Sizergh Castle, Dig in the Park, Community Archaeology Survey and Excavation

Cumbria

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SUMMARY

Oxford Archaeology North (OA North) were commissioned by Levens Local History Group and the National Trust to deliver a programme of community archaeological work at Sizergh Castle (SD 499 879) in July 2013. The project provided training and supervision for participants in a broad range of archaeological skills, which included archaeological excavation, topographic survey, geophysical survey, building survey and palaeoenvironmental work; the project was funded by the Heritage Lottery Fund. The programme comprised several different archaeological activities which centred around the excavation of a burnt mound and a putative deer park boundary, along with a historic building survey of the Great Barn. The project was also intended be the centrepiece of a celebration of archaeology, undertaken as part of the national Festival of British Archaeology events. Ultimately, the data collected during the field surveys, excavations, geophysical surveys and building surveys will be ultimately disseminated via reports, and updated records for the Cumbria Historic Environment Record and the National Trust SMR.

The burnt mound in Sizergh Park had a classic kidney shape with a depression or concavity on the western side. The excavation demonstrated that it was constructed on peat at the edge of a glacially formed kettle hole. The burnt stone and charcoal fabric of the mound was found to have formed in two phases and in the concavity was a timber lined trough in very good condition. Radiocarbon dates from the burnt mound at Sizergh indicate extended or multiple phases of use, over several hundred years. The two earliest radiocarbon dates, one of which was from the backfill of the excavated trough, are chronologically comparable indicating that the mound was accumulating c 2450-2150 cal BC, which is at the very end of the Neolithic period/start of the Early Bronze Age. A third radiocarbon date (Section 6.3.1), from material recovered from, stratigraphically, the uppermost part of the mound deposit sequence dates to between c 2200-1980 cal BC, towards the end of the Early Bronze Age. The date from the upper level of the Sizergh cairn was up to 200 years after the excavated trough started filling up, and suggests that it was formed during a second phase of working and used a second trough that has yet to be discovered.

Three trenches were excavated across a double bank and ditch earthwork curving through parkland to the south of Sizergh Castle. The western corner disappears under the south western corner of the South Garden, while the eastern end extends up to the eastern edge of the Lake Garden and curves round to the north of the castle. A single radiocarbon date was obtained from a lower ditch fill from Trench 2, and after calibration indicated that the date fell within one of the three possible date ranges: 1647-1694 cal AD; 1727-1813 cal AD; 1918-present cal AD. There exists a strong evidence case for the dismissal of the last and middle date ranges based on the assumption that if the ditch had been constructed during those dates it would have been documented on the various historic maps and plans of the period, which it is not. This suggests that the monument was cut at some time before 1647-1694 calAD. While the origin and function of this feature remains unclear, it is suggested that the double bank and ditch may have functioned as a boundary ditch that potentially extended around the castle separating the castle and gardens from the newly established deer park.

The Great Barn is a two-storey Lake District bank barn, that was designed to house animals in the lower level, with hay and grain above, the latter being accessible from a
ramp or bank. The barn measures 30.5m in length and has two ramps and two sets of double-doors. There are a series of small outshuts on the south side, of which the central one, between the ramps, is first-floor only, and is supported by a central stone pillar. The barn shares a yard with several other estate buildings, including a former hay barn to the west, which is believed to have been constructed in the 1560s, and the extant mid-late eighteenth century coach-house and stable.

The recent survey has suggested that earliest phase of construction on this site was a timber barn, probably a cruck barn, and that subsequently many of its timbers were reused in the construction of the existing stone barn. There is some uncertainty as to the dating of these two barns. Documentary evidence indicates that a large barn was constructed as part of an extensive campaign of building works undertaken by Walter Strickland (1516-69) in the 1560s; a 1569 inventory referred to a ‘new barne’ at Sizergh that contained 22 oxen, 12 horses, wheat, barley and oats, as well as agricultural implements. There is the possibility that this inventory refers to the earlier timber barn, however it is also possible that this inventory refers to the surviving stone barn. The 1560s was a period when Walter Strickland was substantially expanding the property and was keen to construct elaborate buildings as a reflection of his wealth and status. As such it is possible that he would have embarked on the construction of an elaborate stone barn. However, the existing stone barn has various stylistic traits that would indicate construction in the mid-seventeenth century. The seventeenth century, however, was a period of financial decline and political difficulty for the Stricklands, and it is difficult to see how such an ambitious project would have been resourced during this period. There is of course a possibility that the ‘new barne’ referred to in the 1560s was a timber construction, and that it was rebuilt in stone during the mid-seventeenth at a time when such changes were not being recorded. The creation of the new Sizergh deer park in front of the castle, which is believed to have been established in the mid to late seventeenth century, is similarly unrecorded. The recent survey can not confirm that the existing stone barn was constructed in the 1560s and recommends that the reused timbers be subject to dendrochronological dating to try and establish a chronology for the earlier timber barn.
ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Levens Local History Group for their considerable support and enthusiasm in commissioning and delivering this project, with special thanks due to Stephen Read and Allan Steward. Jamie Lund of the National Trust assisted in the delivery of the project and was supported by staff from the National Trust Sizergh Estate, including Tom Burditt, Lisa Hornby, Maria Fofanova, Georgina Ferguson and Kelley Sproston-Heath. We would also particularly like to thank the Heritage Lottery Fund for the funding of the project. Thanks are also due to Justin Wood, who provided a fantastic photographic record of the archaeology and events (Plates 1-2).

Plate 1: Without whom the project could never have been achieved

Plate 2: Justin – photographer extraordinaire
The Building survey was directed by Jamie Quartermaine and Karl Taylor, who also directed the geophysical survey; The topographical survey was directed by Peter Schofield and Jamie Quartermaine; the environmental probing / coring survey was directed by Denise Druce and Peter Schofield, whilst the excavations were directed by Gill Hey and Jeremy Bradley, with the assistance of Paul Dunn, Jon Onraet and David Maron, along with Jamie Lee Twigge and Emma Fishwick. Adam Parsons is to be thanked for setting up and supporting the blog and for helping the pottery making stand.

The examination of the trough timbers was undertaken by Chris Howard Davis. The radiocarbon dating was undertaken by the Scottish Universities Environmental Research Centre. The palaeoenvironmental assessment was undertaken by Denise Druce and Mairead Rutherford. The report was compiled by Jeremy Bradley, Karl Taylor, Jamie Quartermaine, Mairead Rutherford, Denise Druce, Fraser Brown and Gill Hey, with the drawings produced by Anne Stewardson. The project was managed by Jamie Quartermaine who also edited the report.

In particular we must thank the participants whose support, help and enthusiasm was overwhelming, who are named below and without whom the success of the project would not have been possible (Plates 3-7):

Geoff Cook, Susan Wakeford, Kevin Grice, Jeremy Rowan Robinson, Yvonne Rowan Robinson, Helen Quatermaine, Justin Wood, Diane Gunson, Carol Poole, Glennis Sharpe, Michelle Williams, Megan Williams, Amanda Sinker, Catherine Whitelock, Valerie Bergus, John Walmsley, Alison Ewin, Bob Abram, Jane Abram, Sarah Harvey, Elaine Monaghan, Jan Hicks, Peter Wood, and Gill Wood.

Plate 3: Participants on the burnt mound

Denise Robinson, Stuart Robinson, Barbara Copeland, Allan Steward, Colin Shepherd, Barbara Shepherd, Howard Bannister, Gae Hicks, Linda McCutcheon, Helen Pugh, Barbara Blatchford, Richard Griffiths, Barry Elder, Jackie Elder, Chris Swanson, Kasia Litwa, Vince Warwick, Annie Warwick, Carol Dougherty, Jenny Kelly, John Harling, Katherine Bostock, Philippa McMurdo, Karen Wells, Elizabeth Blaney, Shelia Watson, and David Willacy,
Plate 4: A selection of the enthusiastic team at the Burnt mound
Helen O’Brien, Alan Dunthorne, John Sayles, Judith Horsley, Hilary Bentley, Mike Walsh, Cathryn Taylor, Paul Taylor, Mark Simpson, Judith Anstee, Sue Lydon, Barbara Stevens, Mark Palacio, Sofia Palacio, Ken Lindley, Peter Matthiessen, Frances Rand, Clare Mcintegart, Roger Kingston, Liz Kingston, Janice Wilson, Robert Bell, Doug Stables, Bridget Gerry, and Anita Payne.

Plate 5: The deturfing ceremony on the double bank and ditch feature
Plate 6: Participants undertaking a survey of the Great Barn

Plate 7: Surveying with the GPS
1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 Oxford Archaeology North (OA North) were commissioned by Levens Local History Group and the National Trust to deliver a programme of community archaeological work at Sizergh Castle (SD 499 879) in July 2013. The project provided training and supervision for participants in a broad range of archaeological skills, which included archaeological excavation, topographic survey, geophysical survey, building survey and palaeoenvironmental work; the project was funded by the Heritage Lottery Fund. The programme comprised several different archaeological activities which centred around the excavation of a burnt mound and a putative deer park boundary, along with a historic building survey of the Great Barn. The project was also intended to be the centrepiece of a celebration of archaeology, undertaken as part of the national Festival of British Archaeology events. Ultimately, the data collected during the field surveys, excavations, geophysical surveys and building surveys will be disseminated via reports, and updated records for the Cumbria Historic Environment Record and the National Trust SMR.

1.1.2 The project examined the following sites:

- **Site 181421** - burnt mound in Sizergh Park located on the edge of an area of soft, churned up boggy ground to the north west of the park ha-ha. The feature is a classic 'burnt mound' being kidney shaped with a depression or concavity on the western side. The stone work exposed in the upper surface has the appearance of having been burnt. The site is surrounded by wet boggy ground and is close to the site of at least two natural springs.

- **Site 181425** - a double bank and ditch earthwork curving through parkland to the south of Sizergh Castle. The western corner disappears under the south western corner of the present garden, while the eastern end runs out at a point to the south of the southernmost extent of the pond. The abrupt end of the eastern end of the bank and ditch earthwork may suggest recent disturbance. This is further supported by the existence of a mound of redeposited earth against the inner edge of the earthwork which could have resulted from any work to break through the bank to create a clear view into the parkland. The function of the earthwork is difficult to understand. Its function as a former ha-ha, deer park pale or driveway are all possibilities.

- **Site 27785 - The Great Barn**: the Great Barn is thought to have been part of the building works carried out by Walter Strickland (1516-69) in the 1560s. If this is the case, then it would represent a very early example of a two-storey Lake District bank barn, which was designed to house animals in the lower level, with hay and grain above, the latter being accessible from a ramp or bank. In 1569 the ‘new barne’ at Sizergh contained 22 oxen, 12 horses, wheat, barley and oats, as well as agricultural implements. The Great Barn measures 30.5m in length and has two ramps and two sets of double-doors. There are a series of small outshuts on the south side, of which the central one, between the ramps, is first-floor only, and is supported by a central stone pillar. This was probably used as a grain storage area. The Great Barn originally shared a yard with a
former hay barn also believed to have been constructed by Walter Strickland in the 1560s, this building demolished in 1948/9 after becoming unsafe, and is also flanked by a late-eighteenth century coach-house and stable.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 Sizergh Estate is situated c 4km south-west of Kendal in a predominantly rural and agricultural setting (Fig 1). The 633ha (6.3 sqkm) estate consists of pasture, woodland and parkland situated in rolling countryside sandwiched between the River Kent and the Lyth Valley. It is skirted by the A591 on the east side and lies between the villages of Brigsteer and Levens (English Heritage 1997).

1.2.2 The estate lies within the area characterised by the Countryside Commission as Morecambe Bay Limestones consisting of conspicuous limestone hills often with exposed limestone screes rising above low-lying pasture and wetlands (Countryside Commission 1998, 67-73). The landscape has undulating pasture farmland, enclosed with drystone walls, interspersed with areas of enclosed woodland and plantations, which historically have been coppiced. The surrounding lower wetlands have been enclosed and improved in the nineteenth century, whilst the exposed limestone hills have been subject to quarrying for stone.

1.2.3 The solid geology of the Sizergh Estate comprises limestone, dated to the Dinantian phase of the Carboniferous period (British Geological Survey 1982). The overlying soil comprises typical Brown Earths of the Denbigh 1 Series (Lawes Agricultural Trust 1983).
2. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

2.1 HISTORY OF SIZERGH CASTLE AND ESTATE

2.1.1 The following section presents a detailed summary of the historical and archaeological background of the general area. This is presented by historical period, and has been compiled in order to provide a wider archaeological context to the site.

2.1.2 **Late Upper Palaeolithic to Mesolithic Periods (c 11,000 – 4000 BC):** there is no evidence of human activity in Cumbria prior to the Late Upper Palaeolithic, between 10,000 BC and 9500 BC. Caves in the limestone of southern Cumbria have provided artefacts that have been dated to this period (Hodgson and Brennand 2006, 24), which may suggest evidence of early groups of hunters attempting to exploit the large mammals present beyond the edge of the ice sheet (Hodgkinson et al 2000, 33).

2.1.3 Following the glacial period, the Cumbrian climate experienced rapid warming and the southern part of the county was colonised by successive expansions of birch, hazel, pine, oak, elm and alder, with the occurrence of charcoal suggesting human influence in the landscape associated with small-scale woodland clearance from around 7531–6646 cal BC at Little Hawes Water (*op cit*, 33–4). In northern Cumbria, juniper and willow preceded the colonisation by birch and hazel and a more open landscape developed than in the south of the county (*ibid*). By 6000 cal BC, however, forest comparable with that in much of lowland England was present in Cumbria and possible woodland clearances by burning is evident from around the beginning of the sixth millennium BC (*op cit*, 107).

2.1.4 The earliest suggestions of clearance come from the uplands where recent evidence of burning has been recorded close to the Langdale axe factories (OA North 2004), dating to 5968-5732 cal BC. There is also some evidence recorded for Mesolithic clearance activity at White Moss, near Grasmere (*op cit*, 316-7). Such woodland clearances would have allowed the regeneration of plants and encouraged browsing animals (Hodgson and Brennand 2006, 25), therefore, allowing humans to exercise a greater degree of control over the productivity of hunting grounds. Much of the artefactual evidence for the Cumbrian Mesolithic derives from flint scatters at coastal sites, with only one site having been identified in the central Lake District, comprising a small scatter of microliths from close to the Roman Fort at Ambleside (*op cit*, 25–6).

2.1.5 **The Neolithic (4,000 - 2,500 BC):** there appears to be some continuity between the late-Mesolithic and early-Neolithic periods in Cumbria, with typically Mesolithic tool types possibly continuing in use until the end of the fourth millennium BC (Cherry and Cherry 2002, 2–3). Pollen evidence from western Cumbria demonstrates that the early Neolithic period was also a time of great cultural change, with the adoption of agriculture on a large scale leading to more extensive woodland clearances (Hodgkinson *et al* 2000, 68).

2.1.6 Although Neolithic agricultural activity can be inferred from signals in pollen diagrams, and findspots of lithic and ceramic material, there is relatively little evidence for Neolithic settlement sites in Cumbria (Hodgson and Brennand 2006,
31–2). The Neolithic period did, however, see the introduction of monumental funerary and ritual architecture, with some of the earliest stone circles in Britain, including Castlerigg and Swinside, being constructed in Cumbria (Burl 2000, 109).

Plate 8: Prehistoric monuments within the Sizergh estate

2.1.7 In the first years of the twentieth century, T McKenny Hughes excavated two mounds (1904a; 1904b) on Sizergh Fell (Plate 8). The first of these mounds Tumulus 1 (NTSMR 20052) was identified as containing a ‘Beaker’ burial of the Early Bronze Age (Section 2.1.14).

2.1.8 The second mound, Tumulus 2 (NTSMR 20053), somewhat larger than Tumulus 1 with a diameter of c 17m, took the form of a limestone cairn covering a central platform of slabs surrounded by a rubble bank (McKenny Hughes 1904b). The excavator recorded five burials, in small cairns or chambers associated with the central platform; however, no material culture was recorded. The funerary cairn was excavated again in 2003 by the University of Sheffield and the National Trust as part of a research project concerned with the characterisation of landscape features and previously excavated cairns on the fell (Evans and Edmonds 2003). Re-examination of the skeletal material recovered from the cairn by McKenny Hughes revealed that there were in fact at least thirteen individuals interred, of which eight were either pre-natal or up to six months of age (Start 2002).
Radiocarbon dating was undertaken on several samples of the surviving skeletal material, the process retrieved two successful dates for skeletal material dating to the Neolithic (3790-3650 BC) and Iron Age (760-640 BC) periods (Evans and Edmonds 2007, 130). Evans and Edmonds have suggested a sequence of burial rites at this site, with it being founded in the Early Neolithic as a place where the dead were laid to rest, possibly in an exposed state on the limestone pavement. Later the site was reworked and bodies were placed on a boulder platform above the pavement before being covered by a mound. The mound presumably then become a focus for later funerary activity when Iron Age burials were inserted into it (Evans and Edmonds 2007, 132).

2.1.9 The structural and depositional traditions identified at Sizergh Tumulus 2 share a number of common themes with two excavated barrows on Birkrigg Common on the Furness limestone 25km to the south-west of Sizergh. Both of these cairns were multi-phased structures overlying earlier circular settings of stone, and both contained disarticulated human bones (Evans and Edmonds 2003).

2.1.10 Research undertaken by the University of Sheffield and the National Trust between 2002-4 involved further investigation of the wider fellside. A trench located to the south-west of Tumuli 1 revealed a small reworked and broken polished axe of Group VI type tuff which had been wedged into the limestone pavement of a natural mound. In addition, a polissoir (portable axe polishing stone) was found inverted and sealing a gryke in the limestone pavement, which contained a single group VI flake (NTSMR 27783; Evans and Edmonds 2003, 2). Although polished stone axes can be difficult to date, the small reworked examples are relatively common in contexts such as henge ditches during this broad period, and suggests that Sizergh Fell was a focus for activity during the Neolithic/Bronze Age transition (Evans and Edmonds 2003).

2.1.11 A perforated stone axe hammer was found in Low Park Wood (NTSMR 24275), a small bifacially worked fragment of white flint was found in a ploughed field at Rash Spring, Holeslack (NTSMR 181339) and several flint waste flakes were retrieved from the field south of Hare Park at Ash Bank (NTSMR 24247). Further afield three flint scatters have been recorded less than 1.5km to the east of Sizergh. Two of these collections have been ascribed a late Mesolithic/Early Neolithic date by Cherry and Cherry (2002) and a third, smaller, scatter included a polished axe and Neolithic scrapers (Cherry and Cherry 1987, 254). All of these scatters have been found in association with barrows, and two of these are from Levens Park. A significant number of chance finds of Neolithic date have been found in the area, and include a number of polished and perforated stone axes, flint tools and a broken flint axe on Whitbarrow scar to the west of Sizergh. A perforated stone axe-hammer (NWWS 4089) was found on Helsington Moss and a stone adze was found at Brigsteer (NWWS 4070) (Hodgkinson et al 2000, 26).

2.1.12 **The Bronze Age (c 2500 - c 700 BC):** the limited environmental evidence that is presently available suggests that the pattern of clearances evident in the Neolithic continued throughout the Bronze Age (Hodgson and Brennand 2006, 31). Upland marginal settlement in western Cumbria during the Bronze Age is suggested in many areas by the presence of burial mounds and cairnfields (Hodgkinson et al 2000, 76; Quartermaine and Leech 2012). In Cumbria, the most frequent form of prehistoric burial monument appears to have been the round cairn (*ibid*). The higher numbers of cairns, in contrast to earthen tumuli, reflects the ready
availability of loose stone, and is therefore a local variant of the funerary mound style, rather than being a culturally distinct class of monument. The few cairns from Cumbria that have been dated suggest construction during the Early Bronze Age (ibid), in common with the large number of cairns from south-west Scotland and the barrows from Cheshire (Hodgson and Brennand 2006, 43–4).

2.1.13 A scheduled round cairn (SM 35020) is located c 130m to the east of the study area, to the north of Berry Holme. It consists of an oval-shaped mound of stones covered with grass, measuring c 16m east/west by c 11m north/south, and up to 1.3m high (English Heritage 2004). A tanged dagger of presumably Bronze Age date was found in peat moss on Helsington Moss (NWWS 4071 in Hodgkinson et al 2000).

2.1.14 A beaker burial (NTSMR 20052; Plate 8) was retrieved from the excavations undertaken in 1902-03 of Tumulus 1 on Sizergh Fell (McKenny Hughes 1904a, 71; Fell 1953, 1). Tumulus 1 was composed of a number of erratic stones arranged around the top of a small mound. Beneath this arrangement, placed in a limestone crevice or gryke and topped by a large boulder, were a number of Beaker sherds accompanied by a small amount of charcoal and burnt stones (McKenny Hughes 1904a).

2.1.15 Further sites on Sizergh Fell had previously been identified as being other possible prehistoric burial cairns (NTSMR 20057, 20058). Although these are now thought to be misidentifications of natural geological mounds. McKenny-Hughes appears to have identified the only definitive prehistoric burial sites on the fell and the identification of the rest of the mounds as being of natural origin was borne out in the investigations undertaken by the University of Sheffield.

