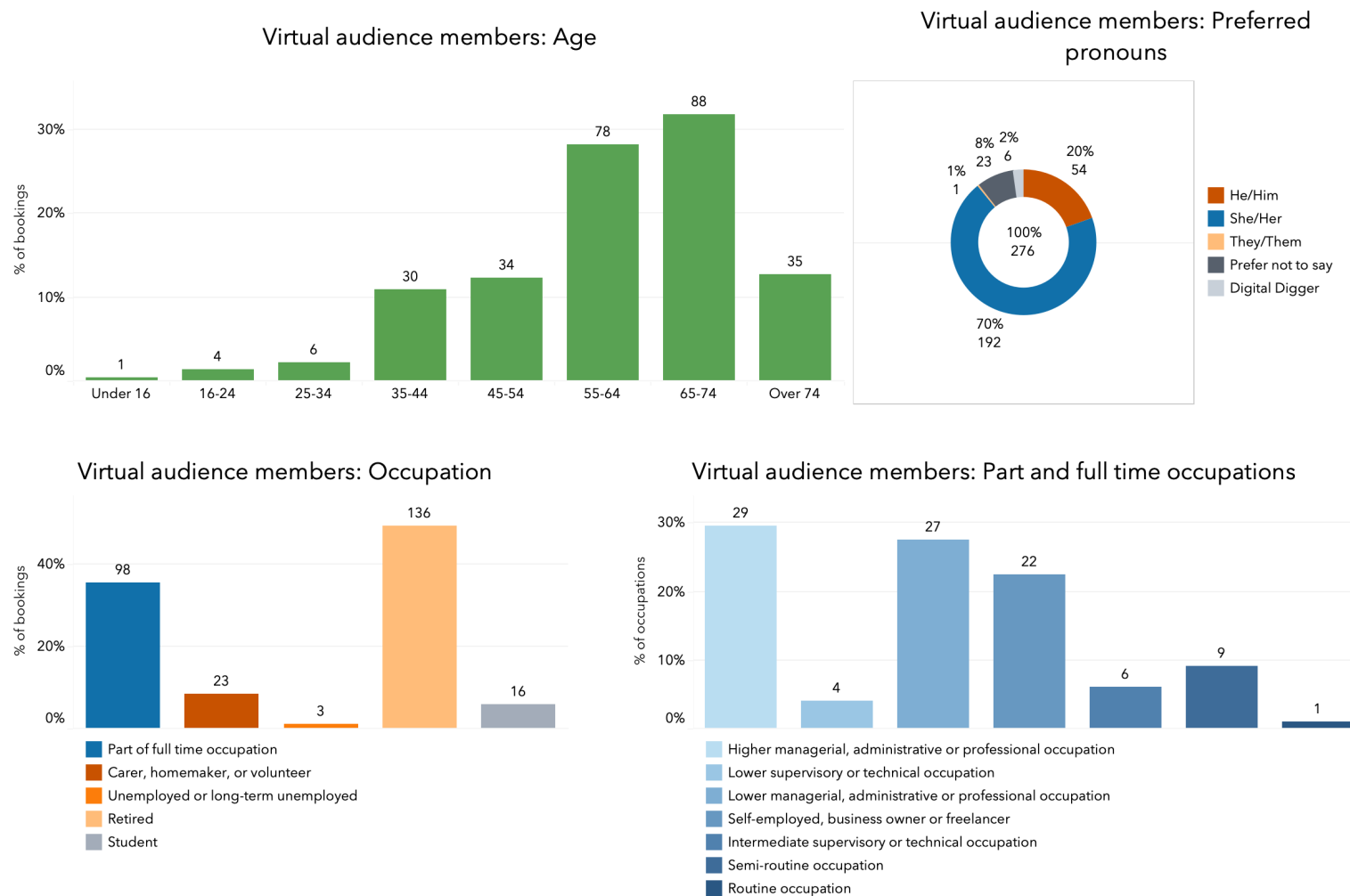
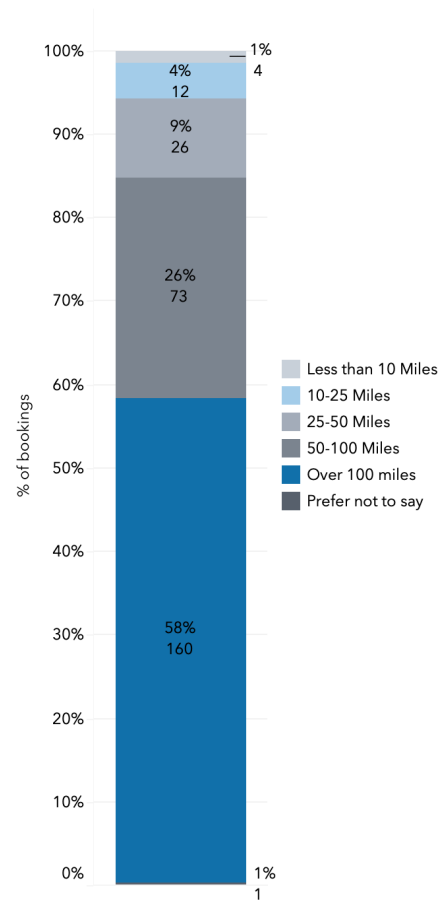


Figure 14. Socio-economic background of digital ventures

Locations of virtual audience members

Distance from site



Worldwide distribution

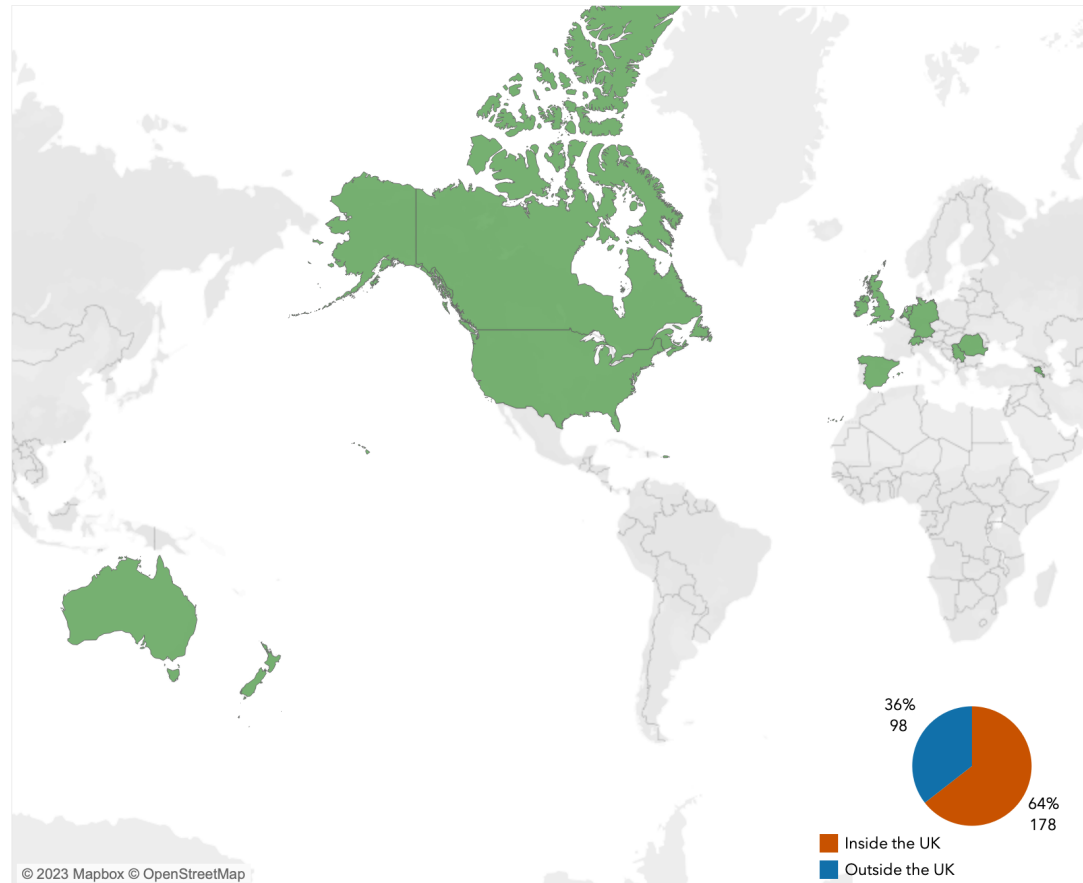


Figure 15. Home location of digital ventures

Virtual audience members

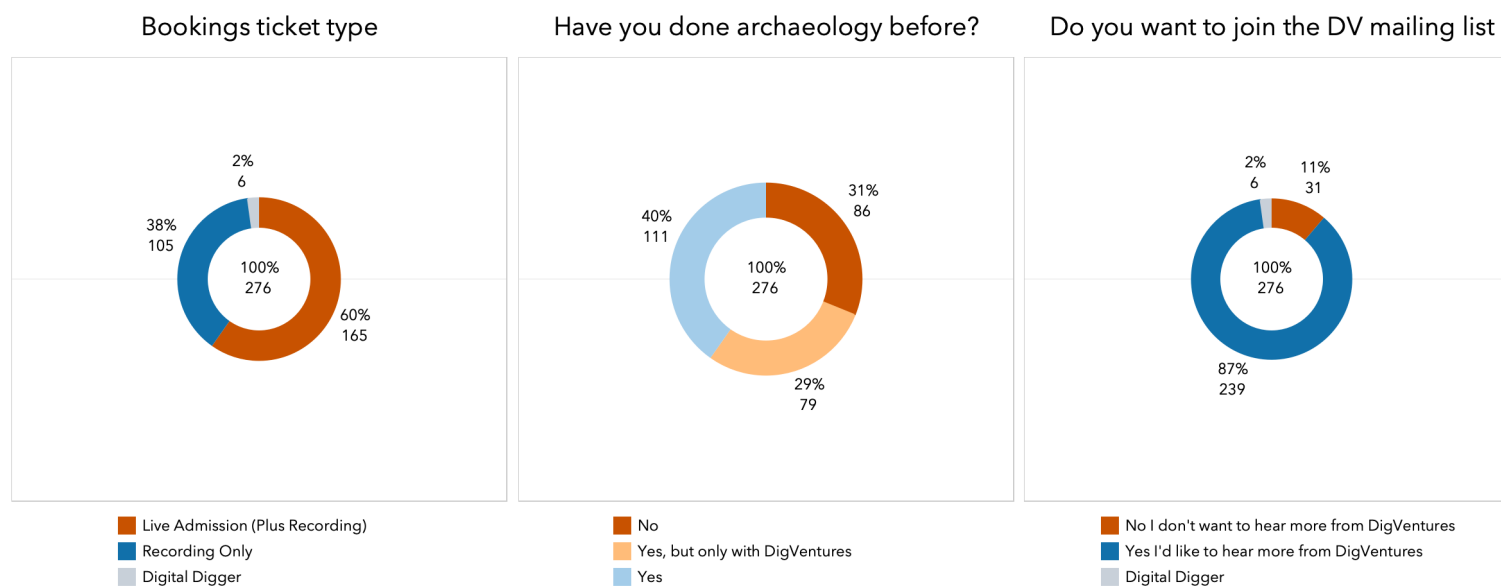


Figure 16. Virtual ventures motivation for joining online events and previous experience