2.1.16 A cairn (NTSMR 24242) located to the south-west of Holeslack Spring, has a putative kerb suggesting that it had a funerary function. This cairn appears to have much in common with other recognised prehistoric funerary cairns in the area. Despite its prominence there are no records of any antiquarian activity at this site. A circular structure and cairn (NTSMR 24282) to the south-east of Lane End Farm, Sizergh, comprises a small, circular bank measuring 5.5m x 5m and 0.5m high; which is hollowed-out in the middle, it is interpreted as a robbed burial cairn.

2.1.17 A copper-alloy blade fragment (NTSMR 181340) was found with a metal detector at Sizergh Castle. Only the lower part of the blade and cutting edge survive from the axe and insufficient remains of it to identify the type of axe or palstave. The findspot was recorded relatively near to a burnt mound which was identified during the earlier estate landscape survey (OA North 2011b) project (NTSMR 181421).

2.1.18 Iron Age: the end of the Bronze Age saw a return to a more densely forested landscape across much of the Cumbrian uplands as the clearances were recolonised by secondary woodland (Hodgkinson et al 2000; Quartermaine and Leech 2012). The nature of the archaeological evidence also demonstrates a marked change from the relative abundance of archaeological material on the marginal land that typified the Middle Bronze Age, to a lower density of sites that were characterised by defended enclosures, and hillforts, such as Castle Crag in Haweswater or the multivallate hillfort of Castlesteads (SM 23684) at Natland near Kendal. Castlesteads is located c 2km to the east of the study area, on the summit of The Helm. It includes an enclosure c 39m long by 17m wide at the southern end, which widens to 25m at the northern end. Three artificially levelled areas within the
enclosure are thought to be hut platforms. To the north the enclosure is defended by two earth and stone banks, both measuring up to 2m high and separated by an 8.5m wide ditch. To the south the enclosure is defended by a single earth and stone bank that is 6.5m wide and 1m high (English Heritage 1994).

2.1.19 Overall the period is not well represented within the archaeological record in the region due, at least in part, to a lack of identifiable material culture making it difficult to date sites (Hodgson and Brennand 2006, 52). The only clearly Iron Age evidence from within the study area comes from the radiocarbon dating of a sample of skeletal material recovered from Tumulus 2 on Sizergh Fell (NTSMR 20053; Plate 8). The material presumably came from a later secondary deposit where an internment was inserted into the structure of the mound. This appears to indicate that the mound had become the focus for later funerary activity (Evans and Edmonds 2007, 132). In addition, the enclosed settlement on Sizergh Fell cannot be discounted as being from a period earlier than Roman. Other ‘scooped’ settlements in the region appear to have been occupied in the Iron Age.

2.1.20 The Roman Period: in the years following the Roman invasion of AD 43, the army advanced as far as a line between Chester and York, but the frontier of the empire was not extended beyond this until the reign of Vespasian (AD 69-79). In AD 71 the Romans, led by Petillius Cerialis, crushed the Brigantes and by AD 79, a main road was established north from Chester, with forts at Low Borrow Bridge and Brougham. In c AD 90, a fort was built at Watercrook, Kendal (SM CU273), in the loop of the River Kent (Potter 1979), c 1.7km to the east-north-east of the north extent of the study area. A road was driven north-westwards to the head of Windermere, then on through the hills to Ravenglass; forts were established at Ambleside (Leech 1993) and Hardknott, with the latter occupied between AD 120 and AD 138, and AD 160 and AD 197 before being finally abandoned (Bidwell et al 1999).

2.1.21 In total, seven sites of Roman date have been identified within the present study area, and includes most notably a Romano-British enclosed settlement on Sizergh Fell (NTSMR 20050). This comprises a primary northern enclosure, with a later enclosure adjoined on to the south; two possible round house structures were identified against the eastern wall of the northern enclosure. A mound containing a crouched inhumation was excavated at the western end of the wall between the northern and southern enclosures, and finds associated with this burial including a fibula, and a ring and melon bead, which were interpreted as being of Romano-British date. A mound was also excavated to the east of the northern enclosure, but nothing of archaeological interest was found within it (McKenny Hughes 1912a, 397-402). While it is evident that there was occupation of the site during the Roman period, the possibility exists that the settlement had origins in the Iron Age. The enclosed settlement was surveyed and described by the RCHME in 1936.

2.1.22 The remaining Romano British sites within the study area are findspots, and includes a number of quernstones. An unfinished beehive quernstone (NTSMR 26406) was found to the south of Park Lodge Cottage, Sizergh; the upper part of a rotary quern was discovered south-west of Holeslack Spring (NTSMR 20049) and a further quernstone (NTSMR 24260) was found near Low Sizergh Farm within a dry-stone wall. According to Machell (Ewbank 1963) a number of Roman coins (NTSMR 20056) were found, at Sizergh Castle ‘Two silver coins were found on the South East side of the house [Sizergh Hall] while digging the garden about fifteen
years ago [c 1677]’ One of the coins was identified by David Shotter as a brass sestertius of Faustina (161-175 AD) showing Diana with a lighted torch (Mike Hancox pers comm). Putative Roman glass was also recovered during field walking in fields on the west side of Nether Wells Farm (NTSMR 24248).

2.1.23 The Early Medieval Period: as is the case throughout Cumbria, evidence for Early Medieval activity is extremely limited. Following the withdrawal of Roman governance in the early fifth century it seems that the region fragmented into a number of small kingdoms. It is generally assumed that the British kingdom of Rheged was located on the Solway, and may well have incorporated most or all of the Lake District (Higham 1986). The seventh century saw the expansion of the kingdom of Northumbria which had incorporated the area of modern day Cumbria by the middle of the century (Kirkby 1962). In AD 685 Ecgfrith of Northumbria made grants of land to St Cuthbert offering territory in Cartmel and Carlisle ‘et omnes Britannos cum eo’, ‘including all the British inhabitants’ (Crowe 1984), suggesting a substantial population. Anglian crosses have been found at Kendal and Heversham but few settlements have been located to date, possibly because those on the fertile lowlands were destroyed by later ploughing (Rollinson 1996).

Placenames indicated by the name elements of –ham and –ing(a)ton, such as Helsington and Heversham may provide evidence of Anglian settlement in the region (op cit, 35).

2.1.24 Political anarchy descended in the ninth century, in part linked to the pressure of Viking incursions. Many of the Norse settlers who came into Cumbria during the tenth and eleventh centuries came from settlements in Ireland, the Isle of Man and the Western Isles.

2.1.25 The placename of Sizergh is part constructed of the -erg element which has been traditionally accepted as meaning a ‘shieling or hill pasture’ in Old Norse, and derived from Old Irish (op cit, 38). Higham has suggested that since a great proportion of the place-names with this element are not found in upland contexts the -erg element may reflect a pre-Conquest vaccary or stock farm site with special characteristics (Higham 1978, 7). They could indicate stock farms held of the lord under a system of daer-stock tenancy, which consisted of the lord giving cattle to the tenants (often his kinsman); the tenant paid a low rent and were subject to fines if they were neglectful. If the daer-stock tenants continued to hold the tenancy for three generations they became adscriptus or not bound to the soil of the lord, but were bound to receive the lords stock to raise (ibid). The original demesne of Sizergh has always lain outside, and as a separate entity to, the manorial demesne and holdings of the rest of Helsington parish, which could suggest such an original pattern of ownership as a stock farm. There are no known sites of Early Medieval date within the present study area.

2.1.26 Medieval: in the tenth and eleventh centuries the political situation in Cumbria was volatile, with the emergent kingdom of Strathclyde to the north and the growing power of England to the south competing for political control (Kirkby 1962). The fringes of Morecambe Bay including Kendale, Lonsdale, Furness, were incorporated into England by the Norman Conquest of 1066 (Earle and Plummer 1892).

2.1.27 In the Domesday Book (1086) (Faull and Stinson 1986) the vill of Helsington was described as comprising the hamlets of Brathelaw (now Bradleyfield), Cunswick, Tranthwaite, Routheworth, Sizergh, part of Brigsteer and the demesne of
Greenriggs. The study area was located within the Barony of Kendale, which was granted to Ivo de Taillebois by William II (1087-1100). There is some evidence to suggest that the newly created barony was created out of a pre-Norman landholding, as the Norman motte was located within half a mile of the church of Kirkby Kendal, a religious site before the Scandinavian settlement in the tenth century (Winchester 1987, 14-22; Rollinson 1996, 74).

2.1.28 Sizergh was granted by William de Lancaster II, Lord of Kendal to Gervase Deincourt between 1175 and 1180 (Farrer and Curwen 1923, 130). It then passed down the Deincourt family until it was acquired by the Strickland family between 1251 and 1271 as a result of the marriage in 1239 of Elizabeth Deincourt to Sir William de Strikeland (National Trust 2001, 38 and 40). The Stricklands were probably of Norman descent and originally had lands in Castle Carrock, and from the late twelfth century had lands in Great Strickland. Sir Walter de Strikeland (the son of Elizabeth and William, died c 1343) was the first member of the family to make Sizergh his principal seat. After Walter served in the Scottish war of Edward I, he was rewarded in 1307 by the king with a charter of free warren, which gave him sole right to kill the game on his land. In 1332 Sir Walter agreed with Sir William de Thweng, lord of Lumley fee, not to enclose any more of the waste lands of Brigsteer which adjoined the Sizergh Estate (Hornyold 1928, 232); Sir Walter was also given the waste and wood in the vill of Helsington below the sheepfold of Sir Walter towards his manor of ‘Syristheserd’ (Farrer 1929, 143, cited in Cook 2009), and was given the right of estovers – the right to take wood, to burn, build and enclose the Sizergh demesne. In 1336, Walter was authorised by Edward III to enclose his demesne lands at Sizergh forever and to make a park there. In 1361 for his zeal in service of the crown, particularly in the French Wars, Sir Thomas De Strickland was given a licence by the king to empark his woods and lands in Helsington, Levens and Hackthorpe (outside of the demesne), containing 300 acres (Hornyold 1928, 235). The earliest substantial house at Sizergh was probably constructed in c 1310, and rebuilt later in the fourteenth century by Walter’s son, Sir Thomas (died 1376), who is also thought to have constructed the tower (ibid).

2.1.29 The Stricklands had become one of the most important families in Westmorland by the mid-fourteenth century. The descendants of Sir Walter (alternately named Thomas and Walter) represented the county in parliament as Walter had done (Farrer and Curwen 1923). They served Henry V in the Hundred Years War (1337-1453) in France, and in the Wars of the Roses (1455-85) they sided with the House of York (op cit, 41-42). The family continued to prosper during the Tudor period of the sixteenth century, fighting in the Scottish wars of 1523 and 1542-5, and in the 1540s the family was able to raise more men from their estates for the Scottish war than any other family in Westmorland (op cit, 42). In 1515, Sir Walter (1497-1528) had married Katherine Neville. As a result of this marriage the family acquired one share of the 486ha estate of Thornton Bridge in Yorkshire after death of Katherine Neville’s last husband in 1557. Possession of this estate substantially increased the wealth of the family and, as a result, important building works were carried out at Sizergh during the 1550s and 1560s. These works were started by their descendent Walter (1516-69) and continued by his widow, Alice (died 1588). Upon reaching full age in 1537, Walter Strickland received amongst other items, the manor of Sizergh with the park worth £24 yearly, lands and tenements in Brigsteer with the park, worth 78s 11d. In his will, Walter left Alice: ‘all my capital message and mansion howse of Sysergh in the counyte of Westmerland … with all my howses,
beauldyngs, orchards, gardyngs, and yeards to the same belonging, and also all thos parks and inclosed grounds in the sayd countye, known and called by the names of Syserghe park, Lakrig park, Brygster park and Natland park ...

(Hornyold 1928, 93; Rain 1853, 215). Work on the house included the construction of a first floor hall over the Medieval hall and other additions, so that it tripled in size and took on the appearance of a fashionable Elizabethan residence (National Trust 2001, 4 and 43; English Heritage 2000). Upon reaching full age in 1585 Thomas Strickland received the manor of Sizergh worth £20 yearly, pasture and wood called Brigsteer Park, containing 20 acres of pasture and 20 acres of wood, worth 13s 4d (Farrer and Curwen 1923).

2.1.30 Post-Medieval Period: in the seventeenth century, the Stricklands of Sizergh entered a period of decline, initially due to the gambling habits of Sir Thomas (1564-1612), whose debts impoverished the family estates. Sir Thomas took a Catholic, Margaret Curwen, as his second wife, and they had three children, between whom the estates were divided. The eldest son, Robert (1600-71), was a supporter of Charles I, and at the start of the Civil War of 1642 he commanded a regiment in the Royalist army. To avoid losing his lands to the Parliamentarians, Robert signed the estates over to his son, Thomas (1621-94), on the occasion of his marriage in 1646, and although the family still incurred large fines, they did not lose the land. Both Robert and Thomas joined the king in the second Civil War, however, and they had to pay another large fine to release their lands from confiscation (op cit, 44).

2.1.31 The hearth taxes of the 1670s give some idea of the relative size of Sizergh to other properties at this time. The Stricklands were taxed under the name of their steward, Thomas Shepherd, at Sizergh on 22 hearths in 1670 and 23 in 1674-5. This number of hearths was the highest recorded in the south of Westmorland (Phillips et al 2008, 95 and 226). The estate is also briefly described by Sir Daniel Fleming in 1671, whose description reads: ‘Sizergh, a very fair house and a pleasant seat, wch hath a long time belonged to ye ancient family of ye Stricklands. It is well stored with fallow Deer, having Sisergh Park and Brigsteare-Park near unto it.’ (Hughes 1961, 12 cited in English Heritage 2000, 41). The reference to deer at Sizergh Park, could potentially be a confirmation that the deer park overlooked by Sizergh Castle, was in place by this date, and certainly it was in place in 1691-3 when Thomas Machell described Sizergh Hall as having a ‘Park at the door’ (Section 2.2.13).

2.1.32 Sir Thomas decided to go into court, and became an MP for the county of Westmorland in the Cavalier Parliament of 1661, until he was excluded because of his Catholicism in 1677. Around this time, Sir Thomas had bought a lease on the duties of imported salt, collecting the tax for salt in the North of England first, then following this up in 1665 with the tax for Scotland. Ultimately this speculation failed, and he incurred a heavy loss, obliging him to sell the Thornton Bridge estate in 1682 (National Trust 2001, 45). Sir Thomas and his second wife, Lady Strickland, then looked to the patronage of the future James II to save the rest of the Strickland Estate. The Stricklands made a connection with James II via Sir Thomas’s first cousin, Robert Strickland of Catterick, who was Vice-Chamberlain to the Queen in 1685. In 1688 Lady Strickland was appointed Under-Governess to the new born Prince of Wales, and in the same year Sir Thomas became a member of the Privy Council. Following the invasion of William of Orange in 1688, James II sent the queen and the baby to France, accompanied by a few faithful servants including Lady Strickland (op cit, 45-6). Lady Strickland then became part of the
court of the deposed king and queen, known as the Jacobites, who were based at Saint-Germain. Before leaving England, Sir Thomas had taken measures to protect his property. He had left Sizergh in trust with two family servants, and also arranged for three of his four sons to join him in France, but with passes from the new government ensuring their safe return to England. The estates of Catholic Jacobites in exile were confiscated following the Assassination Plot of 1696. Sir Thomas’s action in transferring Sizergh to his steward saved it from this fate, but Thornton Bridge (by then the property of Admiral Sir Roger Strickland) was one of the properties confiscated. Sir Thomas died in 1694, and Lady Strickland had returned to England in 1693 to start the legal process of recovering Sizergh and to consolidate the family finances. In 1699 England and France were again at peace and Walter (1675-1715), the eldest son of Sir Thomas and Lady Strickland, returned to England to claim Sizergh. Lady Strickland had arranged for Sizergh to be conveyed to Walter, the estate being in the possession of Thomas Shepherd, the steward, and another servant – both of whom were Protestant. Walter then made some modifications to modernise Sizergh \(\text{(op cit, 47-9)}\).

2.1.33 Walter died in 1715, leaving Sizergh to his son Thomas Peter (1701-54), who also carried out modifications at Sizergh. Thomas Peter left Sizergh to his eldest son, Walter, who died seven years later, the estate then passed to Thomas Peter’s fourth son Charles (1734-70). Charles married Cecilia Towneley in 1762, whose elder brother owned the important estates of Standish (near Wigan) and Borwick (near Carnforth) which would eventually be transferred to Cecilia’s son \(\text{(op cit, 52)}\).

2.1.34 After Charles died in 1770, Cecilia undertook building works, with the architect John Hird of Cartmel, to transform Sizergh into a modern country house. This included the replacement of the Elizabethan hall with a Neo-classical saloon. In 1779 Cecilia married Jarrard Strickland, her first husband’s cousin, and had a second family with him. The two families, through whom the estate subsequently descended, are referred to as the senior and junior lines. The eldest son, Thomas (1763-1813), who had owned Sizergh since 1770, also inherited Standish and Borwick and subsequently divided these estates between his two sons: Charles (1790-1863) inherited Standish (and changed his name to Standish) and Thomas (1792-1835) inherited Borwick and Sizergh \(\text{(op cit, 4 and 53)}\).

2.1.35 These events were then followed by a period during which the Strickland family was away from Sizergh, as the brothers married two half-sisters, who were the great nieces of Madame de Genlis, mistress of Philippe Egalité, the father of King Louis-Philippe of France. Both couples lived in France, and both the son and grandson of Charles also married into the French aristocracy. Thomas died in 1835, and the estates of Borwick and Sizergh then passed to his ten year old son, Walter. The estates were let out to tenants whilst Walter grew up in France \(\text{(ibid)}\).

2.1.36 Walter experienced financial problems arising from the mortgages taken out on Borwick by Thomas Strickland Standish and other encumbrances in his will which led to him selling Borwick in 1854. Walter’s later financial problems, which arose directly from the fall in agricultural rents in the last quarter of the nineteenth century, led to the sale of various furnishings and family possessions from Sizergh in 1891 and 1896.

2.1.37 In 1896 Walter made an agreement with his cousin from the junior Strickland line, Gerald, who served as the Chief Secretary to the Governor of Malta. Walter agreed to sign Sizergh over to Gerald and, in return, Gerald paid off Walter’s debts. Gerald
married Lady Edeline Sackville in 1890 and was knighted in 1897. The couple used Sizergh as a holiday home for two months of the year, although stayed for longer periods after the births of their three children. Modernisation works were undertaken at Sizergh by Sir Gerald with the Kendal architect J F Curwen, between 1897 and 1902, which included a neo-Gothic carriage entrance and internal staircase, which replaced an eighteenth century external stairway (op cit, 5 and 56).

2.1.38 Between 1902 and 1917 Sir Gerald served as a Colonial Governor, which led to him taking up posts in the Leeward Islands and Australia. The house at Sizergh was therefore mainly closed during this time. In 1919 Sir Gerald, by then a widower, returned to Sizergh with his five surviving daughters, and from then on tended to spend his summers in Sizergh and the rest of his time in Malta. In 1928 Sir Gerald was given a peerage as Baron Strickland of Sizergh (op cit, 55-6). Lord Strickland and his second wife, Margaret Hulton created new gardens in 1926-8 (op cit, 56).

2.1.39 In 1931 the Sizergh Estate was settled upon Lord Strickland’s eldest daughter, Mary, and her husband Henry Hornyold. The couple and their son, Thomas Hornyold-Strickland donated the house, contents and adjoining lands to the National Trust in 1950. Thomas’s widow, Mrs T Hornyold-Strickland OBE, still lives at Sizergh (ibid).

2.2 DEVELOPMENT OF THE LANDSCAPE

2.2.1 Prehistoric Period: the earliest evidence for human activity on the estate dates back to the Neolithic and Bronze Age periods, and the main concentration of prehistoric sites being on the south-facing hillside of Sizergh Fell. The main elements consist of two funerary cairns (NTSMR 20052 and NTSMR 20053) surrounded by an area of hummocky ground. Excavations of the two prehistoric burial cairns, together with investigations of a number ‘natural’ mounds have revealed Beaker sherds, a small reworked and broken polished axe wedged into the limestone pavement, and a polissoir (NTSMR 27783) (Evans and Edmonds 2003). One of the cairns on Sizergh Fell contained a ‘Beaker’ burial (NTSMR 20052), and the second cairn was a multi-phased structure overlying earlier circular settings of stone (NTSMR 20053), both containing disarticulated human bones. Two samples from deposits of skeletal material from one cairn (NTSMR 20053) have provided radiocarbon dates of Neolithic (3790-3650 BC) from material deposited on the pavement beneath the mound and Iron Age (760-640 BC) from a deposit higher up in the mound. There is local tradition of a putative ‘stone circle’ (NTSMR 24293) located beneath an enclosure wall to the north of Middle Plantation, but the earlier landscape survey (OA North 2011b) found this suggestion to be particularly dubious. This evidence suggests that the main period of prehistoric activity on Sizergh Fell was during the Neolithic/ Bronze Age transition. Other possible circular burial cairns were identified to the south-west of Holeslack Springs (NTSMR 24242), within the north-western end of the wooded compartment at Hare Park (NTSMR 181560), and a denuded example was on the summit of Windy Howe (NTSMR 181478).

2.2.2 A kidney-shaped burnt mound (NTSMR 181419) survives in Sizergh Park located on the edge of an area of soft, boggy, ground to the south-west of the ha-ha. Further tantalising evidence for prehistoric settlement include a possible shell midden (NTSMR 24255), where a scatter of cockle shells have been disturbed and brought to the surface to the east of the gateway along the southern boundary of Chapel
Wood. Shell middens are found in coastal and estuarine contexts, and can be evidence of both food processing sites and sometimes directly adjoin settlement sites where they are effectively a rubbish dump. However, it is also possible that the shell midden relates to a later period of activity.

2.2.3 **Romano-British Period:** in the Roman period there was significant Roman activity in the area, demonstrated by the fort built at Watercrook, Kendal in c AD 90, (SM CU273), in the loop of the river Kent, c 1.7km to the east-north-east of the northern extent of the estate. The Roman road to Watercrook ran from the fort at Burrow in Lonsdale and passed some 3-4km to the east of Sizergh. The earliest evidence of pastoral agriculture on the estate dates from this period and is associated with an enclosed settlement near Lane End Farm on the western edge of Sizergh Fell (NTSMR 20050). The settlement enclosure, with its scooped interior, is typical of sites found in the region that can on occasions be found in proximity to cairnfields or areas of field clearance. A mound containing a crouched inhumation was excavated on the west side of the settlement and finds associated with this burial included a fibula, ring and melon bead, have been interpreted as being of Roman date. The sunken or scooped interiors of such enclosures might suggest that they were used for wintering of stock, and that the repeated removal of manure rich soil for deposition on farmland resulted in the dropping of the level of the interiors. A potential clearance cairnfield lay to the south of the settlement; however evaluation revealed, as on Sizergh Fell, that the investigated ‘clearance cairns’ are of probable natural origin. The remaining sites dating to this period comprise finds spots; including several quernstone fragments, several Roman coins found in the seventeenth century and some pottery identified through field walking.

2.2.4 **Early Medieval Period:** as is the case throughout Cumbria, evidence for Early Medieval activity is extremely limited. Anglian crosses have been found at Kendal and Heversham but few settlements have been located to date, presumably because those on the fertile lowlands would have been destroyed by later ploughing (though considerable place-name evidence exists) (Rollinson 1996). The placename of Sizergh is part constructed of the -erg element which has been suggested as reflecting a pre-Conquest vaccary or stock farm beholden to the baronial lord under a system of *daer-stock* tenancy. No Early Medieval sites have been identified from the study area.

2.2.5 **Later Medieval Period:** a single short-cross silver penny of King John minted in Canterbury and dated between c 1199-1216 was recorded as being found in the vicinity of Brigsteer Park in August 2002 (NTSMR 181341). It was probably deposited/lost before the establishment of the deer park but lay along the alignment of the common lane which would have run through the demesne lands.

2.2.6 Sir Walter de Strikeland (the son of Elizabeth and William, d. c 1343) was the first member of the family to make Sizergh his principal seat. After Walter served in the Scottish war of Edward I, he was rewarded in 1307 by the king, with a charter of free warren, which gave him sole right to kill all the game on his land.

2.2.7 Six sites of Medieval date have been identified within the present study area. The most significant of these is the solar tower, the earliest surviving element of Sizergh Castle (NTSMR 20051), which was constructed in c 1310, by Walter’s son, Sir Thomas (died 1376). Sizergh Castle, which is a Grade I Listed Building, consists of a hall range, a crenelated, four-storey high, solar tower, and a service block; a detached kitchen and other outbuildings may also have existed (Goodall 2000).
2.2.8 A possible deserted Medieval village was recorded at Helsington in the NTSMR (20054), but no traces of earthworks were identified from the 1940s aerial photographs at the given location. It was found that the grid reference given for the site in the NTSMR was incorrect and that the site actually lay some distance outside of the study area near Briggs House Farm (SM 35019; SD 49508939).

2.2.9 **Medieval Deer Parks:** in 1336, Walter was authorised by Edward III to enclose his demesne lands at Sizergh forever and to make a park there. In 1361 for his zeal in service of the crown, particularly in the French Wars, Sir Thomas De Strickland was given a license by the king to empark his woods and lands in Helsington, Levens and Hackthorpe, containing 300 acres. The Stricklands had become one of the most important families in Westmorland by the mid-fourteenth century.

![Plate 9: The layout of the medieval parks, compiled by the Sizergh Historic Estate Survey (OA North 2011b)](image)

2.2.10 The limits of the Medieval Sizergh Deer Park (Low Park Wood) were defined using evidence from the sixteenth century map of Hawes Farm (CRO(K)WD/D; and shown on the interpolated medieval parkland plan (OA North 2011b; Plate 9). There is no surviving evidence for the wall surrounding the north side of the park as marked on this map; however, a significant ditched and banked boundary was identified running parallel on the internal side of the current western boundary of Low Park Wood. The earthwork consists of a large bank and internal ditch running measuring 150m long by in total 9.2m wide and is ditched up to 1m deep. Such boundaries, of this size and with an internal bank are typical of many surviving park enclosures found in Britain. The deer park was presumably disparked for use as managed woodland in the seventeenth century and is labelled as ‘Sizergh Low Park’ as opposed to the ‘deer park’ in a plan of 1798 (Hornyold-Strickland Family Archive 1798).

2.2.11 The limits of the Medieval Brigsteer Deer Park, probably emparked c 1361, is likely to have included what is now referred to as Brigsteer Park Wood, Back Spring and Holeslack Spring Woods, and may have also have included Park Moss. Archaeological evidence of the early use of the park is limited to a 190m long section of large earthen lynchet which follows the line of the parish boundary (and
original demesne boundary) on the south side of the park (NTSMR 181492). The lynchet may have formed part of the park pale for Brigsteer Park. There may have been little need for a substantial earthen bank at this location as the lower side of the steep lynchet is internal to the park, it is more likely, rather, that a substantial wall was built on the top edge of the lynchet to prevent deer escaping. The line of Park End Lane running through the park probably formed an original longitudinal sub-division of the deer park and was a common lane for access between Cotes and Brigsteer. At the southern end of the park, on the end of the earthen lynchet, a gateway survives which has been constructed of two large limestone gate piers and may once have held a large deer-proofed gate forming an imposing entrance into the park.

2.2.12 *The Late Sixteenth and Seventeenth Century Deer Parks*: the first depiction of the Medieval Sizergh deer park is on a map of Hawes Farm from the late sixteenth century. Sizergh Castle and portions of the demesne boundary are shown along with the ‘parke called Siserghe parke Demoyne of Mr Striklande’ located to the east of the Hall. The park is surrounded by a ‘parke wall’ on the west and north sides and is shown running into the River Kent on the east side. There is no park wall depicted on the south side of the park. This area includes the woodland known today as Low Park Wood which was presumably disparked at some point probably in the seventeenth to eighteenth centuries. Saxton’s map of 1576 depicted fenced and wooded parks which are likely to relate to Brigsteer and Sizergh Parks. In c 1691-3 the antiquary Thomas Machell, described Sizergh Hall as being ‘surrounded with woods with a Park at the door’. He did not record the presence of deer, and made no reference to the park at Brigsteer, but this would appear to be the new park around the castle itself, that inherited the title Sizergh Park. A ruinous range of farmstead buildings were identified external to the northern end of Brigsteer deer park, sat beneath a later field barn. It is likely that the site functioned as a farmstead, but there is tentative evidence that it may have once formed part of a lodge for the deer park.

2.2.13 *Eighteenth Century Gardens*: the first available map showing the gardens is from 1771 (Plate 10) and shows a terrace to the east of the house, two areas marked ‘gardens’ to the south of the terrace, and an extensive deer park, referred to as Sizergh Park, surrounding the terrace and gardens. A wall with a semi-circular projection separates the terrace from the deer park, and there are walls around the garden. The terrace originally consisted of a south-east-facing embankment which overlooked an area of marshy ground and led down the slope to a semicircular bowed edge of a ha-ha or fence. The embankment was terraced and a lake was created on the marshy ground, at the end of a flight of steps, which descended from the first floor of the house. A ha-ha is depicted at the southern extent of the deer park, and a footpath runs parallel with, and to the north of the ha-ha. Two small plantations are shown to the north of the house, north of which is a garden (the kitchen garden) and, north again, an orchard. The main lawn, which extends south-westwards from the house, was laid out in the mid-eighteenth century. A terraced walk, reached from an entrance in the south side of the castle, runs along the fruit (hot) wall and terminates at a garden shelter c 70m south of the castle. The shelter is of ashlar blocks with Doric pilasters surmounted by a full entablature framing a semi-circular arched opening with a grotesque keyblock on a shaped recess. In the main lawn a cropmark of a central feature, evident during a period of drought, was possibly a plinth for a statue or vase; it was aligned with the alcove of the fruit wall.
and there were also traces of the dividing wall separating the two distinct areas of the garden. A walled orchard located on the north side of the house is possibly mentioned in a record of payments and receipts from 1755-57 made by the then steward, William Newby (English Heritage 2000, 56).

Plate 10: ‘The map of Sizergh in the parish of Helsington belonging to Thos. Strickland Esqr – Surveyed and Mapp’d 1771’

2.2.14 Eighteenth Century Deer Park Alterations: Brigsteer Park appears to have been rationalised and reduced in the early 1700s, shrinking in size to only contain the land on the east of Park End Lane which was afterwards known as High Brigsteer Park. A new park wall was erected to enclose the western side of the reduced park. The western half was disparked and afterwards managed as a productive coppice, taking the name Low Brigsteer Park Wood. A short-lived farmstead or squatter settlement and adjoining enclosure named ‘Sim Paddock’ were constructed within the south end of the disparked wood, later to come under the ownership of Cinderbarrow Farm in the mid-eighteenth century. High Brigsteer Park was remodelled with compartments of woodland and open parkland and a substantial enclosure wall was constructed to retain the deer. There remains evidence for the substantial wall, measuring up to 2m in height surviving in various places around its perimeter.
2.2.15 The new Sizergh Park is depicted but unnamed on Jefferys' map of 1770 and is simply labelled ‘deer park’ in the ‘The map of Sizergh in the parish of Helsington of the following year. The same map depicts Low Park Wood, bordering the River Kent, as ‘Low Sizergh Park’ (Plate 10). The deer park fronting the castle was depicted in 1784 as having a shelter belt of trees masking the turnpike, a line of trees following the western boundary of the park and several trees dotting the parkland in front of the house.

2.2.16 The archaeological evidence provides evidence of the creation or development of an English style parkland landscape fronting onto the castle and gardens. There is a substantial park wall, in places with internal-facing coping stones surviving, which is extant on all but the northern end of the park. The wall may have been constructed during the same redevelopment of the estate as the walling around Brigsteer Park in the early 1700s. The park contained interspersed woodland and open lawns for deer at the southern end, where there is a possible deer shelter on the west side of Chapel Wood (NTSMR 21278). The north end of the park contained two areas of potential broad ridge and furrow cultivation, possibly relating to late-Medieval or Post-Medieval arable agriculture in the park.

2.2.17 Designed landscaping elements within the park include a profusion of elaborate gates with substantial limestone gate piers found at the entrances and exits of each of the carriage drives. The park was subdivided laterally by a ha-ha boundary, three sections of which were recorded running along the northern edge of Chapel Wood. There is evidence of three historic carriage drives running east from the house to the main road. The southern driveway is straddled by a pair of natural hummocks at the point where it is nearest to the ha-ha, and it would appear that the hummocks had been landscaped possibly to form foci for ornamental tree planting.

2.2.18 Nineteenth Century Gardens: further work evidently took place in the gardens between 1771 and 1827 (Plates 10, 11 and 12), as the estate map from 1827 shows
that the gardens to the north of the house had almost doubled in extent. The kitchen garden was extended and a probable ornamental pond was constructed within the wooded area to the south, the pond was fed by a larger pond west of the garden, which in turn was fed by a reservoir near Holeslack Spring. Another pond was constructed in the walled orchard on the north end of the kitchen garden; its morphology and location would lend it to being a fish pond. A double-ringed circular enclosure, possibly a prospect mound, which may have also been in use as a drying ground, was constructed at the east end of the garden and would have commanded good views over the deer park. A garden was constructed to the south of the main lawn and was linked to it by an urn-surmounted gateway. By the mid-nineteenth century an avenue of beeches linked this gateway to the south drive, which had become the formal approach to the house. An area of yew woodland, which may have been a pheasantry, surrounded the avenue. By the mid-nineteenth century the terrace at the front of the house also looked down upon a narrow lake feature. The kitchen garden situated north-east of the castle consists of a walled triangular area with a gardener’s house against the north wall, and the remains of bothies and boiler houses at the west end of the area. The gardener’s house, appears to be a building of nineteenth century date extended in the twentieth century (Haigh 2013). The late nineteenth/early twentieth century greenhouse is situated towards the west end of the kitchen garden and there is a range of nineteenth century potting sheds against the north wall of the garden. The west side of the garden area was used for propagation and cultivation and the east side was planted as an orchard, as shown on the 1860 OS 1:2500 map. The area of walled gardens was more extensive and included the whole of the area between the present garden and the north side of the castle. The 1899 OS mapping shows that the small lake feature in front of the terrace had by this date been infilled and had trees on it; the fish pond in the orchard north of the kitchen garden and the nearby prospect mound had also been removed.

Plate 12: Painting of Sizergh Castle by P Atkinson, 1805. The linear feature in front of the castle is the old Lancaster to Kendal road with a tree belt separating it from the deer park
Plate 13: The development of the gardens between 1771 and 1899
2.2.19 **Early Twentieth Century:** modernisation works were undertaken to the house and gardens at Sizergh by Sir Gerald Strickland with the Kendal architect J F Curwen, between 1897 and 1902, which included a neo-Gothic carriage entrance and internal staircase, which replaced an eighteenth century external stairway. A new drive, known as the Middle Drive ran west from the main Lancaster to Kendal road to the house. A long triangular pond was created downslope of the drive and this was later incorporated into the extended lake in 1926-8. As part of these works, an oval garden in the entrance courtyard was removed and a hedge (now removed) bounded the south side of the drive as it turned into the carriageway from the east. On completion of this work, Middle Drive was used solely by Sir Gerald; the back drive, which was the south drive from the Strickland Arms, was used by workmen; and the front drive, the north drive, was used by everyone else.

2.2.20 **TR Hayes and Sons Garden Alterations 1926-8:** a series of new gardens were commissioned by Sir Gerald Stricklands second wife, Margaret Hulton (Plate 14). The architect is thought to have been a local man, Charles Henry Wearing, and it was built by TR Hayes and Sons of Ambleside. The lake was created in front of the terrace from a previously existing area of marshy ground, incorporating the former triangular lake. Several pump houses were also built to service the lake and an electric power house was constructed to provide power to the house.

2.2.21 A rock garden was created in an area that was previously orchard. Direct access to the rock garden from the entrance courtyard was created by demolishing some single-storey service buildings associated with High Sizergh farmhouse. The garden is surrounded by a crenelated stone wall and it was formed from

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Plate 14: The development of the gardens between 1920 and 1969
weatherworn local limestone slabs arranged in terraces, steps and banks, which slope downwards from the highest point on the wooded east side to an area of pools and running water at the lowest point, in the centre of the area. The water then flows into a catchment pond and, from there, drains, via a culvert, into the lake. An informal pond on the west side of the drive, first depicted in 1827, was remodelled to provide a head of water for the rock garden. The terrace in front of the house was modified with the flight of steps leading down the terrace being split half way down to descend on either side of a circular pond with a fountain. The parapet was created by raising the height of the existing wall with crenelations, which echoed those on the house, and crenelations were also set around the circular pond and cut into the hedge at the top of the terrace. The crenelations fronting the lake and the fountain were removed in 1949. A formal Dutch garden was created in the garden east of the main lawn that had previously contained a small orchard. It consisted of a formal garden on three levels with stone terracing walls, and an open-fronted, stone-built arbour with a hipped roof at the south-west end. A flight of stone steps at the northern end of the garden led up, to the top of the terrace, and down, to connect to the lakeside walk. The garden was short-lived and was cleared after 1949.

2.2.22 Subsequent works in the gardens in the mid-twentieth century included an extension to the gardener’s cottage and construction of further greenhouses and removal of the fish pond in the kitchen garden. It also included the construction of tennis courts and pavilion and a herbaceous border and lawn set out to the north of the rock garden. The gate lodge on the end of the north carriage drive was also constructed and has a date stone of 1939.

2.2.23 **National Trust Ownership:** in 1950 Henry and the Hon. Mary Hornyold-Strickland and their son Thomas donated the house, contents and adjoining lands to the National Trust. In the sixty years of National Trust ownership many changes have taken place on the estate, in particular to restore and maintain the house and gardens and provide more comfortable access to the general public. The castle is protected by Grade I Listing undertaken in 1952, and Grade II Listing of surrounding outbuildings, a summerhouse, garden walls, and gate piers in 1983. The old beech avenue was replaced with limes in 1963, but they subsequently succumbed to lime flux disease in 1978 and were replaced themselves with Rowan in 1985. A caravan site was constructed within Low Park Wood in 1977 and has been leased to the Caravan Club. The rock garden was restored in the 1980s, and the Dutch garden was recreated in a simpler form in 1984 and landscaping was undertaken around the lake in 1994.
3. METHODOLOGY

3.1 PROJECT DESIGN

3.1.1 A project design (Appendix 2) was submitted in May 2012 by OA North in response to a brief prepared by Levens Local History Group and the National Trust (Appendix 1) for a programme of community archaeological work at Sizergh Castle designed to provide training for volunteers in a broad range of archaeological skills, which will include archaeological excavation, topographic survey, geophysical survey, building survey. The work was carried out in accordance with the project design.

3.2 TOPOGRAPHIC SURVEY OF THE DOUBLE BANK AND DITCH FEATURE AND KETTLE HOLE

3.2.1 A detailed survey of the double bank and ditch feature, along with all earthwork features in the area of the deer park, was undertaken. This provided an appropriate context for the excavation and was intended to record the wider topography in the environs of the double bank and ditch feature and the burnt mound, including the kettle hole adjacent to the burnt mound which was identified during fieldwork. The burnt mound was also subject to the same recording techniques, and the results were combined with the palaeoenvironmental survey in a CAD system. The detailed topographic survey of the environs of the double bank and ditch feature has been undertaken to English Heritage Level 3 (Ainsworth et al 2007).

3.2.2 The approach has been to combine a broad range of techniques to examine the archaeological and landscape context for the project, and was undertaken, as far as possible, with volunteer support to facilitate an effective training programme. The historical study had been previously undertaken as part of the earlier phase of study (OA North 2011b), and the pertinent aspects of this study are presented as part of the landscape survey. In order to look at the wider context of the park, a series of LiDAR tiles were acquired and incorporated with the base survey. A new instrument topographic survey was undertaken by the project participants who recorded features within the park: the double bank and ditch feature, the burnt mound and kettle hole. In addition an aerial photogrammetric survey was undertaken of the burnt mound and surrounding kettle hole mire was then used to generate a detailed contour plan. In conjunction with a palaeoenvironmental survey of the mire a series of instrument transects were recorded through the mire intended to provide profiles across the area of the kettle hole. The results of all the techniques were combined within a CAD system to provide an overarching record of the physical landscape (Figs 2-5).

3.2.3 Instrument Survey: the instrument survey was intended to primarily serve as a training exercise for the participants, so the technique was devised to be as easy to understand as possible, and to allow for visualisation of the data in the field. The adopted technique was to use a Leica 805 total station linked to a pen computer; this allowed the volunteers to understand the overall process, to undertake the survey work, and to see the results as they were being generated. The survey was based on survey control established using a Leica 1200 survey grade GPS which provided accuracies of 30mm with respect to the OS National Grid. The emphasis
on the survey was to provide effective training and there was a regular change in volunteer personnel in order to provide experience of archaeological survey to as many of the volunteers as possible.

3.2.4 The instrument survey provided a detailed record of the double bank and ditch feature which was also the subject of the evaluation trenching, and was extended into the area of the South Garden to establish evidence of its continuation within this section of the estate.

3.2.5 The instrument survey provided a high density of survey points across the burnt mound in advance of the excavation, that were sufficient to provide a contour model of the burnt mounds topographic form (Plate 15; Fig 10). Similarly a high density of points were generated across the upper surface of the kettle hole to establish the present profile of the kettle hole, and also a series of transects, with a special probe through the peat to establish the depth of the kettle hole. Alongside the instrument survey a gazetteer and photographic record was compiled.