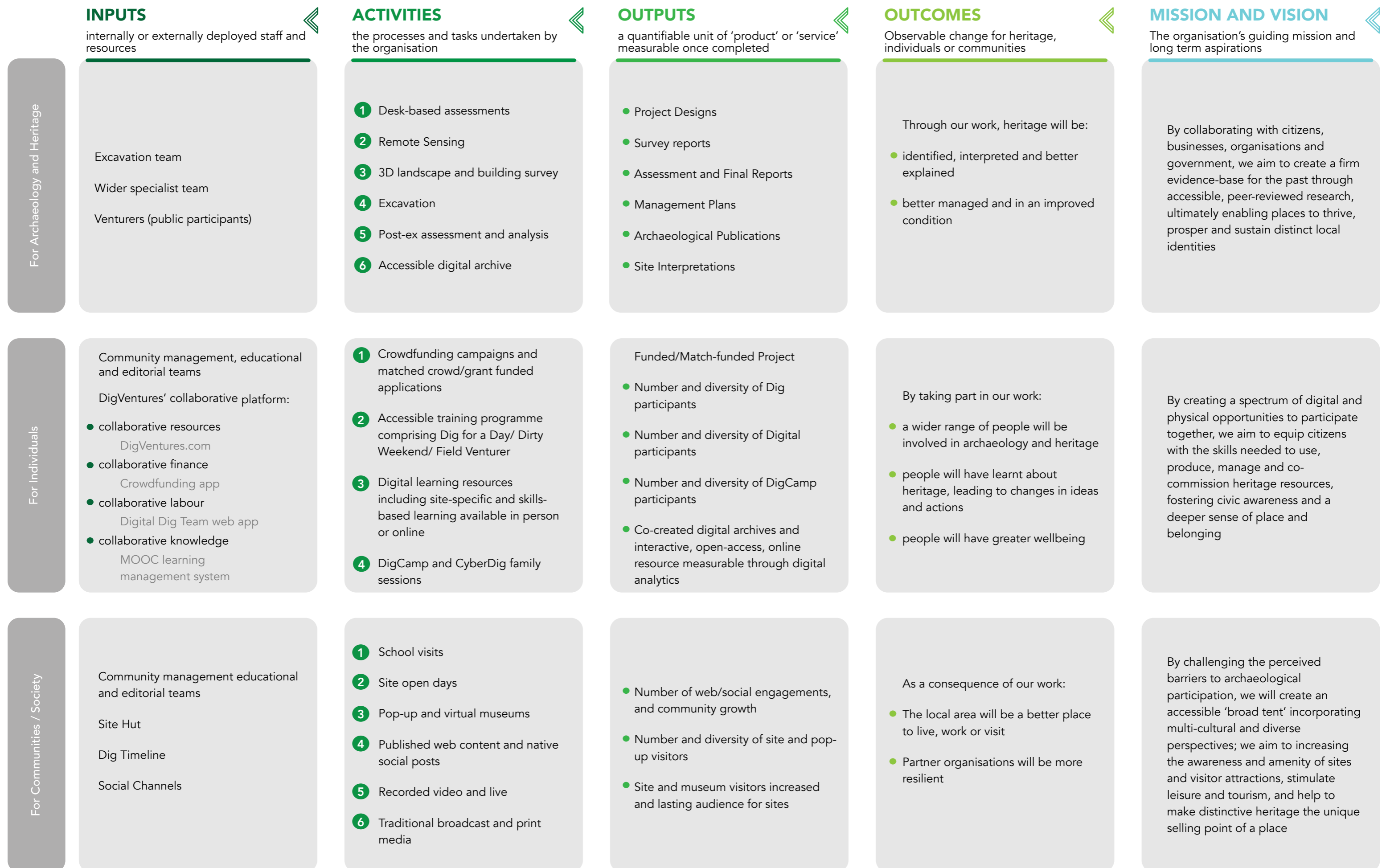


Figure 17: OUR THEORY of CHANGE - Measuring impact for both intrinsic outcome for archaeology and instrumental benefits for people and communities

	EXPECTATION	SUGGESTED METHOD	OUTCOMES FOR HERITAGE	OUTCOMES FOR PEOPLE	OUTCOMES FOR COMMUNITIES
Level One	<p>Providing an academically rigorous framework, whilst ensuring that impact measurement is appropriate to the stage of development of a variety of different products, services and programmes.</p> <p>A low threshold, appropriate to very early stage innovations, which may still be at the idea stage. Involving little more than a clear articulation of why the intervention is needed, what it will aim to achieve why this is better than what currently happens.</p> <p>Project owners will be able to give an account of impact, providing a logical reason why their intervention could have an impact and why that would be an improvement on the current situation.</p>	<p>Steps needed to ensure correct evidence is collected to determine whether or not a venture is making a positive difference</p> <p>A clear rationale to show why the product/service could have an impact, and why that would be an improvement on the current situation.</p> <p>Articulated as a theory of change and logic model, linking activities, outputs, outcomes to hypothesized impact.</p>	<p>Intrinsic benefits relating to the research dividend and evidence baseline required for successful management of archaeological sites and landscapes</p> <p>A fully illustrated Project Design, signed off by statutory stakeholder, outlining key archaeological research questions, roles, procedures, stages and outputs.</p>	<p>Instrumental benefits for participants and platform users, enabling the voluntary sector to scale in a sustainable and ethically responsible fashion</p> <p>A training or activity plan, linking activities to outputs, outcomes and impact, and an explanation of how the outcome could be measured.</p>	<p>Wider social impacts received by those who may not be direct participants, but benefit through increased amenity value, tourism and local distinctiveness.</p> <p>A training, activity, audience development and/or heritage resource management plan, linking activities to outputs, outcomes and impact, and an explanation of how the outcome could be measured.</p>
Level Two	<p>At Level 2 projects will be gathering data that shows some change amongst those receiving or using the intervention. At this stage, data can begin to show that there is a change in the measure of the outcome among the recipients of the product or service, but this may not be sufficient to provide evidence of direct causality.</p>	<p>Pre and post–survey evaluation; cohort/panel study; and regular interval surveying.</p>	<p>Assessment Report; Management Report, base-lined against previous investigations</p>	<p>Evaluation survey for participants to quantify demographics, socio-economic characteristics and spatial data, followed up with a pre and post-survey qualitative evaluation using a separate questionnaire methodology to determine any changes as a consequence of taking part</p>	<p>Evaluation survey for site visitors to quantify audience demographics, socio-economic characteristics and spatial data, followed up with a qualitative study using a separate questionnaire methodology to determine any changes that took place as a consequence of the visit</p>
Level Three	<p>At Level 3 projects will be able to demonstrate that they are causing the hypothesized impact, by showing less impact amongst those who don’t receive the product/ service.</p>	<p>Robust methods using a control group, or evaluating a random selection of participants, begin to isolate the impact of the product/ service.</p> <p>All products/services at Level 3 will be well documented, with necessary skills, training (and other delivery requirements) outlined clearly, to enable effective replication in alternative places, situation, contexts etc.</p>	<p>Analytical report, synthesizing specialist reports with previous work locally, regionally and nationally, to determine significance, importance and potential of the site.</p>	<p>Meta-analysis of evaluation results with those derived from projects delivering similar community-based activities, including archaeological/ heritage and other unrelated arts/ citizen science projects.</p>	<p>Meta-analysis of evaluation results with those derived from projects delivering similar community-based activities - including both archaeological/heritage and other unrelated arts/citizen science projects.</p>
Level Four	<p>At Level 4 projects can explain why and how the intervention is having the impact observed and evidenced so far, supported by an independent evaluation to validate the findings. This will also assess the extent to which the intervention can deliver impact at a reasonable cost, and whether it can be replicated and purchased in multiple locations.</p>	<p>Robust independent evaluation that investigates and validates the nature of the impact; this might include endorsement via commercial standards or industry kitemarks, underpinned by a documented standardisation of delivery and processes, data on costs of production and acceptable price point for customers.</p>	<p>Quality assured by the Chartered Institute for Archaeologists (CifA) under the Registered Organisation scheme, and involving independent site inspections and documentary audit.</p>	<p>External audit of quality of training programmes and activities by CifA, The Archaeological Training Forum, Register of Professional Archaeologists, Skills Passport and National Occupational Standards.</p>	<p>External audit of community programming and impact by specialist consultancy, undertaken independently of project team.</p>
Level Five	<p>At Level 5, projects will be able to demonstrate that the intervention could be operated up by someone else, somewhere else and scaled up, whilst continuing to have positive and direct impact on the outcome, and whilst remaining a financially viable proposition. For a service, this will establish whether it can be delivered by different staff in different locations.</p>	<p>Evidence will be derived from multiple evaluations of the product/ service in different settings (at least two evaluations; one of which will be independent) to demonstrate that the product/service can be used in different settings (which could be in different settings geographically and/or with different types of product/service users). Appropriate methods at this level will include multiple replication evaluations; future scenario analysis; or fidelity evaluation.</p>	<p>An excavation manual, underpinned by a broader operations manual and ‘culture deck’, detailing how the DigVentures project model should be applied in differing contexts.</p>	<p>A syllabus and training manual, underpinned by a broader operations manual and outline spectrum of engagement, detailing the participant’s journey from digital supporter to experienced field digger.</p>	<p>An audience engagement and communications plan, underpinned by a broader operations manual and tailored ‘culture deck’, detailing how the intervention should be applied with clear and measurable benchmarks.</p>