Plate 15: Surveying the burnt mound with a total station

3.2.6 *Aerial Photography:* the excavation sites and immediate environs were also recorded by means of aerial photography, which, using specialist photogrammetric software, was able to create accurate three dimensional models of the sites and topographic surfaces. This was achieved in two ways: by means of an extendable mast which was appropriate for recording the burnt mound and the individual trenches and a multi-rotor Unmanned Aerial Vehicle (UAV), which was used to record the burnt mound as well as the area surrounding the kettle hole. With both techniques, a series of control targets were established over the ground that were clearly visible from the air, and were located using the survey grade GPS.

3.2.7 The photogrammetric processing was undertaken using Agisoft software which provided detailed modelling using the overlap of up to 50 photographs, and created a very detailed DTM (Digital Terrain Model) across the site. The photographs could then be digitally draped over the model to create an accurate three dimensional model of the ground surface. The primary output, however, was an
accurate two dimensional image which could be used to generate accurate plans. In addition a DEM model was output from Agisoft into a GIS and was used to generate detailed contouring of the burnt mound and kettle hole.

3.2.8 **Final Draughted Output:** the data from the instrument survey was drawn up in the field on field plots, and the plots were scanned and incorporated into the base CAD drawing. The survey drawings were then incorporated with the current Ordnance Survey 1:10,000 mapping, historic first edition Ordnance Survey mapping, two 1m resolution LiDAR tiles, the aerial photogrammetric plots from the UAV, and the contour data from the photogrammetric survey, the survey instrument profiles, the instrument surveyed trench locations and finally the geophysical survey plots. The combined, broad and distinct and diverse data sets have provided an insight in the archaeology of the wider landscape of the parkland.

### 3.3 Geophysical Survey

3.3.1 **Resistivity Survey:** the use of electrical resistance area survey is often seen as being complementary to magnetometry and is recommended by English Heritage where there is a strong presumption that buried structures or buildings are present that are not easily identifiable with magnetic methods. The technique requires injecting a small electric current into the ground via steel probes, and measuring the response with an earth resistance meter. The technique relies on the variable ability of the soil to resist an applied electrical current by the resistance meter from a pair of mobile probes to a corresponding pair of remote, static probes. The resulting resistance measurements (in ohms) can be used to identify buried features, which often have either a higher or lower resistance to the current than the background soil. Cut features that have been subsequently infilled, tend to be less resistant to the current flow and appear as low-resistance anomalies, whereas solid features such as structural remains tend to be more resistant to the current flow and appear as high-resistance anomalies. One of the main disadvantages of the technique, when compared with magnetometry, is that data collection over the same size of area is a much slower process.

3.3.2 **Resistivity Equipment:** the instrument used for this survey was a Geoscan Research RM15-D Advanced resistance meter with PA20 frame system. Data were collected using the 0.5m twin probe array (Plate 16).

3.3.3 **Sampling Interval:** the survey area was divided into 30m x 30m grids with sampling at 1m intervals with inter-transect distances of 1m, equating to 900 sample readings per grid. The survey was carried out in ‘zigzag’ mode approximately 0.52ha being surveyed (Figs 6 and 7). All survey grid nodes were staked out with canes using a Leica 1200 series RTK GPS system. Survey guidelines and traverse canes were then staked out.

3.3.4 **Data Capture and Processing:** data were captured in the internal memories of the instruments and downloaded to a portable computer on-site and backed-up on to a USB drive. The individual grids were combined to produce an overall plan of the surveyed area, or ‘composite’. The results were analysed and basic initial processing was carried out on-site using the software programme ‘Terrasurveyor’ by DW Consulting.
3.3.5 Final processing of the resistivity data was also undertaken in accordance with English Heritage guidelines *(ibid)*:

- The data was de-spiked in order to remove high contact readings;
- A high pass filter was applied which removes variations in the background geological response.
- The grids were periphery matched in order to correct for changes in the remote probes.

3.3.6 *Presentation of the results and interpretation:* the presentation of the data for the site involves a print-out of the minimally processed data as grey-scale plots (Fig 7). Anomalies have been identified, abstracted, interpreted and plotted onto Figure 8.

Plate 16: The resistivity survey being undertaken by volunteers

3.4 **EXCAVATION OF THE DOUBLE BANK AND DITCH FEATURE AND BURNT MOUND**

3.4.1 The excavations took place over a period of 14 consecutive days. The emphasis for the excavation was to provide training in archaeological techniques for the participants, rather than undertaking extensive areas of excavations to tight timetables (Plate 17). The extent of the excavation areas was defined on site and took the form of two opposing quadrants. While it was important that all areas opened were fully excavated, the extent of the excavation areas was defined so as to ensure that the participants could comfortably complete these areas within the time allowed. At the end of the excavation the trenches were backfilled and the turf relaid.

3.4.2 The turf was carefully removed from the excavation areas by manual techniques and then stored separately from the spoil and adjacent to the excavation on tarpaulins. All excavation was carried out using exclusively manual techniques. Structural remains were cleaned to define their extent, nature, form and, where possible, date.
3.4.3 All information identified in the course of the site works was recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage. Results of the excavation were recorded on pro-forma context sheets, and accompanied by sufficient pictorial record (plans, sections and digital images) to identify and illustrate individual features. Primary records were available for inspection at all times.

3.4.4 A full and detailed photographic record of individual contexts was maintained and similarly general views from standard view points of the overall site at all stages of the evaluation were generated. Photography was undertaken using digital SLR cameras, and all frames included a visible, graduated metric scale. Photographic records were maintained on special photographic pro-forma sheets. The sites were mapped by a combination of instrument survey, and photography using photographs taken from a mast (Figs 9-18).

3.4.5 **Finds policy:** finds recovery and sampling programmes were in accordance with best practice (following current Institute of Field Archaeologists guidelines) and subject to expert advice in order to minimise deterioration. OA employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who were readily available for consultation.

3.5 **ENVIRONMENTAL PROBING / CORING SURVEY**

3.5.1 A process of environmental coring was also undertaken by experienced palynologists, which examined the palaeoecological potential of the area around the burnt mound. The aim of the survey was to reconstruct the extent of former tarns / standing water and show the relationship between the burnt mound and the local hydrology. This was undertaken by two methods: probing and transect coring. The former technique recorded the shape of the underlying basin and the second
technique examined the stratigraphic development of the infilling of the tarn. The burnt mound was also subject to topographical survey and the results combined with the above.

3.5.2 **Analysis of Stratigraphic Data**: in addition to the recording of the deposits in the field, small samples of peat were taken from significant levels. These were examined microscopically in the laboratory for plant macrofossils to confirm the field identification and some will be assessed for pollen sampling. Larger samples from basal deposits were assessed for radiocarbon dating to provide inception dates for the waterlogged deposits. By means of the dating of selected cores, the palaeoenvironmental methods were used to help establish the chronology of the mire and provide a chronological context for the burnt mound.

### 3.6 Palynological Assessment

3.6.1 **Methodology**: a series of monoliths were taken through the burnt mound and the underlying peats and were subject to palynological analysis. The sediments in the monoliths were described and cleaned prior to sub-sampling for pollen. Volumetric samples were taken from twelve sub-samples from three monoliths. One tablet containing a known number of *Lycopodium* spores was added so that pollen concentrations could be calculated (Stockmarr 1971). The samples were prepared using a standard chemical procedure (method B of Berglund and Ralska-Jasiewiczowa 1986), using HCl, NaOH, sieving, HF, and Erdtman’s acetolysis, to remove carbonates, humic acids, particles > 170 microns, silicates, and cellulose, respectively. The samples were then stained with safranin, dehydrated in tertiary butyl alcohol, and the residues mounted in 2000cs silicone oil. Slides were examined at a magnification of 400x by ten equally-spaced traverses across two slides to reduce the possible effects of differential dispersal on the slides (Brooks and Thomas 1967) or until at least 100 total land pollen and spores were counted. Pollen identification was made following the keys of Moore *et al.* (1991), Faegri and Iversen (1989), and a small modern reference collection. Plant nomenclature follows Stace (2010). Charcoal particles greater than 5 microns were recorded (Peglar 1993). Non pollen palynomorph (NPP) nomenclature follows van Geel (1978). The preservation of the pollen was noted and an assessment was made of the potential for further analysis.

### 3.7 Plant Remains and Charcoal Assessment

3.7.1 **Methodology**: a series of samples within the burnt mound were assessed for plant remains and charcoal. At least ten litres of each sample were processed using hand flotation where the flots were collected on a 250µm mesh, and air-dried if no waterlogged preservation was apparent. Any organic material still retained in the residue was also extracted and kept with the flot. Each flot was examined using a binocular microscope during which any surviving charred plant remains (cpr) and waterlogged plant remains (wpr) were quantified, as was other material such as charcoal, coal, heat affected vesicular material (havm), bone, mortar, and ceramic building material (cbm). Preliminary seed/fruit identifications were made with the aid of standard texts (Cappers *et al.* 2006, Stace 2010) and a reference collection. The presence of modern contaminants, such as roots, insect eggs and modern seeds was also noted. Material was quantified on a scale of + to ++++ where + is rare (one
The diversity and type of charcoal was also recorded, and if warranted, a number of fragments from the charcoal-rich samples were radially split for preliminary identification. Identifications were made with the aid of standard texts (Schweingruber 1990; Hather 2000) and a small reference collection. The suitability of any of the plant remains or charcoal for providing radiocarbon dating material was also noted.

3.8 BUILDING SURVEY OF THE GREAT BARN

3.8.1 The survey of the barn was undertaken to provide training for the participants in historic building recording. A broad range of techniques were undertaken in order to provide effective general training for the participants. This included manual surveys using tapes, as well as reflectorless total stations, and photogrammetry.

3.8.2 **Drawn Survey:** the measured survey was carried out to English Heritage guidelines level 3 (English Heritage 2006b). The detailed survey provided a full record of the ground plan, first floor plan, external elevations and cross sections through the structures. For the most part this was undertaken by means of a ReflectoEDM total station which was attached to a tablet computer running TheoLT survey Autocad plug in produced by Kubit-UK. Initial drawings were produced using AutoCAD 2004, and include plans of both floors as well as long and short cross-sections. These were then printed and manually annotated using measuring tapes as well as a highly accurate hand-held Leica Disto distance measurer, accurate to +/- 1mm. The control for the survey was established by GPS survey. This survey was undertaken as a teaching opportunity and participants were instructed in all aspects of building survey, from the principles of survey techniques, manual survey techniques, and methods of building analysis. The volunteers were taken through the whole process of building recording from initial examination through the mapping of plans and the creation of elevations, through to undertaking phasing of the structure and matching with historical plans.

3.8.3 The drawings were, in the most part, undertaken using modern instruments, because of the need to capture 3D data, enabling the participants to go through the whole process of instrument recording so that they garnered an effective grounding in building survey (Plate 18).

3.8.4 The external elevations were undertaken using the techniques of photogrammetry, from ground based photographs, as well as using a reflectorless total station with the drawings created on the pen computer screen. Models of each elevation were created by photogrammetry from photographs taken from the ground and using a small multi-rotor helicopter (UAV). The processing of the data was undertaken using the photogrammetric Agisoft package, which provided accurate elevations surfaces draped with corrected photographic images. These were then digitised in outline to create the final elevation drawings (Figs 19-24). The drawings depict key features, such as quoins, and ashlars, but not all stones.
3.8.5 **Descriptive Record**: a visual inspection of all the external and internal aspects of the Great Barn was undertaken, and written notes were made using OA North buildings pro-forma sheets. Details of the fabric, methods of and phases of construction were noted as well as significant architectural or historical elements.

3.8.6 **Photographs**: photographs were taken with a Canon EOS 5D ‘full-frame’ digital SLR camera using a variety of lenses. Images were saved in both jpg and Canon raw format (CR2). The unprocessed raw images were then converted to 8bit exif-tif files using Canon Digital Photo Professional (DPP) software. The photographic archive consists of general images of the building, together with scaled coverage of architectural and decorative features and/or structural detail. Plans showing the photographic locations and directions have been generated.

3.9 **Archive**

3.9.1 A full professional archive has been compiled in accordance with the project design (*Appendix 2*), and in accordance with current IfA and English Heritage guidelines (English Heritage 2006a). The paper and digital archive will be deposited in Kendal Museum on completion of the project. The material archive is to be retained by the landowner/deposited with museum.
4. TOPOGRAPHIC SURVEY

4.1 INTRODUCTION

4.1.1 The topographic survey of the Sizergh parkland incorporated a broad range of data sets from instrument survey data, LiDAR data, contour data from aerial photogrammetry, and historic mapping. Together this has provided an insight into the archaeological resource within the area and the development of the landscape, and has set the all important context for the intrusive explorations that were also undertaken as part of the project. The surveys recorded areas of cultivation on the eastern side of the park, the double bank and ditch feature, and the burnt mound along with its associated kettle hole. As such these features extend across an extended period, potentially from the end of the last glaciation, and through to the nineteenth century and demonstrate the complex development of the landscape.

4.2 THE DOUBLE BANK AND DITCH FEATURE

4.2.1 The curvilinear double bank and ditch around the south side of the Sizergh castle, has been somewhat of a mystery since it was recorded during the 2010 historic landscape survey, and despite the extensive programme of both survey and archaeological evaluation it still retains many of its secrets. The feature follows a curved line that extends around the castle and its gardens, and has the appearance, therefore, of being an enclosure boundary that specifically pertains to the castle at some stage of its existence (Fig 2). However, despite the existence of some exceptional estate maps for Sizergh that date back to the late sixteenth century (CRO(K)/WD/D), there has been no depiction of a boundary in this location, and it did not fit with any understanding of the outline of a former parkland boundary based on post-medieval mapping; from a documentary and chronological perspective it has been somewhat of an enigma. Because of its absence from post-medieval mapping it had been conjectured that it may have been an early boundary that pre-dates the post-medieval mapping and therefore related to a Medieval phase of activity.

4.2.2 Given the uncertainty of its extent and function the aim of the present survey has been to provide a record of the double bank and ditch feature, and also to define, as far as possible, its full extent in the hope that this will provide an insight as to the relationship between it and the castle.

4.2.3 Double Bank and Ditch Description: the double bank and ditch (NTSMR 181425) comprises a substantial ditch that is typically 4.1m in width, and on both sides of the ditch are banks, such that the total width of both banks and the ditch is 9.2m in width. The depth of the ditch from the top of the adjacent banks was for the most part about 0.4m deep. Whereas the ditch had fairly well-defined edges, the external edges of the banks were fairly indistinct and suggested that the key aspect of the earthwork was the ditch rather than the banks, which may simply be the spoil mounds from the emptying of the ditch. The form of the ditch and banks was fairly consistent for much of its length, and exhibited a fairly uniform width. The banks/ditch is approximately 134m long, and seemingly terminates to the west at the boundary into the south garden, and to the north-east seemingly stops at the top of a break of slope, overlooking the terrace garden (Plate 19).
Given that the double bank and ditch (NTSMR 181425) extends up to at least the edge of the South Garden, the area inside the garden was investigated for evidence of a continuation, and it was indeed found to extend into the garden (Fig 2). It was, however, a very degraded linear earthwork, of which only the eastern edge was evident and it was visible extending c16m in the garden. Its degraded nature is unsurprising given the amount of landscaping that will have been undertaken inside the garden, indeed the fact that it survived here as a surface feature at all is fairly remarkable. It does, however, provide an indication that the earthwork was in existence prior to the establishment of the garden, which was constructed over it, and caused the localised filling of the ditch section inside the garden. On the evidence of cartographic sources the south garden was established between 1784 and 1827 (OA North 2011b; Strickland Archives 1784 and 1827; Fig 2 and Plates 13 and 20) and provides a Terminus Ante Quem for the establishment of the ditched boundary.

At the north-east end of the boundary ditch, it seemingly stops at a break of slope that is located above the lake; however, in actuality it continues in a more degraded, and diminutive form as evidenced on the ground and from the LiDAR and extends up to, and merges with, the south-eastern edge of the later lake garden. From there it extends definitively up to the line of a field boundary orientated east/west across the deer park. The mergence of the boundary bank / ditch with the Lake Garden, indicates that the boundary was evident when the Lake Garden was established (1928), which used it as a south-eastern edge.
4.2.6 The continuation of the boundary ditch beyond the east/west field boundary, is undoubtedly uncertain, and could not be effectively traced from the ground but can be conjectured from the LiDAR evidence. There is a wide, curving bank and ditch feature as indicated by field observation and LiDAR (Figs 3 and 4), which curves round into the area of the enclosed lands of the castle from the last confirmed position of the double bank and ditch at the eastern edge of the Lake Garden. This earthwork coincides with a present day field boundary, first defined on the Ordnance Survey mapping in the earlier twentieth century (OS 1914 1:2500 map) (Plate 22), but the earthwork is considerably broader than the field boundary and may predate the boundary. It is interesting to note that on the Ordnance Survey First edition 1:10560 map (1862-3) (Plate 21) that there was a line of trees that coincides with both the line of the later field boundary and the extant broad earthwork and may potentially be an indication that the earthwork predates the formal boundary.
Plate 21: OS 1st edition 1: 10560 map (1862-3), which shows a line of trees (marked in red) that corresponds with the line of an extant earthwork

4.2.7 The continuation of this feature would take it up to, and converge with, the line of a field boundary shown on the 1771 map (Plate 10). As the boundary line enters the enclosed lands it is lost and can not be traced any further, but the extended line of this linear boundary would potentially define and contain the eastern side of the castle and historic gardens, and implies a relationship with the former, more diminutive, extent of the castle and gardens.

Plate 22: Ordnance Survey 1:2500 map (1914) showing line of late boundary
4.3 **ARABLE REMAINS WITHIN THE DEER PARK**

4.3.1 The topographic survey has recorded areas of relict ridge and furrow cultivation, demarcated by former boundaries, which indicate that at various stages the land within Sizergh Park has been cultivated. On the south-eastern side of the park is an area of broad ridge and furrow (NTSMR 181436), which is presently edged by the parkland boundaries, the southern driveway and a straight north-north-east / south-south-west earthwork boundary (Figs 2 and 3). The ridge and furrow is between 5.6m and 6.0m in width from ridge to ridge and was orientated north-west/south-east. Its broad width could potentially indicate early cultivation; however, it is very uniform, straight and extends right up to the edge of the western boundary line, which means that it has little indication of headland. These characteristics are more typical of horse ploughing rather than oxen ploughing and may be an indication that it was the remains of ploughing during the Post Medieval or early Modern period.

4.3.2 To the north of the canalised stream that crosses the park is a further area of broad ridge and furrow, which is orientated north/south, and has a curved, semi-aratral shape. It is typically 7.5m across, and is significantly wider than the area of ridge and furrow to the south (NTSMR 181436), and it is cut by the central carriage drive (NTSMR 181438) that extends east from the castle across the park, and was established during the early years of the twentieth century (OA North 2011b, 92). This trackway is itself, seemingly cut by a continuation of the field north-north-east / south-south-west earthwork boundary which runs parallel to the line of the double bank and ditch (NTSMR 181425) (Section 3.2.6). It edged the NTSMR 181436 ridge and furrow, separating it from a further area of ridge and furrow to the west which has a different orientation. There is a large mound on top of this boundary, which is just to the east of the lake, and covers a sewage treatment works constructed in 2007/8 (J Lund pers comm). The line of this earthwork boundary, to the north of the NTSMR 181595 canalised stream, is continued by a present day track but which was potentially be the line of an earlier feature. The northern ridge and furrow had a curved alignment and was significantly broader in width than that to the south, it can be argued that this area reflects the survival of earlier oxen ploughed cultivation and which could potentially have pre-dated the establishment of the deer park.

4.3.3 Contained within the double bank and ditch (NTSMR 181425) is a further area of broad ridge and furrow (NTSMR 181426), which is 5m in width (ridge to ridge) but has only patchy survival. It is aligned north-east / south-west, and is running parallel to the terrace wall of the main lawn. This alignment is at odds with that of the double bank and ditch, which may suggest that the double bank and ditch cut it; however, there are no indications of any continuation of the ridge and furrow to the south-west of the double bank and ditch, which would tend to suggest that the ridge and furrow respected the line of the ditch. Between the double bank and ditch and the area of NTSMR 181426 ridge and furrow is a further area of narrow ridge and furrow (3.9m ridge to ridge), that is orientated north-east/south-west. It is straight and not associated with any headland and would appear to be Post-Medieval horse ploughed ridge and furrow.
4.4 **Kettle Hole**

4.4.1 A survey was undertaken of the kettle hole mire and associated burnt mound. As the burnt mound was subject to excavation the description of it is covered in the burnt mound excavation section (*Section 6*). The kettle hole was subject to survey by instrument (Plate 23), by photogrammetric survey (using a UAV), and was also recorded from the LiDAR data (Figs 3-5). All sources have been combined and the results are presented as figures depicting the broad range of data sets. A process of detailed palaeoenvironmental analysis will be undertaken of the kettle hole and its peat, and the present description is a summary description of the form and character of the kettle hole based upon the initial site observations.