Figure 18: Standards of evidence framework.

Appendices

15 APPENDIX 1 – TRENCH AND CONTEXT DESCRIPTIONS

Trench 12	Dimensions: 20m x 10m						
	Orientation: N-S						
	Reason for trench: to target the possible garden feature identified in LiDAR, a mound or viewing platform						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_12						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
12001	Very loose, dark greyish brown, clayey silt with occasional sub angular sandstone pieces	Layer	Topsoil in Trench 12	20.00+	10.00+	0.15	
12002	Friable, mid greyish brown, clayey silt with very frequent sub angular small to medium sized limestone chunks	Layer	Dump of rubble at the break of slope of the mound on the southern edge. This material may have been used to stabilise the mound at the break of slope to stop slippage, or maybe this is a dump of rubble core material from a wall or stone structure to do with the formal garden nearby	2.20+	1.1	0.1	F1201
12003	Compacted, dark orangey brown, silt clay with occasional small sub angular limestone pieces	Fill	Very homogenous clayey fill of a tree bowl - may have been intentionally backfilled after the tree was removed but also may have partially silted up due to the presence of silty clay	1	1.4	0.17	1203
12004	Compacted, dark orangey brown, silty clay with very occasional small sub angular limestone pieces	Fill	Very homogenous clayey fill of a tree bowl - may have been intentionally backfilled after the tree was removed but also may have partially silted up due to the presence of silty clay.	1.55+	1.08	0.4	1204

Trench 12	Dimensions: 20m x 10m						
	Orientation: N-S						
	Reason for trench: to target the possible garden feature identified in LiDAR, a mound or viewing platform						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_12						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
12005	Cut of sub oval tree bole with very rounded corners, sharp break of slope top and moderately sharp break of slope base	Cut	Cut of a tree/shrub bowl - probably intentionally planted as part of the formal garden planting arrangement. Not a particularly deep cut, perhaps for a shrub rather than a tree - or for a small tree that didn't get a chance to take deep root	1	1.4	0.17	1203
12006	Cut of ovoid tree bole with rounded corners, very steep to gradual break of slope top and sharp break of slope base	Cut	Cut of a tree/shrub bowl. Deeper than the one to the east, perhaps this plant/tree had more time to take root or it was a type of plant/tree that had more of a penetrative root system, or perhaps was simply a larger plant/tree compared to the one to the east	1.55+	1.08	0.4	1204
12007	Moderately compact, dark greyish brown, clayey silt with frequent small to medium sized sub angular limestone/sandstone pieces	Layer	Possibly intentionally constructed mound, maybe through a dump of stoney material mixed with clay. This may have been a raised viewing platform on top of which there could have been an ephemeral stone structure evidenced through numerous stone roof tiles and iron nails.	12.8	4.96+	0.26	F1202
12008	Moderately compacted, light greyish brown, silty clay with occasional small ironstone pieces	Layer	Possible remnant soil/silting up from a planting bed running E-W along the southern LOE of TR12	1.80+	0.50+	0.37	N/A
12009	Compacted, light greyish yellow, clayey gravels with regular ironstone, limestone and sandstone chunks and gravels	Layer	Natural gravels and clay in trench 12	20.00+	10.00+		N/A
12010	Moderately compact, dark yellowish brown, silty gravels with very frequent small to medium sized sub angular limestone chunks and gravels	Layer	Possible slippage of stones from an ephemeral structure on top of the mound (stone roof tiles and nails were found in the deposit) or alternatively an intentional stone dump at the bottom of the mound to support it and/or aid in drainage	2.13+	1.00+	0.04+	F1205

Trench 12	Dimensions: 20m x 10m						
	Orientation: N-S						
	Reason for trench: to target the possible garden feature identified in LiDAR, a mound or viewing platform						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_12						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
12011	Friable and firm, mid brown, silty clay with rare subrounded natural stone under 2cm diameter	Fill	Fill of intentional garden planting event (i.e. bed, ditch, tree bowl etc) full extent unknown as outside of loe	0.70+	0.60+	0.3	N/A
12012	Cut of irregular, sub oval possible plant bed with moderate break of slope top and gentle break of slope base	Cut	Possible clay silting fill of an old Tudor garden planting bed.	0.7+	0.6+	0.3	N/A
12013	Moderately compacted, mid greyish brown, clayey silt with occasional small limestone pieces/charcoal flecks	Layer	Subsoil in TR12	20.00+	10.00+	0.13	N/A
12014	Cut of circular post hole with sharp breaks of slope	Cut	Possible post hole beneath mound in trench 12	0.23	0.13+	0.08	N/A
12015	Moderately compacted, dark orangey brown, silty clay with no inclusions	Fill	Probable silting fill of a post hole	0.23	0.13+	0.08	N/A

Trench 13	Dimensions: 16m x 5m						
	Orientation: NE-SW						
	Reason for trench: to target more of the possible structure identified in Trench 7 in 2019 and Trench 8 in 2021 and investigate possible water channel						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_13						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
13001	Loose, very dark greyish brown, silty loam with occasional charcoal flecks and small sub rounded limestone fragments	Layer	Topsoil in trench 13	16.00+	5.00+	0.08	N/A
13002	Very compacted, mid bluish grey, clay with moderate inclusions of subangular small to medium sized limestone pieces and occasional charcoal pieces	Fill	Upper capping clay to the water channel - probably laid down in the Victorian or later period (based on the finds) in order to seal off an area that was pooling water to keep it dry	2.20+	5.00+	0.33	1301
13003	Compacted, mid yellowish brown, silty clay with very regular inclusions of medium to large sized sub angular limestone pieces	Layer	Rubble layer of probable collapse from wall 13008 overlying clay layer 13009 containing occasional pieces of worked stone from Winchcombe abbey. The rubble appears to predominantly exist collapsed into the internal side of the garden wall (western face) with much less on the external side (eastern face)	1.88+	1.70+	0.18	N/A
13004	Moderately loose, dark greyish brown, clayey silt with occasional small sub rounded limestone flecks/pieces	Fill	Possible topsoil/subsoil slump down slope into the ditch - covers capping clay 13002	2.20+	1.4	0.15	N/A
13005	Very compacted, mid bluish grey, clay with regular sub	Fill	Very stoney concretised clay fill of water channel. Possibly represents a part of the clay fill on the northern edge of the channel where the stoney bank has slipped on top	2.20+	0.77	0.2	1301

Trench 13	Dimensions: 16m x 5m						
	Orientation: NE-SW						
	Reason for trench: to target more of the possible structure identified in Trench 7 in 2019 and Trench 8 in 2021 and investigate possible water channel						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_13						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
	angular small to medium sized limestone inclusions						
13006	NE-SW aligned linear cut of water channel with moderate break of slope top and moderate to sharp break of slope base	Cut	Cut of very deep water channel/ditch	5.00+	4.85	1.22	1301
13007	Very compacted, mid yellowish brown, silty clay with irregular limestone up to 5cm in diameter	Fill	Fill of Victorian drainage cut	0.80	1.00+	0.96	1302
13008	N-S aligned garden wall with large unfinished, roughly shaped blocks with no bonding material and set roughly on stone foundation. Largest stone dimensions are 0.62x0.61x0.26	Masonry	This is the continuation of the N-S aligned Tudor garden wall that was visible in Trenches 8 and 11 in 2021 and trenches 13 and 15 in 2022. These are almost certainly all the same wall stretching off at least 65m N-S along the back of the formal Tudor garden. It is observed constructed almost identically in all interventions, consisting of medium to large very roughly shaped unworked unfinished limestone/sandstone blocks with no bond laying atop a very roughly lain stone foundation above a clay layer	4.30+	0.87	0.35	801
13009	Compacted, mid yellowish brown, silty clay with occasional small sub angular limestone pieces	Layer	Clay layer, probably made ground or clay levelling layer as a foundation deposit upon which wall 13008 was constructed	1.80+	1.46+	Unexcavated	801

Trench 13	Dimensions: 16m x 5m						
	Orientation: NE-SW						
	Reason for trench: to target more of the possible structure identified in Trench 7 in 2019 and Trench 8 in 2021 and investigate possible water channel						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_13						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
13010	Moderately compacted, dark yellowish brown, silty clay with regular small gravel and limestone pieces	Layer	Gravelly clay mound material external to Tudor garden wall. Unexcavated, but assumed to be mounded against the wall	16.00+	5.00+	Unexcavated	N/A
13011	Cut of ceramic pipe SF83 in water channel	Cut	Fill of earlier ditch, possibly same as 13013 but truncated by [13011]	0.80	1.00+	0.96	1302
13012	Fill of earlier ditch, possibly same as 13013 but truncated by [13011]	Fill	Fill of earlier ditch, possibly same as 13012 but truncated by [13011]	0.72	1.00+	0.78	1301
13013	Fill of earlier ditch, possibly same as 13012 but truncated by [13011]	Fill	Fill of earlier ditch, stabilisation fill, with small gravel	0.40	1.00+	0.52	1301
13014	Fill of earlier ditch, stabilisation fill, with small gravel	Fill	Rubble dense fill of earlier ditch	1.18	1.00+	0.20	1301
13015	Rubble dense fill of earlier ditch	Fill	Upper fill of earlier ditch	0.94	1.00+	0.36	1301
13016	Upper fill of earlier ditch	Fill	Capping of Victorian cote with dense clay	0.84	1.00+	0.06	1301
13017	Possibly same as (13017) but separated by SF82 large architectural stone	Fill	Capping of Victorian cote with dense clay	1.25	1.00+	0.16	1301
13018	Possibly the same as (13017) but separated by SF82 large architectural stone	Fill	Capping of Victorian cote with dense clay	0.81	1.00+	0.36	1301

Trench 14	Dimensions: 1mx1m						
	Orientation: NE- SW						
	Reason for trench: To investigate deposits that make up the possible pond feature						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_14						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
14001	Moderately loose, dark grey brown, silty clay with rare small rounded pebbles around 2cm in diameter	Layer	Topsoil in Trench 14	1.00+	1.00+	0.16	N/A
14002	Moderately compact, mid greyish brown, clay with no inclusions apart from one shell	Layer	Possibly silting overtime	1.00+	1.00+	0.24	N/A
14003	Fairly compact, mid orangey brown, clay with no inclusions	Fill	Silting over time underneath (14002)	1.00+	1.00+	0.10	N/A
14004	Compacted, light orangey yellow, clay with occasional small to medium sized sub rounded limestone pieces	Fill	Clay likely formed through sediment build up from steadily flowing water	1.00+	1.00+	0.44	N/A
14005	Very compact, dark greyish blue, clay with frequent gravel inclusions (limestone/ironstone)	Layer	Natural clay and gravels	0.30+	0.30+	Unexcavated	N/A

Trench 15	Dimensions: 2m x 2m						
	Orientation: N-S						
	Reason for trench: Located south of trench 13, targeting the continuation of the Tudor garden wall						
	Digital Record Link: https://ddt.digventures.com/sudeley-castle/tch/SUD_15						
Context	Description	Type	Interpretation	Length (m)	Width (m)	Depth (m)	Feature
15001	Moderately loose, dark greyish brown, silt with occasional small sub rounded limestone pieces and charcoal flecks	Layer	Topsoil in Trench 15	2.00+	2.00+	0.14	N/A
15002	Moderately compacted, dark yellowish brown, clayey silt with very frequent small to medium sized sub angular limestone rubble chunks	Layer	Rubbly layer likely from the collapse/demolition of wall 15004 containing occasional small pieces of worked stone likely from Winchcombe abbey	2.00+	2.00+	0.16	N/A
15003	N-S aligned Tudor garden wall with very roughly shaped limestone blocks with no bonding material. Largest stone is 0.45x0.31x0.18. Coursing is not visible.	Masonry	N-S continuation of Tudor garden wall visible in TR15. This segment of wall consists of very similar/identical characteristics to the other segments of wall excavated on the same alignment over the years (unbonded, Drystone wall consisting of one to two courses of roughly shaped blocks upon a stone foundation). It is almost certainly the same Tudor garden wall.	2.00+	0.87	Un-excavated	1501
15004	Moderately compact, dark yellowish brown, silty clay with frequent inclusions of small sub angular crushed limestone/ pieces	Layer	Silty clay layer likely representing an intentional build up of material to cover the wall after demolition/garden abandonment	2.00+	1.10+	Un-excavated	N/A