4.4.2 **Kettle Hole Description:** the kettle hole was an irregularly shaped hollow, with, in places, clearly defined edges, and was, at its longest, 161m and 97m at its widest (Fig 5). It was crossed by the ha-ha boundary defining the southern edge of the deer park, and the ditch on the southern side has substantially drained the mire. The burnt mound was located in a narrow north-western arm of the depression, and close to the north-western end of the kettle hole. The proximity to the mire, or what may at the time have been open water, would have provided an adequate water supply for the burnt mound operations, in addition to the numerous natural springs within the immediate area.

4.4.3 In the centre of the southern part of the feature, the probing established peat with depths of up to 3.5m. The coring established that at the base there was a deposit of blue-grey clay, overlain by a deposit of fine shell marl, overlain by further alternating deposits of silty clay and the shell marl; this was then overlain by peat. The fine shell marl and silty clay is a characteristic type of deposit of kettle holes (Hodgkinson *et al* 2000) and would provide a strong indicator that this was formed as a result of glacial action. Typically a kettle hole is formed when a large, surviving block of glacial ice is left following the retreat of the ice sheets, and over time the weight of the ice results in it sinking into soft clay ground. Then the ice eventually melts, leaving a small, steep-sided depression in the glacial boulder clay, which fills with water, and then ultimately peat. At nearby Sparrowmire Farm, Kendal, there was also a burnt mound identified adjacent to a kettle hole, and the earliest levels of the kettle hole were dated on the basis of pollen evidence to the Late Devensian II period, typically of 10,000-9000 CalBC, and a radio carbon date for the lowest peat deposits was dated to 10,993 - 9979 CalBC (10,440+- 90 BP, AA-34507) (Heawood and Huckerby 2002, 42).
4.4.4 The probing survey examined the waterlogged depression to the north of the ha-ha and discovered thin topsoil straight down onto clay, subsoil deposits, and there was no evidence of any peat. So although this is part of the same, low lying, and poorly drained, depression, it was not part of the original kettle hole, which seems to have only been to the south of the ha-ha. The western side of the kettle hole (and to the south of the burnt mound) was found to have moderate sloped shaly margins and was characterised by a substantial number of limestone boulders. This perhaps reflects its proximity to a steep sided scarp slope within the now adjacent woodlands. By contrast the eastern side had a steep sloping edge, such that there were deep deposits of peat close to this mire edge.
5. GEOPHYSICAL SURVEY RESULTS

5.1 GENERAL OBSERVATIONS

5.1.1 A resistivity survey was undertaken in the north-western part of the deer park, coinciding with the northern part of the double bank and ditch feature (Fig 6). The results of the resistance survey have, in general, identified several anomalies of both high and low resistance (Figs 7-8). At the time of the survey the weather was hot and dry and, consequently, the ground was hard and compact resulting in some ground contact problems. Excavation of three trenches adjacent to and within the survey area revealed that the topsoil was relatively thin and the bedrock close to the surface, Nevertheless, responses pertaining to possible buried features are visible in the data presented on Figure 8 and abstracted on Figure 9. Due to a combination of the very dry conditions and the thin soils and near surface bedrock, the double bank and ditch feature was not visible in the data.

5.2 RESULTS

5.2.1 There are a number of discrete responses of high resistance grouped within three main areas (Fig 8). These appear to highlight the presence of almost rectangular, or square, buried features. The high resistance responses are set within areas of general high resistance of lower amplitude, which are similarly square in extent and appearance.

5.2.2 Two areas at the south-west corner of the survey area (A and B, Fig 8) have at their centre two large standard trees (the blank squares in the greyscale plot, Fig 7). The root systems of trees can, in certain instances, produce high resistance responses due to both the actual root system and compaction of the ground. This tends to produce mainly circular high resistance responses although the shape can vary if the root systems are constricted or truncated for example. In this instance, professional experience suggests that it is more likely that the responses are due to buried features other than root systems. These two areas are surrounded by a general low resistance. This is possibly due to natural variations in ground conditions, re-deposited material or depressions, or simply a low amplitude return from the high resistance readings.

5.2.3 An area located towards the north-east part of the survey area also contains several discrete high and low resistance responses which, again, are fairly regular in shape and may be due to the presence of buried structures and hollows (C, Fig 8). This area contained a possible platform, the presence of which was confirmed during the excavation of Trench 3 (Fig 18) and was found to be made up of outcropping limestone and closely-set unworked limestone blocks (Section 7.3.4). The general area of the building platform is level and the high resistance responses are probably due to this and other associated features. To the south of Trench 3 a clear high resistance linear response is present which may be due to a buried wall or other structure (D, Fig 8). Isolated discrete high resistance responses at the east side of the survey area are probably due to bedrock and tree root-balls.

5.2.4 During the excavation of Trenches 1 and 2 a clear ditch was revealed that was approximately 3.3m wide and 0.95m deep in Trench 1, and 1.6m wide by 0.5m deep
in Trench 2 (Section 7.3). An area of low resistance is present to the south-west of Trench 2 that may relate to the presence of this ditch (E, Fig 8), although the response is over 5m wide. This correlation is only conjectural based upon the known presence of the excavated ditch in Trenches 1 and 2. Discrete and general areas of low resistance to the north of Trench 2 may also be partly due to the presence of the ditch, which again, must be considered conjectural.

5.2.5 There is an arrangement of low amplitude, high and low resistance responses situated in the north-west part of the survey area. Alternating high and low resistance responses at the northern edge (F, Fig 8) are aligned with the field boundary and are reminiscent of bank and ditch-type features that appear to be bisected by a relatively quiet area (G, Fig 8). To the south of this are discrete responses arranged in a rectangular pattern that may be associated with the platform recorded from Trench 3 (H, Fig 8).

5.2.6 Other observations include high and low resistance linear responses situated parallel to the fencelines along the northern edge of the survey area. These may be due to re-alignments of the field boundary or accumulations of material.
6. EXCAVATION OF THE BURNT MOUND RESULTS

6.1 INTRODUCTION

6.1.1 In total five trenches were excavated during the course of the investigations (Fig 2), of which three were across the double bank and ditch (Section 7.1), and two located on the burnt mound. The burnt mound was divided into quadrants on a north-west/south-east alignment, and two opposing 5m by 5m trenches were dug (Area A to the west and Area B to the east). They were chosen in order to examine any putative trough, that was likely to lie within a depression on the south-west side of the mound within the west quadrant, and also to look at the rear of the mound to the north-east (Fig 9).

6.2 THE BURNT MOUND EXCAVATION

6.2.1 The burnt mound is located towards the edge of an area of soft, churned up boggy ground to the south-west of the park ha-ha (Fig 2), and is close to the site of at least two natural springs. The feature has a classic burnt mound shape, being kidney shaped with a depression or concavity on the south-west side, and stone exposed on the upper surface has the appearance of having been burnt (Fig 10; Plate 24).

6.2.2 The earliest deposit exposed during the excavation sequence (in Area B) comprised a layer of shell marl (3017), which is characteristic of the fills of glacial features, including kettle holes (Fig 12). A layer of peat (3007; Fig 12) developed over the marl in the upper depression of what was probably a kettle hole or other glacial feature. Trees began to grow on this slightly raised area next to the marsh, and an extensive root system (3008) survived 0.2m below the top of the peat, though whether this represented a stand of trees or roots accumulating over a period of time is uncertain. Cutting through the peat layer 3007, on the northern side of the trench, was a possible channel/stream (3019) running north-west to south-east. This water course began to fill with laminated bands of peat, clay and clay silt (3015, 3014 and 3013). The channel/stream activity probably points to a period when there was a more active drainage regime in the locality, possibly as a result of higher levels of precipitation or more extensive tree cover in the locality.

6.2.3 This site, with its slightly higher elevation, the proximity of running water and a ready supply of wood was chosen as a good location for the burnt mound. Small amounts of charcoal and burnt stone, along with twigs and some larger branches appear to have been trampled into the top of the peat (3115) (Fig 13) seems to represent a preparation/construction level for the burnt mound activity.
6.2.4 It was into this material that a wooden trough (3105) had been placed. It was constructed within a shallow north-east/south-west aligned cut (3107), 1.44m x 1.05m, tapering towards the north-east. The extant components, which did not survive much above 0.1m height, comprised a rectangular plank (3105.5, c 1.1m by 0.7m) on the base, with the remnants of wooden uprights to the south-west, north-west and south-east (Section 6.6). The north-easterly side appeared to have been removed (Fig 14 and Plate 26).
6.2.5 Fire-cracked sandstone was then deposited around the trough, except to the south-west, eventually creating the typical-kidney shaped mound, c. 0.4m high, 7.55m long and 6.3m wide partially surrounding the trough. The stone varied in size from 20-100mm in size, and was found within a matrix of 5-10% dark brown silty clay with 2% charcoal (3006, 3117 and 3114; Figs 12 and 13); the stones were generally larger away from the trough. In the ‘bay’ to the south-west, was a trampled deposit, 3114 (Fig 13), which was mainly a peaty clay with burnt stone and charcoal, including some very charcoal-rich patches which could represent the sites of small single-use hearths.

6.2.6 Within the trough itself a thin lens of fine sandstone and silt (3109; fill on top of 3105) accumulated, demonstrating that sandstone had been quenched within the trough in order to heat water. The press of the stone mound and/or the decay of the wooden uprights of the trough seems to have necessitated the repair of the trough
and upright limestone slabs were placed on both the north-west (3113) and south-east (3111) sides as revetting. They were seated within shallow trenches (3112 with fill 3107; Fig 14).

Plate 28: Section through the burnt mound

6.2.7 The trough filled with very dark grey brown clay and peat with 3% burnt stone and 15% charcoal (3104 (fill on top of 3105)). A more charcoal rich and less stony layer (3102, 3005) was deposited on top of the previous stone mound and over the fill of the trough. It was a dark grey clay with up to 50% charcoal and 10% to 60% stone, becoming more stony to the north and east. Above this was another dump of burnt stone, 5-50mm in size (3101, 3103 and 3004) which sealed the top of the mound. The relatively clean nature of this deposit may partly be the result of its proximity to the modern surface allowing rainwater to wash soil and charcoal through the stone matrix. In the final stage topsoil (3002, 3100) developed over the site.

6.3 RADIOCARBON DATING

6.3.1 A series of samples from the burnt mound were submitted for radiocarbon dating:

**Burnt Mound Radiocarbon Date Samples**

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Type</th>
<th>Dated Species</th>
<th>Context</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Charcoal</td>
<td>Fraxinus Excelsior (ash)</td>
<td>3005</td>
<td>Uppermost series; sample from upper burnt mound deposit (0-0.10m from top of burnt mound)</td>
</tr>
<tr>
<td>6</td>
<td>Charcoal</td>
<td>Corylus Avellana (Hazel)</td>
<td>3006</td>
<td>Lowermost series; sample from lower burnt mound deposit (0.40-0.50m from</td>
</tr>
</tbody>
</table>
6.3.2 **Significance of the Dating:** The dates exhibit a tight cluster and indicate that the burnt mound had a relatively short operational life. The tight cluster of the dates also means that they reinforce each other and demonstrate a high level of confidence that the dates are both genuine and accurate. The results indicate that the burnt mound dates to the end of the third millennium BC, and puts it into the late Neolithic / early Bronze Age transition period. The dates for the base of the burnt mound and the trough fill, are remarkably similar, and suggest that the trough was built from the outset of the burnt mounds construction. But interestingly it was the fill of the trough that was dated and it would only have filled up once it was no longer in use; yet the date of the top of the mound was approximately 200 years later, so there is some uncertainty as to how the burnt mound was used during that period, if the trough was not in use. If these dates are accurate, then it is possible to conjecture that there was another trough at the site, which has yet to be revealed.

### 6.4 Palynological Assessment

6.4.1 **Introduction:** Monolith samples underneath and adjacent to the burnt mound, were collected during the excavations. Deposits from a growing number of burnt mounds have recently been assessed and analysed for pollen by OA North, including from the Carlisle Northern Development Route (Rutherford forthcoming), from Drigg, in Cumbria (Brown in press) and also from the Harbour, Blackpool (OA North 2014).
Dating evidence from these and many other sites in England indicate that burnt mound activity took place during the late Neolithic and Bronze Age (Section 6.3).

6.4.2 **Lithology:** lithology details and sub-samples taken are presented in the table below. The stratigraphic interpretation suggests that context 3007 lies immediately underneath the burnt mound, whereas contexts 3006 and above may be laterally equivalent with and possibly post-date the deposition of the burnt mound (Section 6.2).

<table>
<thead>
<tr>
<th>Core Number</th>
<th>Feature</th>
<th>Context</th>
<th>Lithology</th>
<th>Sub-Sample depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Edge of clay-filled cut or potential palaeochannel adjacent to Burnt Mound</td>
<td>3002</td>
<td>0-0.11m Light brown yellow loose soil with rootlets and stones</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3004</td>
<td>0.11-0.14m Stones</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3005</td>
<td>0.14-0.19m Yellow brown silty-clay</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3005</td>
<td>0.19-0.20m Large stone</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3006</td>
<td>0.20-0.25m Transitional layer between yellow brown silt and peaty deposits</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3007</td>
<td>0.25-0.50m Humified crumbly peat</td>
<td>0.28, 0.32, 0.36</td>
</tr>
<tr>
<td>15</td>
<td>Deposit, adjacent to Burnt Mound</td>
<td>3002</td>
<td>0-0.13m Peaty ?soil with small stones and rootlets.</td>
<td>0.08, 0.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3007</td>
<td>0.13 – 0.50m Humified, crumbly, fibrous peat with wood fragments at 0.20m</td>
<td>0.16, 0.20</td>
</tr>
<tr>
<td>19</td>
<td>Deposit, underneath the Burnt Mound</td>
<td>3007</td>
<td>0-0.50m Humified, crumbly peat</td>
<td>0.04, 0.08 and 0.12</td>
</tr>
</tbody>
</table>

Table 1: details of lithology and sub-sampling

6.4.3 **Assessment:** the twelve sub-samples are productive for pollen, with minimum counts of 100 achieved for all but two sub-samples. Preservation is generally mixed, with many examples of crumpled and broken grains. Five sub-samples were assessed from Sample 12, from a clay filled, potential palaeochannel, adjacent to the burnt mound, and pollen from these sub-samples suggests a palaeoenvironment dominated by trees and shrubs. Hazel-type (*Corylus*-type) dominates the arboreal assemblage with oak (*Quercus*), alder (*Alnus*), pine (*Pinus*), birch (*Betula*) and elm (*Ulmus*) pollen all represented. Pollen of lime (*Tilia*) is present at 0.36m and again at 0.24m. Low numbers of pollen of heather (*Calluna*) are present throughout but appear to become more significant at 0.32m. The herb assemblage includes records of cinquefoils, (*Potentilla*-type), bedstraw (*Rubiaceae*) and devil's-bit scabious (*Succisa pratensis*) and, at 0.24m, a relative abundance of ribwort plantain (*Plantago lanceolata*). There may be a shift towards increasing grasses (*Poaceae*) within the upper contexts, at 0.24m and 0.16m, perhaps allowing a distinction between lower context 3007 and the upper contexts. *Sphagnum* moss spores and monolete fern spores are present throughout. Fungal spores are rare.

6.4.4 Four sub-samples assessed from Sample 15, contexts 3007 and 3002, from a site adjacent to the burnt mound and possibly containing sediments laterally continuous with the burnt mound deposits, record assemblages dominated by hazel-type pollen,
with pine, alder, oak and birch also present. Roughly equal amounts of grass pollen are present in all the sub-samples. Pollen of ribwort plantain is present in sub-samples 0.16m, 0.12m and 0.08m. The upper two sub-samples from sample 15, context 3002, are distinguished by a relative abundance of heather pollen. *Sphagnum* moss spores and monolete fern spores which are present throughout. Microcharcoal is commonly recorded. Fungal spores are rare.

6.4.5 The three sub-samples assessed from sample 19, context 3007, in deposits that underline the burnt mound, comprise a mix of tree and shrub pollen including predominantly hazel-type, with alder, oak, birch, elm and pine also present. Pollen of heather is recorded in low numbers only. Herbs are represented primarily by grass and sedge (*Cyperaceae*) pollen, with recovery also of meadowsweet (*Filipendula*), cinquefoils, daisy-types (*Asteraceae*) and dandelion-types (*Taraxacum*-type). *Sphagnum* moss spores are present in all three sub-samples and the upper two sub-samples (at 0.08m and 0.04m) record an abundance of monolete fern spores (*Pteropsida*). Microcharcoal is commonly recorded. Fungal spores are rare.

6.4.6 **Discussion - Possible palaeochannel / clay-filled ditch adjacent to the burnt mound** (Sample 11; 3019): the deepest sub-samples from this feature were through the peat beneath the burnt mound, and support the dominance of hazel-type vegetation in the area, 3007, with evidence for mixed woodland either regionally or locally. Heather pollen in these sub-samples suggests the possible onset of acid moorland at the site; *Sphagnum* moss spores suggest locally wet/peaty areas were present.

6.4.7 **Adjacent to the burnt mound** (Sample 15): in context 3007 (peat beneath the burnt mound), the pollen data suggest an environment dominated by hazel-type scrub, but with ample evidence for mixed woodland (regional or local) comprising stands of oak, birch, elm and pine and damper areas supporting alder growth. Records of relatively common grass and sedge pollen together with pollen of ribwort plantain, suggest that wet meadows and pastures (Behre 1982), may also have occurred locally. An obvious change in the pollen profile occurs within the upper sub-samples from Sample 15, 3002, which comprises the peat rich soils overlying the burnt mound. This suggests possible development of acid moorland at the site, is based on an increase in heather pollen. The occurrence of *Sphagnum* moss suggests wetter and peaty habitats existed.

6.4.8 **Underneath the burnt mound:** Sample 19 was solely through the peats beneath the burnt mound, 3007, and showed hazel-type pollen to be predominant, with evidence for mixed woodland either locally or regionally. Grass and sedge pollen provide some evidence for the presence of small open areas; these could be areas that opened up as a result of animal browsing/trampling or natural areas on the edges of woodland. Ferns may have proliferated in open, possibly cleared areas. Peat samples from immediately below the burnt mound, context 3007, have been dated (humic and humin fractions) and closely match dated charcoal from the base of the burnt mound (*Section 6.5*). An Early Bronze Age date of 2565-2460 cal BC (3980±29 BP; SUERC 50357; GU 32733) has been obtained from the humic fraction and 2565-2346 cal BC (3954±29 BP; SUERC 50358; GU 32734) from the humin fraction.

6.4.9 Microcharcoal particles are present within all the assessed sub-samples and are interpreted as indicative of fires, either locally or regionally. Fungal spores, where
present, include *Glomus* HdV-207, associated with disturbed ground, as well as *Cercophora* HdV-112, *Sporomiella* HdV-113 and *Podospora* HdV-368, all of which are coprophilic, and may suggest the presence of grazing animals in the area (van Geel *et al.* 1978). Pollen from the burnt mound at Drigg, Cumbria (Brown in press) provides evidence for the environment post-dating the hearth/burnt mound, perhaps suggesting managed woodland, with fern growth in more open, possibly cleared, areas, and a decrease in numbers of woodland trees. This is consistent with other evidence from south Cumbrian sites, where small-scale woodland clearance episodes, dated from the Early - to Middle Bronze Age, and increased vegetational disturbance events during the Middle - to Late Bronze Age, being typically described (Wimble *et al.* 2000).

6.4.10 **Potential:** the pollen assessment clearly shows that pollen is sufficiently well preserved and is suitable for analysis. Detailed pollen work could explore further the suggested openings in woodland and possible development of heather moorland. To obtain as full a palaeoenvironmental picture as possible before, during and after occupation of the burnt mound, it is recommended that a series of sub-samples from beneath the burnt mound (sample 19, context 3007), beneath, contemporary with and possibly younger than the burnt mound (sample 15, contexts 3007 and 3002) should be analysed. To prove the correlation between the peat under the burnt mound (sample 19, context 3007) and that present in sample 15, context 3007, two further radiocarbon dates are recommended from the peat from sample 15, context 3007 and context 3002.

6.5 **ASSESSMENT OF THE PLANT REMAINS AND CHARCOAL FROM THE BURNT MOUND**

6.5.1 **Introduction:** a number of sediment samples taken during the excavations at Sizergh were processed for the assessment of palaeoenvironmental remains. Samples were taken from the large ditch excavated during the bank and ditch excavation (Section 7). Plus several were taken from the burnt mound and its associated features In addition, six small sub-samples were taken from three monoliths taken through the peat/peaty topsoil underlying and adjacent to the burnt mound. The purpose of the assessment was to check for the survival of palaeobotanical material, including charred and waterlogged plant remains, wood and charcoal. The samples were assessed in order to establish their potential for providing information on the sites' function, economy and environment, and for providing material suitable for radiocarbon dating.

6.5.2 Only a handful of burnt mounds have been excavated in the north-west of England (eg Sparrowmire (Heawood and Huckerby 2002), Garlands Hospital, Carlisle (Cressey 2005), Drigg (Brown in press), Carlisle Northern Development Route (Brown forthcoming)). Coupled with the small body of palaeobotanical data from Cumbria in general (Hall and Huntley 2007), this means that the recovery and assessment of any surviving palaeobotanical material from the site is of high priority. Dating evidence from these, and many other sites in England, indicates that burnt mound activity took place during the late Neolithic and Bronze Age.