16 APPENDIX 2 – POTTERY CATALOGUE

Table 1: Pottery catalogue

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
12001	PM	TF54	coarse earthenware	vessel	glaze	body	2	2	8.75	1.8%	2.0%	15th c	18th c	TF54 Micaceous, quartz-free, glazed wares
12001	PM	TF80	coarse earthenware	vessel	glaze	body	1	1	16	0.9%	3.7%	16th c	18th c	TF80 Ashton Keynes ware
12001	PM	TF61	refined earthenware	vessel	transferprint	handle	1	1	6	0.9%	1.4%	16th c	17th c	TF60 Black-glazed cups or 'Cistercian ware'
12001	PM	TF72	coarse earthenware	vessel	slip	rim	2	2	9.5	1.8%	2.2%	17th c	19th c	TF72 Staffordshire and Bristol moulded slipware
12001	PM	TF63	coarse earthenware	vessel	glaze	rim	1	1	32	0.9%	7.4%	17th c	20th c	TF63 Miscellaneous flower-pot wares
12001	PM	TF78	refined earthenware	vessel	glaze	body	1	1	3.5	0.9%	0.8%	18th c	19th c	TF78 Staffordshire brown wares
12001	PM	TF74	coarse earthenware	vessel	glaze	body	5	5	5.6	4.4%	1.3%	18th c	19th c	TF74 Staffordshire and Bristol iron-

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														glazed wares, streaky glaze
12001	PM	TF74	coarse earthenware	vessel	glaze	rim	1	1	0.75	0.9%	0.2%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
12001	PM	TF74	coarse earthenware	vessel	glaze	base	4	4	7.25	3.5%	1.7%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
12001	PM	TF74	coarse earthenware	vessel	glaze	handle	2	2	8	1.8%	1.8%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
12001	PM	TF67	stoneware	vessel	none	body	8	8	8.5	7.0%	2.0%	18th c	18th c	TF67 Staffordshire white, salt-glazed stoneware
12001	PM	TF67	stoneware	vessel	none	rim	1	1	0.5	0.9%	0.1%	18th c	18th c	TF67 Staffordshire white, salt-glazed stoneware
12001	PM	TF67	stoneware	vessel	none	base	1	1	3	0.9%	0.7%	18th c	18th c	TF67 Staffordshire white, salt-

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														glazed stoneware
12001	PM	TF67	stoneware	vessel	annular	rim	1	1	1.5	0.9%	0.3%	18th c	18th c	TF67 Staffordshire white, salt-glazed stoneware, annular ware, brown
12001	PM	TF77	refined earthenware	unk	poly	rim	1	1	0.4	0.9%	0.1%	19th c	20th c	TF77 Whieldon ware
12001	PM	TF71	refined earthenware	unk	transferprint	body	2	2	1.5	1.8%	0.3%	19th c	20th c	TF71 Staffordshire transfer-printed wares
12001	PM	TF69	refined earthenware	unk	none	body	10	10	7.4	8.8%	1.7%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware'
12001	PM	TF69	refined earthenware	unk	none	base	3	3	5	2.6%	1.2%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware'
12001	PM	TF69	refined earthenware	unk	none	rim	2	2	3.4	1.8%	0.8%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware'
12001	PM	TF69	refined earthenware	unk	none	body	5	5	3	4.4%	0.7%	19th c	20th c	TF69 Staffordshire

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														and Bristol later whitewares
12001	PM	TF69	refined earthenware	unk	none	rim	4	4	4.5	3.5%	1.0%	19th c	20th c	TF69 Staffordshire and Bristol later whitewares
12001	PM	TF69	refined earthenware	vessel	none	handle	1	1	2	0.9%	0.5%	19th c	20th c	TF69 Staffordshire, and Bristol 'creamware', or later whitewares
12001	PM	TF66	Porcelain	vessel	transferprint	rim	1	1	1	0.9%	0.2%	19th c	20th c	TF66 Porcelain, Blue on white bone china
12001	PM	TF120	refined earthenware	base	machine turned	base	1	1	13.5	0.9%	3.1%	19th c	20th c	TF120 Wedgwood Black basalt wares
12001	L-Med	TF99	coarse earthenware	jug	glaze	body	3	3	10.5	2.6%	2.4%	Late 13th c	15th c	TF99 Late Medieval jug fabric
12003	PM	TF80	coarse earthenware	vessel	none	rim	2	1	19.5	1.8%	4.5%	16th c	18th c	TF80 Ashton Keynes ware
12003	med	TF41B	coarse earthenware	unk	none	body	1	1	7.5	0.9%	1.7%	Late 11th c	13th c	TF41B Oolitic limestone tempered ware ('Cotswold cooking pots')
12007	PM	TF69	refined earthenware	unk	none	body	1	1	0.2	0.9%	0.0%	19th c	20th c	TF69 Staffordshire

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														and Bristol later whitewares
13001	PM	TF80	coarse earthenware	vessel	none	body	2	2	18.75	1.8%	4.3%	16th c	18th c	TF80 Ashton Keynes ware
13001	PM	TF74	coarse earthenware	vessel	glaze	base	3	3	18.75	2.6%	4.3%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
13001	PM	TF74	coarse earthenware	vessel	glaze	body	1	1	0.75	0.9%	0.2%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
13001	PM	TF71	refined earthenware	unk	transferprint	body	2	2	1.5	1.8%	0.3%	19th c	20th c	TF71 Staffordshire transfer-printed wares
13001	PM	TF67	stoneware	vessel	none	body	6	6	11.5	5.3%	2.7%	18th c	18th c	TF67 Staffordshire white, salt-glazed stoneware, annular ware, brown
13001	PM	TF66	Porcelain	vessel	transferprint	body	1	1	1.5	0.9%	0.3%	19th c	20th c	TF66 Porcelain, Blue on white bone china
13001	PM	TF55	refined earthenware	vessel	glaze	rim	5	1	19.5	4.4%	4.5%	19th c	20th c	TF55 Late post-medieval

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														yellow-glazed, cream-bodied earthenware
13002	PM	TF59	coarse earthenware	vessel	none	body	1	1	27.5	0.9%	6.3%	17th c	18th c	TF59 Later Surrey wares
13002	PM	na	coarse earthenware	drain	none	unk	1	1	6	0.9%	1.4%	19th c	20th c	land drain
13004	PM	TF78	refined earthenware	vessel	glaze	body	1	1	2.25	0.9%	0.5%	18th c	19th c	TF78 Staffordshire brown wares
13004	PM	TF74	coarse earthenware	vessel	glaze	body	2	2	3.5	1.8%	0.8%	18th c	19th c	TF74 Staffordshire and Bristol iron-glazed wares, streaky glaze
13004	PM	TF69	refined earthenware	unk	none	body	1	1	0.35	0.9%	0.1%	19th c	20th c	TF69 Staffordshire and Bristol later whitewares
13004	PM	TF52	coarse earthenware	unk	none	body	1	1	1.5	0.9%	0.3%	12th c	17th c	TF52 Malvernian glazed wares (unglazed element)
13004	PM	TF123	stoneware	unk	none	body	1	1	2	0.9%	0.5%	19th c	20th c	TF123 Denby type stoneware (fine)
13004	PM	TF120	refined earthenware	vessel	machine turned	body	1	1	3	0.9%	0.7%	19th c	20th c	TF120 Wedgwood Black basalt wares

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
13004	unk	na	coarse earthenware	unk	none	handle	1	1	13	0.9%	3.0%	unk	unk	unknown coarse earthenware
13004	unk	na	coarse earthenware	unk	none	body	1	1	1	0.9%	0.2%	unk	unk	unknown coarse earthenware
13004	unk	na	vitrified glaze	unk	none	na	1	1	1.6	0.9%	0.4%	unk	unk	vitrified glaze
13007	PM	TF63	coarse earthenware	drain			1	1	0	0.9%	0.0%	19th c	19th c	TF63 Miscellaneous flower-pot wares; terracotta horseshoe field drain weight 2675g omitted from form so not to skew %
13007	PM	TF59	coarse earthenware	vessel	glaze	body	2	2	5.75	1.8%	1.3%	17th c	18th c	TF59 Later Surrey wares
13007	PM	TF59	coarse earthenware	vessel	none	handle	1	1	20.5	0.9%	4.7%	17th c	18th c	TF59 Later Surrey wares
13009	PM	TF69	refined earthenware	unk	none	body	2	2	1.5	1.8%	0.3%	19th c	20th c	TF69 Staffordshire and Bristol later whitewares
14001	PM	TF71	refined earthenware	unk	transferprint	body	3	3	2	2.6%	0.5%	19th c	20th c	TF71 Staffordshire transfer-printed wares
14001	PM	TF69	refined earthenware	unk	none	rim	1	1	3.5	0.9%	0.8%	19th c	20th c	TF69 Staffordshire

Context	Period	Fabric CODE	Fabric	Form	Décor	Element	Sherd count	ENV	Weight	count %	weight %	ED	LD	Comments
														and Bristol later whitewares
15001	PM	TF69	refined earthenware	unk	none	body	1	1	1	0.9%	0.2%	19th c	20th c	TF69 Staffordshire and Bristol later whitewares
unstrat	PM	TF71	refined earthenware	unk	transferprint	body	1	1	0.4	0.9%	0.1%	18th c	20th c	TF71 Staffordshire transfer-printed wares
unstrat	PM	TF67	stoneware	unk	transferprint	body	1	1	1.1	0.9%	0.3%	18th c	18th c	TF67 Staffordshire white, salt-glazed stoneware
unstrat	PM	TF52	coarse earthenware	unk	glaze	rim	1	1	74	0.9%	17.1%	12th c	17th c	TF52 Malvernian-glazed wares
TOTALS							114	109	433.95	100.0%	100.0%			

Table 2: Pottery occurrence by number and weight (in g) of sherds per context by fabric type

WARE	Context	12001	12003	12007	13001	13002	13004	13007	13009	14001	15001	unstrat	Totals
na	No					1	3						4
	Wt (g)					6	15.6						21.6
TF123	No						1						1
	Wt (g)						2						2
TF120	No	1					1						2
	Wt (g)	13.5					3						16.5
TF99	No	3											3
	Wt (g)	10.5											10.5
TF80	No	1	2		2								5
	Wt (g)	16	19.5		18.75								54.25
TF78	No	1					1						2
	Wt (g)	3.5					2.25						5.75
TF77	No	1											1
	Wt (g)	0.4											0.4
TF74	No	12			4		2						18
	Wt (g)	21.6			19.5		3.5						44.6
TF72	No	2											2
	Wt (g)	9.5											9.5
TF71	No	2			2					3		1	8
	Wt (g)	1.5			1.5					2		0.4	5.4

WARE	Context	12001	12003	12007	13001	13002	13004	13007	13009	14001	15001	unstrat	Totals
TF69	No	25		1			1		2		1	1	31
	Wt (g)	25.3		0.2			0.35		1.5		3.5	1	31.85
TF67	No	11			6							1	18
	Wt (g)	13.5			11.5							1.1	26.1
TF66	No	1			1								2
	Wt (g)	1			1.5								2.5
TF63	No	1						1					2
	Wt (g)	32						2675					2707
TF61	No	1											1
	Wt (g)	6											6
TF59	No					1		3					4
	Wt (g)					27.5		26.25					53.75
TF55	No				5								5
	Wt (g)				19.5								19.5
TF54	No	2											2
	Wt (g)	8.75											8.75
TF52	No						1					1	2
	Wt (g)						1.5					72	73.5
TF41B	No		1										1
	Wt (g)		7.5										7.5
	Context Date	19-20th c	16-18th c	19-20th c	19-20th c	19-20th c	19-20th c	19th c	19-20th c	19-20th c	19-20th c	18-20th	

17 APPENDIX 3 – FINDS CATALOGUE

17.1 Metal finds

Table 3: Metal finds catalogue

Context	Period	Fabric	Form	Count	Weight (g)	ED	LD
12001	PM	Aluminium	pull tab	1	3	19th c.	20th c.
12001	PM	Fe (Iron)	unknown	2	4	unk	unk
13001	PM	Fe (Iron)	arrow	1	11	19th c.	20th c.
13001	PM	Fe (Iron)	Nail	3	22	19th c.	20th c.
13002	PM	Cu (Copper)	Shell casing	1	12	19th c.	20th c.
13002	PM	Fe (Iron)	Nail	6	46	19th c.	20th c.
13002	PM	Fe (Iron)	unk (?pipe)	1	69	19th c.	20th c.
13002	PM	Fe (Iron)	unk (?washer)	1	9.25	19th c.	20th c.
13004	PM	Fe (Iron)	unknown	1	4	19th c.	20th c.
13004	PM	Pb (Lead)	unknown	1	8	unk	unk
15001	PM	Fe (Iron)	Nail	1	5	19th c.	20th c.
12001	PM	Fe (Iron)	Knife	2	11	unk	unk
12001	PM	Fe (Iron)	Nail	36	157	18th c.	19th c.
12001	PM	Ag (Silver)	cufflink/button	2	1	1660	1685
unstrat	PM	Fe (Iron)	Nail	3	24	19th c.	20th c.