6.5.3 **Quantification:** Five 30 litre series samples taken through the charcoal-rich deposits of the burnt mound were processed and assessed. As were three 20 litre bulk samples taken from the trough fill, trough cut, and a discrete area of burning or possible hearth. In addition, six small sub-samples (c 0.10 litres) were extracted.
from three monoliths (9, 15 and 19) taken from the peat/peaty topsoil underlying and adjacent to the burnt mound. The sampling depths from the monoliths respected those taken for pollen (Section 6.4).

6.5.4 Results: The results of the palaeoenvironmental assessment of the burnt mound samples are shown below in Table 1. As is the case with other similar sites in England, the burnt mound at Sizergh Castle was more-or-less devoid of charred plant remains. It did, however, contain abundant well-preserved charcoal fragments, including pieces 10mm in size or larger, which is likely to represent the remains of the wood fuel used to heat the stones during the burnt mound activities. Abundant charcoal was also recovered from the trough and area of burning (3114) next to the burnt mound. The charcoal assemblages were all broadly similar and dominated by alder/hazel (Alnus glutinosa/Corylus avellana) and ash (Fraxinus excelsior), with occasional willow/poplar (Salix sp/Populus sp), oak (Quercus sp), elm (Ulmus sp) and hawthorn-type (Malvaceae—which includes hawthorn (Crataegus sp), whitebeam (Sorbus sp) and apple (Malus sylvestris). The only notable difference between the samples was the higher number of fragments of ash to alder/hazel in the uppermost 0.10m burnt mound deposit (sample 2) compared to the rest.

6.5.5 Observations in the field indicate that the uppermost c 0.17m of the burnt mound deposit differed from the underlying c 0.33m in that it contained much smaller stones the two possibly representing at least two different phases of activity. The radiocarbon dates (Section 6.3) also indicate possible phased activity.

6.5.6 The peat/peaty topsoil deposits underlying and adjacent to the burnt mound: the peat (3007) immediately underlying the central area of the burnt mound (monolith 9) contained abundant wood fragments and amorphous plant material. It also produced frequent bugle (Ajuga cf repens) seeds preserved through waterlogging. Given that the seeds provided insufficient carbon for dating (SUERC pers comm), a 0.01m thick slice of peat from monolith 9 was sent for radiocarbon dating of both the humin and humic acid (Section 6.3). This was to date the surface of the peat prior to the deposition of the burnt mound material. The samples taken from the peat (3007) towards the outer edge of the burnt mound (monolith 19) contained frequent waterlogged seeds and wood fragments. Common charcoal fragments and fungal sclerotia were also recorded at 0.02-0.04 m depth. The latter often indicative of burning.

6.5.7 The two samples taken from the peat (3007) from monolith 15, adjacent to the burnt mound, also contained frequent waterlogged seeds and wood fragments. Like the sample taken from immediately underneath the burnt mound (monolith 19, 0.02-0.04m), they also contained frequent fungal sclerotia. The single sample taken from the peaty topsoil (3002) also contained waterlogged seeds, but lacked the wood fragments and fungal sclerotia evident in the others. It is possible that the peat adjacent to the burnt mound carried on developing during the burnt mound activities. The peaty topsoil (3002), however, is likely to post-date its use given that this deposit was seen to seal it. Further work and dating may establish if this is the case.
<table>
<thead>
<tr>
<th>Sample no</th>
<th>Context no</th>
<th>Feature type</th>
<th>Amount processed (l)</th>
<th>Flot vol (ml)</th>
<th>Matrix</th>
<th>Waterlogged /modern plant remains</th>
<th>Charred plant remains</th>
<th>Charcoal</th>
<th>Charcoal comments</th>
<th>Potential WPR/wood</th>
<th>Potential CPR</th>
<th>Potential charcoal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3003 (3005)</td>
<td>Uppermost series sample from burnt mound: 0-0.10m</td>
<td>20</td>
<td>400</td>
<td>Modern roots ++++, coal ++, havm ++, glass +</td>
<td></td>
<td>&gt;4mm ++++</td>
<td>Mostly ash, some alder/hazel</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3003 (3005/6)</td>
<td>Series sample 0.10-0.20m</td>
<td>20</td>
<td>800</td>
<td>Modern roots ++</td>
<td></td>
<td>&gt;4mm ++++</td>
<td>Mostly alder/hazel, some ash</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3003 (3006)</td>
<td>Series sample 0.20-0.30m</td>
<td>20</td>
<td>400</td>
<td>Modern roots ++++</td>
<td></td>
<td>&gt;4mm ++++</td>
<td>Mostly alder/hazel, some ash, a little willow/poplar</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3003 (3006)</td>
<td>Series sample 0.30-0.40m</td>
<td>20</td>
<td>340</td>
<td></td>
<td></td>
<td>&gt;2mm ++++, &gt;4mm +++</td>
<td>Lots of alder/hazel and ash, a little oak</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3003 (3006)</td>
<td>Lowermost series sample from burnt mound: 0.40-0.50m</td>
<td>20</td>
<td>200</td>
<td></td>
<td></td>
<td>&gt;4mm ++++, &gt;10mm ++</td>
<td>Mostly alder/hazel, some ash, a little oak, elm and hawthorn-type</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3104</td>
<td>Trough fill</td>
<td>10</td>
<td>100</td>
<td></td>
<td></td>
<td>&gt;4mm ++++</td>
<td>Mostly alder/hazel, ash, and a little hawthorn-type</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3106</td>
<td>Trough cut fill</td>
<td>10</td>
<td>450</td>
<td>Amorphous plant remains ++++</td>
<td></td>
<td>&gt;2mm ++++, &gt;4mm +++</td>
<td>Mostly alder/hazel, a little ash</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>3114</td>
<td>Area of burning-hearth?</td>
<td>10</td>
<td>50</td>
<td>Coal +</td>
<td></td>
<td>&gt;2mm ++++, &gt;4mm +++</td>
<td>Mostly alder/hazel, ash</td>
<td>None</td>
<td>None</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>9 (monolith)</td>
<td>3007</td>
<td>0-0.01m</td>
<td>0.10</td>
<td>0.10</td>
<td>Waterlogged sample, amorphous plant remains ++++, wood fragments ++++</td>
<td>++ bugle seeds</td>
<td></td>
<td>Medium</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>3002</td>
<td>0.06-0.08m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, ++ sedge,</td>
<td></td>
<td></td>
<td>Medium</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(monolith)</td>
<td>3007</td>
<td>0.14-0.16m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, amorphous plant remains ++++, wood fragments ++, coal? +, fungal sclerotia ++</td>
<td>+ common reed, buttercup</td>
<td>&lt; 2mm +</td>
<td>Yes</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
<td>------------</td>
<td>------</td>
<td>------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 (monolith)</td>
<td>3007</td>
<td>0.18-0.20m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, amorphous plant remains ++++, wood fragments ++, coal? +, fungal sclerotia ++</td>
<td>+ Great fen-sedge</td>
<td>Yes</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 (monolith)</td>
<td>3007</td>
<td>0.02-0.04m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, amorphous plant remains ++++, insects +, fungal sclerotia +</td>
<td>++ common reed, great fen-sedge, hemp-agrimony</td>
<td>&lt; 2mm +++</td>
<td>Yes</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 (monolith)</td>
<td>3007</td>
<td>0.06-0.08m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, amorphous plant remains ++++, wood fragments +++</td>
<td>++ common reed, small legume, potamogeton</td>
<td>Yes</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 (monolith)</td>
<td>3007</td>
<td>0.10-0.12m</td>
<td>0.10</td>
<td>0.05</td>
<td>Waterlogged sample, amorphous plant remains ++++, wood fragments +++</td>
<td></td>
<td>yes</td>
<td>None</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Sizergh, Cumbria: Palaeoenvironmental Assessment Results of the Burnt Mound Samples. Recorded on a scale of + to ++++, where + is rare (up to 5 items), ++ is frequent (6-25 items), +++ is common (26-100 items), and ++++ is abundant (>100 items). Havm = heat affected vesicular material.
6.5.8 Closer examination of the wood used to line the burnt mound trough (Section 6.6) showed it to be constructed with oak. Unfortunately the wood was too degraded for dendrochronological dating (Chris Howard-Davies pers comm).

6.5.9 Conclusion: the assessment has established that the samples taken during the excavations of the Burnt Mound at Sizergh have the potential for providing detailed information on the nature of the woody environment and fuel use during the burnt mound activities. These preliminary investigations indicate that the inhabitants were likely to have been exploiting the local woodland environment of hazel and/or alder and ash. Some hardwoods, such as oak and elm, were also being used to a small degree. As were scrubby/woodland edge trees, such as hawthorn-type. The abundance of ash charcoal in the burnt mound samples may be expected given that prehistoric pollen records of ash indicates its prevalence on the limestone soils of southern Cumbria (Birks 1989). Ash, which is common on damp or base-rich soils, often replaces hazel in areas more favourable for its growth, such as openings in the forest cover. The absence of ash pollen (Section 6.4) is notable, but may be explained by the fact that ash is a poor pollen producer. Conversely, it may indicate that the peat deposits are not contemporary with the burnt mound activity.

6.5.10 The assessment also indicates that the waterlogged plant macrofossils surviving in the peat will provide detailed information on the nature of the local environment. The preliminary results indicate some tentative changes in the nature of the local environment, for example, decreased wood fragments and corresponding increase in the evidence for burning (fungal sclerotia) in the upper samples. Plus, a very tentative increase in the evidence for scrub and meadows (blackberry, buttercup, grasses) in the peaty topsoil (3002).

6.5.11 Recommendations: the potential of each of the samples for further analysis is shown in Table 2. Given the limited charcoal dataset from Cumbria (Huntley 2010), further charcoal work is recommended on the Sizergh burnt mound deposits. This should incorporate full charcoal analysis of at least two of the burnt mound deposits (to include the uppermost, sample 2, context 3005), alongside a fuller assessment of the charcoal from the others in order to confirm the relative abundance of taxa. Given the richness of the samples, no further processing would be required. The results should inform on the nature of the activities taking place at the site and also highlight the character and exploitation of the contemporary woody environment.

6.5.12 Further work is warranted on the waterlogged plant remains from the peat/peaty deposit underlying and adjacent to the burnt. This should involve further sub-sampling and processing of material from the monoliths and full plant macrofossil analysis. Alongside further radiocarbon dating and the palynological studies, the plant macrofossil analysis should provide a detailed record of local vegetation changes of the peat prior to, and possibly during and after the burnt mound activities at the site.

6.6 Assessment of the Trough Timbers

6.6.1 The timbers were inspected and photographically recorded within one month of their excavation. They are currently stored, wrapped in black polythene, in a specially-constructed water tank.
6.6.2 All five timbers were examined; being assessed for survival and condition of the timber, survival of technological evidence, species, and suitability for dendrochronological dating. In addition their maximum dimensions were recorded, and a photographic record made of the timber and any points of interest, for instance toolmarks (Plate 29).

6.6.3 **Timbers 1 and 5:** Timbers 1 and 5 are of most significance, comprising large parts of the trough seen within the burnt mound. Neither was, however, in good condition, although Timber 5 remains relatively solid and shows no further signs of deterioration. In both cases the surfaces of the timber appear originally to have been dressed, reducing the typically triangular cross section seen in radially converted timbers to an approximate rectangle. In the case of Timber 1 the surfaces of the timber were too badly degraded for technological evidence regarding the manner in which the timber was dressed to survive. In the case of Timber 5 there was slight rippling preserved on the surfaces, commensurate with axe or adze dressing, but the original surface was sufficiently poorly preserved that no detail could be recovered. The plank cross-section was, however, slightly bevelled, making it slightly trapezoidal, and this was, presumably a result of reducing the original triangular section given by radial splitting of a large trunk. The degraded surfaces and the overall dressing of the timber seem to indicate that neither heartwood nor sapwood survived, and thus dendrochronological analysis would only provide a ‘floating’ date, indicating that it was from a long-lived tree, and the sample would be unlikely to provide an accurate felling date. In light of the radiocarbon dates obtained from the burnt mound, a dendrochronological date does not seem necessary, but it might be valid to suggest a radiocarbon date on the outer rings of the timber.

6.6.4 **Timbers 2-4:** Timbers 2 and 4 are too small and poorly preserved for further comment. Timber 3 is clearly different, and from the remaining fragment does not appear to have been modified in any way, retaining patches of its original bark. It appears to be a round-sectioned baulk, deformed now by the weight of overlying deposits.

6.6.5 **Recommendations:** apart from the possibility of obtaining a radiocarbon date from Timber 5, no further work can be recommended on the wood. Conservation would not seem a viable option, as the timbers, despite their age and unusual survival within a burnt mound, have little further research or display value.

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
<th>Comment</th>
<th>Suitability for dendrochronology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber 1</td>
<td>L: 68.5mm</td>
<td>All maximum dimensions.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>W: 10.5mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Th: 40mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timber 2</td>
<td>L: 270mm</td>
<td>No obvious dressed surfaces</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>W: 50mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Th: 23mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timber 3</td>
<td>L: 500mm</td>
<td>Flattened unmodified trunk fragment</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>W: 170mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 2: Description of the timbers

<table>
<thead>
<tr>
<th>Timber</th>
<th>Description</th>
<th>Measurement</th>
<th>Condition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber 4</td>
<td>Small scraps of split timber.</td>
<td>Not measured, none more than c 100mm</td>
<td>No evidence of dressed surfaces.</td>
<td>None</td>
</tr>
<tr>
<td>Timber 5</td>
<td>Large radially-converted plank, forming base of trough. The east end was deliberately cut across.</td>
<td>L: 1.3m</td>
<td>W: 230mm</td>
<td>Probably no surviving heartwood or sapwood – floating sequence only</td>
</tr>
<tr>
<td></td>
<td>There are some possible dressing but the surfaces are very poorly preserved and no tool-marks survive.</td>
<td>Th: 30-40mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Plate 29: Images of each of the trough timbers
7. RESULTS OF THE DOUBLE BANK AND DITCH EXCAVATIONS

7.1 INTRODUCTION

7.1.1 The double bank and ditch earthwork curves through parkland to the south of Sizergh Castle. The western corner disappears under the south-western corner of the South Garden, while the eastern end runs out at a point to the south of the southernmost extent of the pond. The abrupt end of the eastern end of the bank and ditch earthwork may suggest recent disturbance, and there are indications that the feature continued round to the east (Section 4.2). This is further supported by the existence of a mound of redeposited earth against the inner edge of the earthwork which could have resulted from work to break through the bank to create a clear view into the parkland. The function of the earthwork is difficult to understand.

7.1.2 The course of the double bank and ditch was investigated via two trenches measuring 3m wide and varying in length between 11m (Trench 1) and 12.5m (Trench 2) (Fig 2). A third trench (Trench 3), which measured 10m by 3m, was excavated toward the ditches north-east extent, in order to examine the relationship between the ditch and mound. A summary of the results for each area is presented below, with a context list provided in Appendix 3.

7.2 TRENCH 1

7.2.1 Trench 1 was aligned north-west/south-east, and was excavated to a maximum depth of 1.04m (Fig 15; Plates 30-33). The trench was placed in order to examine the ditch toward its western extent where the banks were most prominent. At the south-eastern side the ditch had cut into the underlying limestone bedrock creating an almost vertical face, whilst the north-west side had been cut into more superficial deposits (1009). The resulting ditch (1008), which was lower to the north-west, measured 3.36m across, and was approximately 0.95m deep, with a relatively flat base (Fig 16). A possible, truncated earthen bank (1007) was located on the north-west edge of the feature, which measured 0.4m thick and extended some 3.55m. The majority of the ditch was filled by a sterile deposit (1006), which contained little else other than snail shells, and included both fine sediment and stony material, and is a finer material than found in the ditch fill from Trench 2. A layer of subsoil (1004), which had a maximum thickness of 0.4m, was situated in the north-west of the trench and partially overlay fill 1006 and bank 1007. It was likely to have been plough soil related to the ridge and furrow, which exists in this part of the field (OA North 2011, 78). A similar deposit, located at the south-east end of the trench, probably had the same origin. Lying above the previous deposit was the tertiary ditch fill (1001), and was also found to be remarkably sterile. Lying directly above bank 1004, was a layer of stones (1002), presumed to be the results of field clearance from when the area to the north of the ditch had been in agricultural use. Likewise, a similar layer of stones (1003), topping the opposite bank, was likely to have had the same origin. A layer of topsoil/turf (1000) formed the uppermost stratigraphic unit.
Plate 30: Vertical image of Trench 1 after completion of the excavation, with the later stony banks (1002 and 1003) on the right and left of the ditch, bedrock can be seen on the far right of the picture.

Plate 31: Trench 1, looking south-east.

Plate 32: Detail view looking south-east along Trench 1.
7.2.2  **Dating evidence:** there was very little artefactual evidence from the ditch; the topsoil (1000) produced a holed stone and eighteenth and nineteenth century pottery, whilst bank material (1003), produced fragments of mortar and a sherd of eighteenth century Brown glazed earthenware pottery.

7.3  **TRENCH 2**

7.3.1  Trench 2 was aligned north-west/south-east, and was excavated to a maximum depth of 1.04m (Fig 16 and 17; Plates 34 and 35). The location of Trench 2 was placed in order to examine the ditch in a central position, where, once again, the banks were most prominent. This segment of the ditch (2007), was of more modest proportions, measuring 1.63m wide and approximately 0.5m deep. Although it was cut into the natural weathered bedrock (2011) at its base, its profile was quite regular, when compared to Trench 1, with a flat base and moderately sloping sides (Plate 36). Up-cast (2008) from the ditch on the north-west side, had survived as a 3m long by 0.35m thick bank, which had probably been truncated in antiquity. Although the opposite side was less clear, it was likely that up-cast had also been used to form a less substantial, and altogether stonier, low bank (2009). Slumping (2006) from bank 2008 was noted along the north-west edge of the ditch. The fill of the ditch was composed of stoney material (2005), which was 0.62m thick, and had coarse sediment, which is typical of high-energy deposition. Significantly this sediment is coarser than the fill from the ditch in Trench 1. It is possible that much of the ditch in this location had silted-up at a relatively fast rate. A much shallower deposit (2002) formed the upper fill.
Plate 34: Vertical image of Trench 2 after completion of the excavation, with the later stony banks (2009 on the left and 2003 on the right) on the right and left of the ditch

Plate 35: Trench 2 looking south-east

7.3.2 A subsoil deposit (2001) on the north-west side of the ditch had probably been produced as a consequence of ploughing, with the same process building up a stony headland (2003) above the former ditch bank (2008) that partly extended over the upper ditch fill. The same process had been repeated on the south-eastern side, with the bank represented by 2004, and subsoil by 2012. The uppermost stratigraphic unit in the trench was turf layer 2000.
7.3.3 **Dating Evidence:** as with the ditch segment examined in Trench 1, there was a dearth of artefactual evidence. Ditch fill 2005 produced two fragments of slag dating to between the Iron Age and Medieval period (A Parsons and F Brown, pers comm), and pig and dog canines. Medieval and nineteenth century pottery was recovered from the upper ditch fill 2002 indicating material derived from manuring, with the same process also being responsible for the pottery recovered from the topsoil (2000). A sample of charcoal was identified from a lower ditch fill, 2005, and this was subject to radiocarbon dating (*Section 7.4*).