17.2 Glass finds

Table 4: Glass finds catalogue

Context	Period	Fabric	Colour	Count	Weight (g)	ED	LD	Comments
12001	PM	glass	olive	8	7.85	1500	1900	wine/bottle
12001	PM	glass	colourless	1	0.3	1800	1900	window/flat
13001	PM	glass	Aqua	9	3.1	1500	1900	window/flat
13001	PM	glass	olive	1	16.38	1500	1900	wine bottle
13001	PM	glass	colourless	2	1.1	1500	1900	vessle
13002	PM	glass	Aqua	1	0.37	1500	1900	window/flat
13004	PM	glass	olive	2	5.11	1500	1900	window
13004	PM	glass	colourless	2	7.1	1500	1900	window
unstrat	PM	glass	Aqua	1	0.2	1800	1900	flat
unstrat	PM	glass	colourless	1	17.2	1800	1900	vessle handle

17.3 Worked stones

Table 5: Summary of worked stone assemblage by trench and object type

Type			Trench 8	Trench 10	Total
Moulding	-	5	-	2	7
Block	1	3	-	2	6
Roof tile	3	-	-	-	3
Other	-	1	-	-	1
Total	4	9	0	4	17

Table 6: Summary data of all stonework by context

ID	Trench	Context	SF no.	Material	Object	Count	Weight (g)	Period
1		0		Limestone	MOULDING	1	1191	Uncertain
2	10	10005		Sandstone	ROOF TILE	1	190	Medieval
3	10	10005		Sandstone?	ROOF TILE?	1	147	Medieval?
4	10	10005		Limestone	MOULDING	1	97	Uncertain
5	10	10001		Slate	roof tile?	3	14	Uncertain
6	10	10001		Slate	ROOF TILE	1	9	Uncertain
7	10	10005		Slate	ROOF TILE?	2	91	Uncertain
8	8	8001		Sandstone	ROOF TILE	1	363	Medieval
9	8	8006	61	Limestone	Ball flower	1	122	Medieval
10	8	8011	69	Limestone	Ball flower	1	188	Medieval
11	8	8011	67	Limestone	Ball flower	1	341	Medieval
12	8	8002	55	Limestone	Ball flower	1	408	Medieval
13	8	8011	66	Limestone	Ball flower	1	114	Medieval
14	8	8004	43	Limestone	Ball flower	1	506	Medieval
15	8	8003	74	Limestone	Ball flower	1	750	Medieval
16	8	8002		Limestone	Ball flower	1	139	Medieval
17	8	8002		Limestone	Ball flower	1	53	Medieval
18	8	8002		Limestone	Ball flower	1	487	Medieval
19	8	8002		Limestone	Ball flower?	1	89	Medieval
20	8	8003		Limestone	MOULDING	1	101	Medieval?
21	8	8003	75	Limestone	MOULDING	1	956	Medieval
22	8	8006		Limestone	MOULDING	1	224	Medieval?
23	8	8022	78	Limestone	Block	1	492	Medieval?
24	8	8007	73	Limestone	MOULDING	1	620	Medieval?
25	8	8003		Limestone	ROOF TILE	1	557	Medieval
26	8	8003		Limestone	ROOF TILE	1	157	Medieval

ID	Trench	Context	SF no.	Material	Object	Count	Weight (g)	Period
27	8	8003		Limestone	ROOF TILE	1	467	Medieval
28	8	8003	79	Limestone	MOULDING	1	9000	Medieval
29	8	8003	77	Limestone	MOULDING	1	40000	Medieval
30	8	8003	80	Limestone	MOULDING	1	19000	Medieval
31	13	13003		Limestone	MOULDING	1	5043	Medieval
32	12	12002		Limestone	Block	1	476	Medieval
33	12	12010		Shelly limestone?	ROOF TILE	1	355	Medieval?
34	12	12010		Shelly limestone?	ROOF TILE	1	117	Medieval?
35	12	12010		Shelly limestone?	ROOF TILE	1	192	Medieval?
36	15	15002		Limestone	MOULDING	1	404	Medieval
37	15	15002		Limestone	MOULDING	1	200	Medieval
38	15	15002		Limestone	Block?	1	98	Medieval
39	15	15002		Limestone	Block?	1	30	Medieval
40	13	13003		Limestone	Block	1	135	Medieval
41	13	13003		Limestone	Block	1	30	Medieval
42	13	13003		Limestone	Block	1	9	Medieval
43	13	13003		Limestone	MOULDING	1	401	Medieval
44	13	13003		Limestone	MOULDING	1	340	Medieval
45	13	13003		Limestone	MOULDING	1	898	Medieval
46	13	13003		Limestone	MOULDING	1	750	Medieval

17.4 Clay tobacco pipes

Table 7: Clay tobacco pipe finds catalogue

Context	Period	Fabric	Form	Count	Weight (g)	ED	LD	Comments
12001	PM	ceramic	tobacco pipe	9	10.7	1680	1800	5/64
13001	PM	ceramic	tobacco pipe	4	14	1680	1800	5/64
13002	PM	ceramic	tobacco pipe	1	4	1680	1800	5/64
14002	PM	ceramic	tobacco pipe	8	24	1680	1800	5/64

18 APPENDIX 4 – ANIMAL BONE CATALOGUE

Table 8: Summary of animal remains

Context	Equid	Cattle	Sheep /goat	Dog	Large ungulate	Medium/ large mammal	Medium mammal	Total
12002		1		1	1			
12007	20		1	3				
12010			1					
13004						2		
13009								1
15002							1	
Total	20	1	2	4	1	2	1	1

Table 9: Summary of mollusc remains

Context	Marine		Terrestrial										Fossil shell		Total	
	Edible Oyster		White/brown-lipped snail		Garden snail		Cellar snail		Amber snail		Strawberry snail					
	Count	MNI	Count	MNI	Count	MNI	Count	MNI	Count	MNI	Count	MNI	Count	MNI	Count	MNI
12002	2	1	6	1											8	2
12007													1	1	1	1
12010			36	4	2	1					3	2			41	7
13002													1	1	1	1
13003			18	4	3	3			1	1	5	4			27	12
13004											1	1	2	1	3	2
13009			64	10	6	3	1	1			1	1			72	15
15002			29	11	13	8									42	19
Total	2	1	153	30	24	15	1	1	1	1	10	8	4	3	195	59