7.4 **TRENCH 3**

7.4.1 **Trench 3:** the trench was aligned north-west/south-east, and was excavated to a maximum depth of 0.25m (Fig 18; Plates 37 and 38). The mound identified to the north of the ditch had utilised an outcrop of limestone (4006) as a foundation. Superficial glacial deposits (4005) were seen to lap against the bedrock. A subsoil layer (4003) was seen to extend from the south-eastern edge of the limestone outcrop (4006). The mound, once exposed, was found to be a rectangular platform of stone (4002) measuring >1.97m from north-east to south-west and 3.1m across. The north-west corner was formed by a large triangular block of limestone, whilst the south-eastern edge was slightly more diffuse. The platform was composed of closely-set, unworked limestone blocks, with occasional sandstone, slate and glacial erratics, measuring up to 230 by 150mm, and exhibited some linearity in its core, that may be indicative of structure, 4007. A spread of rubble (4004) was seen immediately to the south-west of the platform. The south-eastern boundary of the trench was formed by the stone-capped bank (4001) of ditch (1008/2007), which was not excavated.
Plate 37: Aerial view of Trench 3

Plate 38: South-east orientated view of Trench 3 showing the limestone bedrock to the north-east

7.5 Radiocarbon Dating

7.5.1 A single sample from the ditch of the double bank and ditch earthwork (Trench 2) was submitted for radiocarbon dating:

Trench 2 Date Sample

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Type</th>
<th>Dated Species</th>
<th>Context</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>203.11 (0.75-0.8m)</td>
<td>Charcoal</td>
<td>Prunus sp (Blackthorn-type)</td>
<td>2005</td>
<td>Lower ditch fill, Trench 2 (0.75-0.80m depth; 0.10-0.15m from base of ditch)</td>
</tr>
</tbody>
</table>
### Radiocarbon Date Results

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Radiocarbon Age BP</th>
<th>Calibrated Date (2 sigma 95.4% Probability)</th>
<th>Lab Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>203.11</td>
<td>192 ± 31</td>
<td>1647 cal AD to modern</td>
<td>SUERC-49746 (GU32311)</td>
</tr>
</tbody>
</table>

#### 7.5.2 Significance of the date:
The sample was from the fill of the ditch and so does not date the cutting of the ditch. There is some uncertainty as to the energy of the fill, but at least in the Trench 2 section of ditch it would appear to be a high energy fill and would imply it filled relatively fast, in which case the date of the fill may approximate to the cutting of the ditch. The very long extended data range for the date indicates the eccentricity of the calibration curve, and indicates that sample date overlaps with the calibration curve at three junctures and the date has a 95.4% probability of being within one of these three periods: 1647-1694 cal AD; 1727-1813 cal AD; 1918-modern cal AD (Appendix 4). This does not provide a high level of confidence for the dates, and there is consequently some considerable uncertainty as to how much it can be trusted given that it was the only available sample that could be dated from the trench fill. Given that the South Garden (later eighteenth / early nineteenth century) was constructed on top of the ditch, it is unlikely that the later of the three periods (1918-modern cal AD) corresponds to the date of the ditch. If the earthwork had been constructed within the middle period (eighteenth /nineteenth century), it is probable that it would have shown up as a boundary or feature on the eighteenth century mapping or survived in use until it could show up on Ordnance Survey mapping, which it does not. This would bias it towards the earlier of the three date ranges in the seventeenth century.

#### 7.6 Palaeoenvironmental Assessment from the Double Bank and Ditch

##### 7.6.1
The four bulk samples taken from the Sizergh ditch were generally devoid of plant remains and produced just the occasional poorly-preserved charred cereal grain and uncharred seed that is likely to be modern. The discrete charred layer (2002) in the upper fill of the ditch contained abundant charcoal dominated by ash (*Fraxinus excelsior*), with a little blackthorn-type (*Prunus* sp-that includes blackthorn, wild/bird cherry). The lowermost fill (2005) produced frequent charcoal of alder/hazel (*Alnus glutinosa/Corylus avellana*), ash, and blackthorn-type. Blackthorn-type charcoal from one of the small series samples taken at 0.75-0.80m depth (0.10-0.15m from the base of the ditch). This was sent to the Scottish Universities Research Centre (SUERC) for radiocarbon dating, and it returned a date of at least 1647 cal AD (192 ± 31 BP, SUERC-49746), which indicates that the ditch is most likely have been dug in the Post-Medieval period. All four of the ditch samples contained common to abundant molluscs, plus one (100) which contained a single mammal tooth.

##### 7.6.2 Conclusion and Recommendations:
No further palaeoenvironmental work is warranted on the Sizergh ditch given the survival and character of the deposits.
8. THE GREAT BARN - BUILDING INVESTIGATION

8.1 INTRODUCTION

8.1.1 The following sections provide a summary of the results of the visual inspection of the Great Barn carried out by project participants and OA North staff. The first part provides a descriptive account of the building outlining details of the plan, form and function commencing with the external elements, followed by the internal details. As the descriptive account is a non-technical summary of the results, the use of technical architectural terms will be kept to a minimum. Following this outline descriptive account, an analytical discussion of the wider context of the building will be provided to place the building in its historical, architectural and cultural context.

8.2 DOCUMENTARY BACKGROUND FOR THE GREAT BARN

8.2.1 The earliest available written references to any sort of barn at Sizergh Castle was a lease of 1529 citing tithes of corn and hay ‘late in the holding of Sir Walter Strickland namely belonging to ……the tithe barns at Natland and Sizar’ belonging to the parsonage of Kirkby in Kendale. The lease value was low compared to others mentioned in the same document; ‘to hold for a term of 41 years at £18 14s 6d, namely for Croscrk and Laikrige, £14; for Natland and Whynfell 74s 8d and for Sizar 20s’ (Farrer and Curwen 1923). Such a small value may correspond to a smaller barn.

8.2.2 The large size of the impressive Great Barn at Sizergh, also known as the Elizabethan Barn, means that it is clearly not the building referred to in 1529. Instead the Great Barn is recognised as forming part of the extensive campaign of building works carried out by Sir Walter Strickland in the 1560s (National Trust 2001). Inventories of 1569 refer to both the ‘new barne’ at Sizergh and its contents of 22 oxen, 12 horses, wheat, barley and oats and agricultural equipment (Inventories of Walter Strickland Esq 1569). There were also two additional barns at this date as shown in the inventories of 1569, ‘a haye barn’ (also thought to have been built in the 1560s) and a ‘cowe house’.

Plate 39: A detail of Sizergh Castle taken from the sixteenth century Hawes Estate Map
8.2.3 A sixteenth century map (Plate 39) depicts the estate of Sizergh in a very schematic way representing the River Kent, roads, and buildings (Hawes Estate Map sixteenth century, Kendal Archives WD/D). It depicts Sizergh Castle but does not show any of the detail of the out buildings.

8.2.4 Tim Whittaker’s study of the bank barns of Cumbria (Whittaker 2001, 18) points out that, although the existing barn may have been constructed in the sixteenth century, the roof structure with its tie beam and collar, masonry and fittings are more characteristic of a seventeenth century date. The ground floor fulfilled the role of the cow house and could have accommodated up to forty-eight cows. The beams supporting the first floor he suggested were potentially re-used cruck blades. This interpretation remains valid after the recent survey, however, it is impossible to be sure where these possible crucks originated. While it is tempting to suggest that they came from an earlier, possibly Medieval barn, erected on or close to the site of the Great Barn, this need not have been the case. Whittaker also suggested that the number of reused timbers would imply an original cruck construction of probably nine bays long. The first floor of the present barn had two threshing floors, each accessed by ramps on the south wall.

8.2.5 The building works of Walter Strickland during the late sixteenth century appear to have been considerable and impressive. The next available map (Plate 40; A Map of An Estate called Sizergh in the Parish of Helsington) was dated to 1771 and depicted a larger Sizergh Castle and, to the south-west, the service courtyard of barns and stables. The courtyard was in the same location and has a similar configuration to that of the present day, parallel to the access road alongside the fields and to Sizergh Common. The access road had a short avenue of trees, a detail suggesting an emphasis on an imposing grandeur. The Great Barn was the rectangular building on the south side of the court or quadrangle and its huge size must have contributed to an impression of importance. The late eighteenth century coach house and stable range that today occupies the eastern side of the courtyard is absent from the plan of 1771. However, a small rectangular building is shown on the same site. This building may have been a dovecote, again a fashionable assertion, for which plans were discussed in 1755 (Goodall 2000, 53). On the western and northern sides were shorter ranges of buildings, and the one to the west was probably the hay barn cited in Sir Walter Strickland’s inventory of 1569 (NTSMR 27785).
8.2.6 The map in the Estates Book of 1784 (Estates Book 1784, Sizergh Castle) showed beautifully delineated fields with the large three sided structure of the castle and residence buildings, and also included were the Great Barn and the other three separate rectangular buildings.

8.2.7 A painting (Plate 41) from 1805 by P Atkinson (View of Sizergh Castle from the South) clearly showed the considerable size and detached character of the Great Barn. The square building to the east, also separate, was probably the stable block, comprising a central stable with flanking coach houses, a hayloft and groom’s accommodation above, that was constructed during the mid-late eighteenth century by architect John Hird (NTSMR 17785). Only the eastern end of the Great Barn could be seen (the western end being obscured by trees) with a plain pitched roof and no gables. The painting does draw attention to the unrendered stone walls of the Great Barn by depicting them in a darker shade, whereas the Castle and stable block are in pale classical tones. The southern elevation seen in the painting implies a slight projection, perhaps an outshut or porch.
Plate 41: P Atkinson, 1805, View of Sizergh Castle from the South

Plate 42: Detail of a Plan of Several Estates in the Townships of Helsington, Levens and Sedgwick belonging to Thomas Strickland Esq 1827
8.2.8 A plan of Sizergh Estate of 1827 also showed the Great Barn as a separate building. The building was annotated with demarcations which correspond with the two ramps on the south side and what could be a further two ramps or steps on the northern side. If these were ramps then it could potentially have allowed wagons to pass through the Great Barn after unloading. The east side of the service court, where the stable block was, had developed into a longer range by 1827 with its additional kennel building. The west side of the court was still occupied by the shorter rectangular building, probably the sixteenth century hay barn. Another plan of the estate (Plan III of the Sizergh Estates book (WDB / 22 Cat no 68)) is undated but was probably early nineteenth century. This showed a similar plan of the service courtyard; the Great Barn was depicted with smaller extensions on its south elevation probably representing the ramps and the central projection of the Great Barn. No ramps, however, were indicated on the northern elevation. The hay barn on the west side of the courtyard remained undeveloped.

8.2.9 The OS 1st edition map of 1860 (Plate 43) and at a scale of 25’ to the mile offers a detailed plan of Sizergh Castle and associated farm range, then known as High Sizergh Farm. The Great Barn was a rectangular building with one main entrance up a straight sided ramp in the western part of the Great Barn. To the east of this was the other entrance with a splayed ramp leading up to it. On the north side of the Great Barn were also marked two further possible splayed ramps in corresponding positions opposite the ramps on the southern elevation, allowing potentially the egress of the unloaded wagons. The layout corresponds to the present configuration of the barn and indicates that the southern extensions were in place by this date. Since the earlier part of the nineteenth century the eastern side of the quadrangle had been completely built on to form the long range of service buildings and stables and five kennels at its northern end. The rectangular barn on the west side of the court seemed unchanged.

Plate 43: Ordnance Survey, 25’ to 1 mile, 1860
8.2.10 The Ordnance Survey map of 1899 (Plate 44) depicted the configuration of the farm yard very clearly, particularly the eastern side with its extension on the southern end joining to the Great Barn, the square stable block and its two extensions to the north and south, and, in 1899, only the four kennels at the northern end. The Great Barn remained unchanged on its southern elevation; the northern side had marked two small square blocks in the position of the previous ramps. These are presumed to be the stairs leading up to the narrower entrances of the present day Great Barn. Thus by 1899 the large wagon doors on the north side of the Great Barn had been blocked in allowing only a narrow pedestrian entrance up a flight of steps. These alterations suggest perhaps the acquisition of threshing and winnowing machines, which were common by the end of the nineteenth century and obviated the need for threshing floors (Whittaker 2001, 19-21). Within the yard itself was now a large rectangular tank (thought to be a water tank fed by the gutters of the Great Barn to presumably supply the shippon). The central space within the yard also appear to have enclosed, perhaps for use as a stock pen.

![Plate 44: Ordnance Survey, 25’ to 1 mile, 1899, Westmorland, Sheet XLII.3](Image)

The Ordnance Survey map of 1914 (Plate 45) shows a similar configuration. The only alteration in the appearance of the Great Barn is the disappearance of the steps on the northern side of the building. Interestingly the hay barn located on the western side of the yard is shown as unroofed, suggesting that the building has already started to fall into disrepair long before its collapse in 1945 and eventual demolition in 1948/9.
8.2.11 An undated plan or survey (Plate 46) of similar date of the *Outbuildings to Sizergh Castle* (thought to be mid-twentieth century in date but possibly earlier) was included within a book of plans or surveys of other Sizergh holdings (copy provided by Edward Hornyold-Strickland) which showed the Great Barn with two main entrances on the southern elevation. The northern elevation depicted two flights of steps alongside and parallel to the building. The same plan also depicts the former hay barn on the west side of the yard is a different colour to the other buildings. This can be interpreted as further evidence that the building was unroofed for a time during the early twentieth century.
8.2.12 There is also recorded aural evidence (Edward Hornyold-Strickland 1985) from Mrs Croft who was the daughter of the farm manager Mr Bindloss and who lived at Sizergh from 1907-1928 between the ages of two and twenty-three years old. In describing the Great Barn she recalled that the first floor doors on the north side of the building were larger than they are in the present day. Both of the doors were served by staircases which were flush to the north wall, as seen in the Outbuildings (Plate 46). The first floor of the Great Barn was used for storing hay and straw with the lean-tos in the outshuts used for drying and storing the corn. The ground floor of the Great Barn had at its eastern side three shippens, in the centre two foddergangs and milking stalls, and to the east the coolhouse and dairy. Outside on the south side and west end of the Great Barn was a treadmill, originally powered by horses but later mechanised. Mrs Croft also remembered the second stone barn on the west side of the court as having two storeys with two large double doors. This was used for storing hay.

8.2.13 Another set of memories was from the nephew of the gamekeeper who stayed at a cottage known as ‘The Kennels’ adjacent to the Castle in the 1930s (Cottam 2001). He spoke of the two very large barns; one being the Great Barn, which used to have the Strickland family ticket office and shop at one end, and the second with cow byres and hay lofts above. This was likely to have been the hay barn on the west side of the yard also dating from the sixteenth century. These two accounts of the second barn seem to be good evidence for this building having been a substantial two storey hay barn.

8.2.14 The next OS map to show the buildings at a large scale and in such detail was not until 1969. The 1920 OS map was at a smaller scale and showed a more schematic diagram and the 1938 OS map was not available for this area. There is, though, a photograph (Plate 47) of interest (Black Box of Photos, Sizergh Archive, National Trust). This recorded, from the air, the Castle courtyard and farm yard, and showed the steps behind the Great Barn, perhaps as stone steps and now projecting from the north wall directly into the courtyard, and was a development from the steps flush to the wall depicted by sources in the early twentieth century. It also showed the absence of the sixteenth century hay barn; this large two storey hay barn had collapsed in 1945 but could not be immediately rebuilt, eventually being demolished in 1948/9 (Henry Hornyold-Strickland in White 2009, 67) thus dating the photograph and the usage of the steps to 1950 or later. While the sixteenth century hay barn may already have been in ruinous condition before 1920, as it seems to have been shown as an unroofed building on the 1920 OS map, the aural evidence of Mrs Croft and Brian Cottam suggest that it was very much in use for storage.
Plate 47: Post war aerial photograph of Sizergh Great Barn, Sizergh Archive, National Trust

8.2.15 The 1969 map showed the Great Barn with the same southern elevation; it also indicated the return of the use of steps for the entrances on the northern sides. A photograph of this period held by the National Trust (Plate 47), taken prior to the conversion of western ground floor section into offices, indicates that these were again at right angles projecting from the Great Barn wall.

Plate 48: photograph showing the northern elevation of the Great Barn, prior to the conversion of the western end to offices (Sizergh Archive, National Trust)

8.2.17 The National Trust Sites and Monuments Record for the Great Barn describes its present form as a bank barn 30.5m in length with two ramps and two sets of double doors. There are outshuts in the south side, of which the central one is first floor only and supported by a central stone pillar. The outshuts were probably used as a grain storage areas. It was constructed of limestone rubble walls and green roof slates.
8.3 DETAILED DESCRIPTION OF THE EXTERIOR

8.3.1 General introductory description of the Great Barn: the Great Barn at Sizergh is a large stone structure, measuring some 30m long by 8m wide (11.5m including extensions). The long axis of the barn is aligned on an east/west axis (Figs 19 and 20), and all the following descriptions will respect this. It is an example of a type of agricultural building commonly found in the Lake District and North of England known as a Bank Barn. These barns are commonly of two storeys, the lower or ground floor housing livestock, the upper floor being used to store grain as well as hay, straw and general storage. Many barns belonging to this group have the long axis built directly into a slope or bank (hence the name), the upper floor being directly accessible from the high side of the slope and the lower floor accessed from the low side of the slope on the opposite side (Plate 49). The upper floor of the barn at Sizergh is accessed via two artificial ramps on the south side thus creating a man made ‘bank’. Overall the site is broadly level.

8.3.2 The building comprises the main body of the barn together with the two ramps abutting the south elevation as well as four extensions also abutting the southern elevation (Fig 20; Plate 49). The whole structure has a pitched roof, the south slope of which extends down over the outshuts. The north elevation (Fig 21; Plate 50) forms the south side of a yard, bounded on the other sides by buildings. There are two flights of stone steps attached to the north elevation that allow access to the upper floor from the courtyard. The main current access to the upper floors is via the two ramps on the south side of the barn through two large sets of wain doors set within covered recesses between the extensions. These recesses are roofed to form two porches, the roofs being a continuation of the main roof slope. Access to the lower floor is available via various doorways in both the north and south elevations (Fig 19).

Plate 49: General view of the southern aspect of Sizergh Great Barn
8.3.3 The internal layout is simple, with the upper floor consisting mainly of a single large space (Fig 20; Room 1) open to the roof space, together with three rooms within the extensions that were added to the south side (Rooms 2, 3 and 4). Each of these rooms is accessed independently of the main building. The lower floor consists of six main spaces (Rooms 5-10), of which three (Rooms 8-10) are currently being used as National Trust offices, and Rooms 5, 9 and 10 are contained within the extensions. There is no internal access between the upper and lower floors. All of the dividing walls between the rooms are of stone except that between Rooms 7 and 8 which is of cinder block.

8.3.4 General Fabric: the barn is constructed from limestone with patches of sandstone fabric visible in several places. The stonework is mainly of random rubble construction, although some coursing is visible. Most of the mortar is lime, degraded in some areas and smeared over the stonework. Most of the corners of both the main barn and the extensions have substantial quoins, also of limestone. Cobbled areas are present at the base of the both the north and south elevations. The roof is of slate (of two or three different types) all laid in diminishing courses. All of the doors and all of the window frames are of timber. The rainwater goods are mainly of cast iron with a single timber gutter on the western ground floor extension. Internally, the upper floors are of timber boards and all the roof structure is of timber. The ground floors are fragmentary in nature exhibiting both bare earth and areas of cobbles and stone flagging. The following sections will describe, in further detail, the main elements of the exterior and interior of the building commencing with the north-facing elevation facing the courtyard.

8.3.5 The North Elevation: this elevation covers the whole length and the full height of the building covering both stories (Fig 21; Plate 50). It contains six doorways on the lower story and two on the upper, each of which are accessed by a flight of limestone steps, each with a timber handrail. There is a row of nine vertical ventilation slits on the upper, together with two rows of square ventilation holes (13
on the upper and 10 on the lower (including one blocked at the east end)). The vertical slits are arranged in rows, but the square holes are randomly placed.

8.3.6 Access to the upper storey from this side of the building is via the limestone steps to doorways that clearly butt against the elevation as evidenced by a clear vertical join (Plate 51), but these were not original. The two doorway apertures at the top of the steps contain plank and ledge doors (Section 3.2.37) and each has a timber lintel. Both of the doorways are set within former, much larger, apertures that are now partially blocked (Plate 52). Evidence for this is visible as two vertical scars in the fabric together with a slightly differing infill fabric. Additional evidence is present in the form of a large timber lintel set into the wall above the blocked opening which is of similar scantling to the lintels set above the double doors in the south elevation. It is apparent that the lintels are not centrally placed above each doorway. Large quoins are visible on each side of the blocking and it is clear that the left jamb of the east doorway and the right jamb are formed by the jambs of the former larger apertures. The left scar of the east doorway and the right scar of the west doorway do not appear to continue down to the ground level, suggesting that similar doors were not present at ground floor level. There is no evidence for any ramp similar to that on the south side.

Plate 51: Stone steps leading to the upper floor doorways on the north elevation
Above each of the lintels are four projecting timber baulks that appear to have been cut or sawn off and may, therefore have projected further out and above each of the doorways. Only the lower of the two baulks are visible internally (Plates 51 and 52). These may be evidence for a projecting porch. Pintles present on the internal face of the lintels (Section 8.3.6) betray the position of former doors that opened inwards and were probably harr hung in a similar fashion to the surviving doors on the south side. Evidence in the form of peg holes and rebates suggests that the lintels may have been reused.

The ground floor contains six doorways that allow access to and from the various rooms and spaces. There is a further blocked door at the extreme east end which once allowed access into Room 6 (Fig 19; Plate 53). This, in common with the others, has a timber lintel, which it still retains. Five of the other doorways have timber lintels of varying scantling and have plank and ledge doors of slightly differing styles. The door at the west side of the elevation leads into the National Trust office and is a late twentieth century heck door. Situated in between the steps is a large sliding timber door with steel rail, of twentieth century appearance. This has clearly been inserted, although there is no visible evidence that it replaced an earlier doorway.

There are three window apertures at the west end of the elevation, all of which serve the National Trust offices (Plate 54). Two of these have been inserted into former doorways evidenced by vertical scars and blocking below; both have timber lintels. A third window, situated to the east of the heck door, has a stone lintel with evidence of rebuilding above; there is no evidence of infilling below this window and suggests that it was inserted as a window. All of the windows are of late-twentieth century appearance.
Plate 53: Blocked door at the east end of the north elevation

8.3.10 A low plinth runs along the whole length of the base of the elevation, which continues around some of the other elevations (Section 8.2.28). This is approximately 0.96m high and continues behind both flights of sandstone steps further reinforcing their later addition. The plinth projects from the main elevation only by a few centimetres and is most visible on the west facing elevation. Also running parallel the whole length of the elevation is a 2.4m wide cobble surface (Plate 54). This is composed of randomly sized sandstone cobbles, the long axis of most being perpendicular to the elevation. Two drains are present to which gullies from the internal spaces lead; the cobbles are edged by a rough limestone kerb.

Plate 54: Arrangement of apertures at the western end of the north elevation
8.3.11 **The South Elevation:** the description of this elevation comprises the south elevation of the main barn together with the extensions added to it (Fig 22). Much of the south elevation of the barn is obscured by the extensions, but what is visible appears to be of similar fabric to that described for the north elevation. It is mainly the upper parts of the elevation that are visible at both the east and west ends and there are two visible vertical ventilation slits and two square ventilation holes set within the western wall (Plate 56) and five vertical ventilation slits in the eastern part (Plate 57). The east part of the visible elevation also contains a small window aperture on the lower floor that lights Room 6 (*Section 8.2.53*). This appears not to have been inserted and may be original or at least part of the early phases of construction. It has a timber lintel, which is heavily weathered, and contains some probable former peg holes. Above this are the remains of a slate drip course. The west jamb of the window butts right up against the adjacent extension containing Rooms 4 and 5. The dividing wall between the barn and the long drop to the gardens below almost touches the eastern end of the elevation.
8.3.12 There are four extensions added to this elevation three of which are on two levels and contain Rooms 2, 3 and 4 on the upper floor and Rooms 5, 9 and 10 on the lower floor. The space below Room 3 is open on the south side (Plate 53). The fabric of the Room 2, 3 and 4 extensions is similar to that of the main building, comprising limestone random rubble. The mortar is smeared in some places and degraded in others; there is no uniform treatment of the mortar perhaps betraying several repointing or rebuilding episodes. Substantial quoins are present at the corners of extensions 2, 3 and 4.

8.3.13 **Room 10 Extension:** a single storey extension at the west end contains Room 10, which has the same random rubble build as the other extensions, but overall uses smaller stone giving it a slightly different character. An inspection of the join between it and the main barn reveals that it butts against the south elevation of the barn and is evidently later (Plate 60). Significantly the roof line of this single-storey
western extension (Room 10) partially obscures a blocked window aperture in the west wall of the Room 2/9 extension (60), and was evidently constructed later than the Room 2/9 extension.

8.3.14 **Room 2/9 Extension:** The western extension is accessed both internally from the ground floor of the National Trust offices (Room 9) and via a door in the east wall at the top of the west ramp (Room 2). In common with the other extensions, there is no evidence of any connection between the upper and lower floors. The doorway at the top of the ramp appears to be contemporary with the extension and contains a windowed (with wrought iron bars) plank and ledge door with a substantial chamfered timber surround. A surviving iron pintle, together with a corresponding hole for a similar arrangement lower down on the left jamb, testifies to the existence of a previous door arrangement, probably opening outwards. In common with other openings within the building, there is a substantial timber lintel (Plate 58).

Plate 58: Doorway into Room 2, the westernmost extension

8.3.15 As has already been mentioned (*Section 8.3.13*), the west facing elevation of this extension exhibits a blocked window that is partially obscured by the roof slope of the adjacent single-storey extension (Plate 59). Above the timber lintel is a projecting drip course, which is unique on the barn. This blocked window is also visible internally. On the ground floor of the south facing elevation of this extension, is a small rectangular window opening with projecting sill and timber lintel; the frame is modern.
8.3.16 **Central Extension (Room 3):** the central extension again covers two floors but the ground floor is open to the south elevation, forming a storage area or cart shed, the opening being spanned by two substantial full width timber beams (rotted at the ends) supported by three columns and the side wall. There is a small window located in the centre of the upper floor, the frame within probably dating to the early twentieth century (Plate 62). Two of the supporting columns are of timber and appear to be reused telegraph poles, and were obviously inserted to support the rotting timber beams. The centre column is of limestone and supports the beams in the dead centre, a pad stone is visible at the top of the column. The beams and a corresponding section of wall appears to have sagged on either side of this stone column, hence the need for the telegraph poles. Above the beams is a row of large limestone blocks and above these is a drip course of projecting slates.

8.3.17 The ground floor area beneath the extension consists of a cobbled area of similar appearance to that adjacent to the north elevation (Section 8.2.12). Although much of the cobbled area is covered with concrete, the limestone kerb is present. A small window with louvered timber shutter, timber lintel and stone sill is present lighting Room 7, as well as two doorways both allowing access to the same room. Both of the doors are of plank and ledge construction with rudimentary timber surrounds. The west ramp appears to butt against this doorway, suggesting that it is of a later phase. To the left of the west door is a recess with two timber lintels, one of which is a replacement. This may be a blocked doorway of some description, although it is within the west ramp and appears to lead to nowhere (Plate 60). The ceiling in this area (the floor of Room 3 above) is a twentieth century insertion.
8.3.18 Access to the upper floor of the central extension (Room 3) is via a door situated in the west wall at the top of the ramp. The doorway is directly opposite that allowing access to Room 2 and has a plank and ledge door with a wooden latch and obvious repair work to the lower one third. Unlike the door into Room 2, there is no evidence for a previous arrangement and the door is harr-hung on wrought iron hinges with no surround, just a simple jamb on the left side. A timber lintel and threshold are present. In the opposite wall, at the top of the east ramp, a window is present that was obviously once a door evidenced by a very obvious blocking below the window (Plate 61). There is no obvious evidence of any former door arrangement. The presence of this doorway means that either the room was once divided and two doorways were required or the room simply had twin entrances.
8.3.19 **Eastern Extension (Rooms 4 and 5):** the eastern extension is of similar appearance and size to the western one and contains Rooms 4 and 5 (Figs 19 and 20). There is a doorway opposite the blocked doorway into Room 3 at the top of the east ramp, allowing access to Room 4. The door is of plank and ledge construction and there is a substantial chamfered timber surround of similar appearance to that on the doorway into Room 2 (*Section 8.3.17*), although there is no evidence for former hinge arrangements or previous door. In common with the other doorways, both the lintel and threshold are of timber.

8.3.20 The east-facing wall of the extension has two small windows lighting Rooms 4 and 5. The upper window, is a two-light non-opening simple frame probably of twentieth century date. Self adhesive lead has been applied in a faux diamond pattern. There is a timber lintel with pegs visible, above which is a slate drip course and slate sill. Below the window two short, vertical scars extending down from the opening suggest that the aperture was once larger. The lower window is much simpler and, although on a similar pattern and dimensions, is unglazed. Wire mesh simply covers the aperture. The frame is again of timber, but of a much earlier date than the one above. A rotted timber lintel is present together with a degraded slate drip course. Two vertical scars and evidence of blocking are also visible below this window.

8.3.21 **Extension Roof:** the three two-storey extensions share a common roof which, although sharing the slope with the main roof of the barn is noticeably different (Plates 62 and 63). The roof covering is of local slate laid in diminishing courses with some evidence of minor patching and recovering, the verges are plain and the eaves project slightly. There is a clear and obvious discontinuity between this roof and the roof of the main barn, with the roof of the barn being, perhaps counter intuitively, later. The roof also spans the spaces between the extensions where the ramps reach the barn, creating two porches that differ slightly in their details.

Plate 62: The roof of the south side of the barn showing the west porch
8.3.22 **Southern Porches**: the west porch is fairly straightforward and covers approximately half of the depth of the recess between the two extensions (Plate 63). The recess is spanned by two purlins that rest upon each wall of the adjacent extensions (the purlins continue into the adjacent rooms (Section 8.3.46). Each of the purlins supports common rafters and battens; one of the purlins apparently being a section of re-used telegraph pole. All of the battens appear machine cut, as do most of the rafters. The spaces between the battens exhibit full torching with lime putty, this being common to all the exposed roof sections in the building (Plate 63).

Plate 63: The east porch on the south side of the barn

8.3.23 The east porch differs slightly, in that the roof continues down to cover the entire depth of the recess, the lower half of which is raised up above the roof slope (Plate 63). This is supported upon a beam which is in turn supported on a raised section of wall on either side of the recess. A sloping timber wall plate defines the slope of the main roof.

8.3.24 The doorways allowing access to the interior of the building, are reached via the two grassed ramps (Plate 64), and house two sets of large wain doors (doors with interlocking ledges); the doors are described in greater detail in Sections 8.2.34 – 3.2.36. The ramps are not identical; the western being approximately 4.5 m wide, the east being around 5.2 m wide at the widest point. Both of the ramps narrow towards the top where they meet the south elevation of the barn. The west ramp is straight but the eastern most is slightly curved and respects the perimeter wall dividing the barn from the drop down to the gardens. Both the ramps are roughly the same length being approximately 8m to 10m and both sides of each are constructed from dry stone random limestone rubble stone with gravel/grassed upper surfaces. It is probable that each of the ramps are in-filled with earth or rubble, although there was no evidence for this. It is apparent that each of the ramps butts against the south elevations of the extensions and appear to be later.
8.3.25 **West Elevation:** this forms the western gable of the barn together with the west elevation of the western extension (Fig 23). The gable of the barn is quite plain, being constructed from the same fabric as the elevations already described. The main visible features being five square ventilation holes located on the upper floor and four vertical ventilation slits on the lower floor (Plate 65); all of these openings are similar to those on the other elevation. In addition to these openings, an owl hole with projecting sill is situated just below the apex. The verge of the roof is plain and the slates project slightly. There are no rain water goods present.

8.3.26 In common with both north facing elevation, a projecting plinth is visible at the base of the elevation (Plate 66). It is of the same appearance and dimensions as that seen on the north elevation, and appears to continue around to the south elevation. It is obscured by the extensions on the south elevation, and no trace of it was visible on those parts of the southern elevation of the barn that were visible.

8.3.27 To the right of the elevation, the west elevation of the extension containing Room 10 is visible (Plate 65). This, again, is quite plain in appearance and is set back from the gable of barn by a few inches and shows clear evidence that the extension is a later phase. There is a single window with a large lintel and a projecting sandstone sill. The window frame is of late twentieth century appearance, and appears to have been inserted later.
8.3.28 At the left side of the gable, a random rubble stone wall butts against the corner of the building that also contains a blocked opening, which was probably a gated entrance. The wall slopes away from the building, the coping being of cement. The wall lacks mortar and appears to have been rebuilt relatively recently.

8.3.29 **East Elevation:** this elevation is the opposite gable end of the building and is of similar appearance to the west gable (Fig 24; Plate 67). There are more ventilation holes and slits on this elevation however, and it appears from inspection that there were originally 14 vertical ventilation slits, some of which have been partially...
blocked and form smaller apertures. There were also originally 13 square ventilation holes some of which have been completely blocked. An owl hole, identical to that on the west gable, is also present, this has a projecting slate sill and is partially blocked. The plinth described in Section 8.2.12, is present and covers the whole length of the wall. Butted against the north side of the elevation, is a stone outshut which has a slate roof. This was used as a storage shed at the time of the survey.

Plate 67: The east elevation of the barn

8.3 **INTERNAL DESCRIPTION**

8.3.1 *Introduction:* the following section provides a detailed descriptive account of appearance of all the internal spaces and rooms of the barn and extensions. All of the rooms and spaces have been allocated a number commencing with the largest space in the building, that being the main room on the upper floor (Fig 20). The descriptive account will follow a logical order around the building, but not necessarily in the order of agricultural processes that may have taken place.

8.3.2 **Room 1:** this, as has already been described, is currently the largest room in the entire building. It covers the whole of the upper floor of the main barn and is completely open into the roof space (Plate 68). There are four doorways providing access into this area, two set within each of the north and south long elevations.
8.3.3 The two doors on the south side, currently forming the main access from the two ramps, consist of two large barn doorways each containing two vertically divided, oak wain doors. The doors differ slightly from one another, the west door containing a smaller pedestrian door set into one half (Plate 69).

Plate 69: The west wain door of the barn
8.3.4 The east door has no such arrangement (Plate 70) and is smaller in both dimensions. The west door measures some 2.9m wide by 3.2m high whilst the east door is 2.3m wide by 2.7m high. Both doors share the same basic design though each being of plank and ledge construction with a substantial stile, hung upon a reinforced harr- hinge at the bottom set into the floor, with a wrought-iron harr set into a wrought- iron pintle at the top set into the timber lintel. The horizontal ledges are fixed to the stiles with pegged mortise and tenon joints and the vertical planks are fixed to the ledges with nails. All of the planks exhibit beaded moulding. All of the ledges are chamfered and have the same or similar style of lark’s tongue run out stops.

8.3.5 Observing both doorways from the interior, it can be seen that the left doors have five ledges whilst the right only have four. This was carried out in order to create the securing mechanism where by a vertical, swinging, timber post is hung (bolted) from a ledge on the right door, its bottom end held within a wrought-iron guide bolted to the ledge below. The post is swung down when the doors are closed, securing the ledge of the opposite door; a wrought-iron pin then secures it. This is an effective and simple method of securing a door but can only be locked from inside. To account for this, the pedestrian door in the west door allows access when both doors are locked (although both doors on the opposite elevation can be unlocked from outside). This smaller door is of the same style as the main doors, only smaller, and is hung on pintles fixed to the stile of the larger door. A simple bolt secures the door.
8.3.6 The two doors on the opposite elevation are much smaller but are of similar construction with chamfered ledges (Plates 71 and 72). Both doors are harr-hung and have decorative strap hinges fixed to the stiles with bolts. The planks on the western door appear to be replacements and are tongue and groove. The other planks are squared edged and of differing sizes. Both of these doors are set within much larger openings that have been blocked to form these smaller doorways (Section 8.2.7). Evidence for the extent of the blocked openings is clearly visible as there are two vertical scars in the fabric of the wall. The blocked doors are the same size and measure some 2.2m wide by 2.8m high, noticeably smaller than the opposite doors. The right jamb of the west door and the left jamb of the east door are part of the jambs of the larger doors.
8.3.7 Nearly all of the timber floor in the main barn has been replaced, probably in the late twentieth century, and consists of fairly narrow softwood floor boards fixed to the much earlier beams and joists visible in the rooms below (Section 8.2.64). Between each set of opposing doors however, earlier flooring is present which appears to be the remains of threshing floors (Fig 20; Plate 73). Most of the floor boards within the area of the threshing floors are of oak fixed to the joists with wrought iron nails. They are generally of different widths than the replacement flooring, the boards on the east threshing floor being around eight inches (0.2m) wide, whilst those on the west are between nine and eleven inches (0.23m-0.28m) wide. Both floors are quite worn and have been patched and repaired in places.

8.3.8 The wall fabric is similar in appearance to the external aspect of the barn, but with more smearing of mortar over the stone. Within each of the walls are numerous tall vertical slits and square ventilation holes. All of the vertical slits and most of the square holes set within gable walls are blocked, just three or four square holes remain open within these walls. Most of the ventilation apertures on the south wall
are blocked (Plate 74), due to the positioning of the extensions. All of the openings on the south north wall are open, the vertical slits having splayed reveals with timber lintels of various dimensions. The square holes are not splayed and only some have a timber lintel.

Plate 74: Example of a blocked ventilation slit

8.3.9 There is no visible evidence for any internal sub-division of the space either in the wall or floor fabric. Neither is there any evidence for blocked openings other than those already described. The only other visible feature is situated at the north-east corner of the room and is a steel I-beam set into the walls across the corner (Fig 20). This was probably inserted to support a tank, probably a water tank or similar.

8.3.10 The roof of the barn is wholly visible and comprises ten simple trusses with tie-beams and collars (Fig 19; Plate 75). For the purposes of this report, the trusses were numbered 1 to 10 starting from the east end. Trusses 1 and 2 have been replaced with much later examples and Trusses 7 to 10 exhibit blackening, which appears to be due to fire or smoke damage. The roof frame is simple there being two rows of purlins on each side of the roof slope together with a ridge purlin. Common rafters and diminishing battens support the roof covering and the whole of the underside is torched with lime putty. Most of the members forming the frame are uniform and are mainly of sawn timber. The foot of each truss rests directly upon the tops of the long walls, there is a wall plate visible and part of the south long wall extends upwards. The trusses appear not to rest on the wall plate. The roof was examined from ground level, therefore some details, especially high up or on the tops of members, have not been recorded.

8.3.11 Trusses 3 to 10 are all fairly similar in construction in that the tie beams are of larger dimensions that the principal rafters. Each tie beam is roughly of square section (boxed heart) with chamfered soffits. The tie beams show some evidence of axe and adze marks. The principal rafters are rectangular in section and set ‘on-
edge’, the foot of each being tenoned into the ends of the tie beams and secured with pegs. The rafters are joined at the apex with a peg reinforced bridle joint upon which the ridge purlin is supported (Plate 76). The purlins are staggered and trenched into the rafters. Most of the purlins appear to have been replaced but some are earlier. The collars are joined to the rafters via peg reinforced mortise and tenon joints.

Plate 75: Roof trusses in the barn

Plate 76: Foot of a truss in the barn

8.3.12 The tie beams of Trusses 4-7 and 9 and 10 all contain several mortise holes in both faces that betray the positions of former ceiling joists, the majority having a single reinforcing peg hole. Most of the holes do not line up from truss to truss, suggesting that, either the trusses have been moved from their original positions, or they have been reused from another building. Further inspection reveals that carpenters or assembly marks are present on some of the trusses at the join between the principal rafters and ties beams. The marks, where present, are all on the west face of the tie beams.
beam and comprise roman numerals incised with the end of a chisel. The most visible marks consist of an inverted V on the north end of the tie beam of Truss 5, and an inverted VI on the north end of the tie beam of Truss 6. This obviously appears to suggest that the trusses are in situ but that the marks are upside down suggesting reuse.

8.3.13 **Room 2:** this small room, measuring approximately 2.9m by 2.85m (Fig 20), is situated to the left of the west ramp (Plate 77). Much of the room is obscured by boxes. The room is accessed via a plank and ledge doorway with small ‘perspex’ glazed window protected with wrought-iron bars. The planks are wide and all of the ledges are chamfered. Evidence of a former, outwardly opening, doorway is present in the form of two wrought-iron pintles set into the south jamb. The door is currently hung with strap hinges hung on pintles fixed to the inside jamb. In common with Rooms 3 and 4, it is quite plain; the walls being plastered up to a height of 2.20m and painted with disptemper/limewash. The roof is visible and consists of common rafters resting upon purlins. The roof covering is supported in similar fashion to the main roof; the floor is a relatively recent insertion.

Plate 77: General aspect of Room 2

8.3.14 The internal aspect of a window situated in the external west wall (Section 8.2.15) is visible in the form of scars indicating a blocked aperture. The aperture measures some 0.94m wide above which a timber lintel is present (this is also visible externally). The south-west corner of the room is canted and houses a blocked fireplace that measures 0.7m wide by 0.5m high above which is a timber lintel that is approximately 1.1m long. The flue is obviously formed by the canted section of wall and is built into the corner of the room. There is no external evidence for the presence of a chimney stack.

8.3.15 **Room 3:** this room is situated above the central cart store and is the largest of the three rooms attached to the south side of the barn (Plate 78). The appearance of the room is similar to Room 2 and has a similar roof and floor. The purlins are trenched into the rafters and are butt joined except the purlins at the west end which have scarf joins. At the foot of the roof on the south side a timber wall plate is visible spanning the whole length of the wall. The principal rafters do not rest on the wall

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The doorway allowing access from the ramp is of plank and ledge construction that is harr hung and exhibits vertical wrought iron strap hinges with a spear/heart end. All the planks are nailed to the ledges and the hinges are nailed to the stiles. The door has a wooden ‘Suffolk’ latch on the outside and a simple wrought iron latch bar and staple in the inside.

Set within the east wall, directly opposite the doorway, is the window described in Section 8.2.19. This, as already outlined, contains a 12-light timber window set within a partially blocked opening that was probably a former doorway (Plate 61). A clear vertical crack was observed below the right side of the window. A second window is present in the centre of the south wall of the room set within a splayed reveal. The window frame is a later addition. There is no evidence to suggest that the aperture is a later addition.

The north wall of this room was formerly the external face of the south wall of the main barn. Vertical butt joins are visible where the east and west walls meet this wall. Within the north wall, six blocked vertical ventilation slits are present. These obviously ventilated the barn prior to the erection of the extensions.

**Room 4:** this room is situated within the east extension and is of similar dimensions to Room 2 (Fig 20). The roof and floor are the same as those already described for Rooms 2 and 3. There is a single entry point that has a plank and ledge door set within a substantial timber surround. The door is hung with strap hinges via wrought iron pintles set into the surround. The members of the surround are fixed with pegged mortise and tenon joints. A timber threshold is present.

The walls of this room are partially lime plastered up to a height of approximately 2.2m, above which the walls are of bare stone with various amounts of smeared mortar. There are a number of blocked vertical ventilation holes on the north wall that are of the same appearance as those in Room 2, although they are obscured by
smearied mortar. Defining the top edge of the plaster on the north wall is a timber baulk of unknown purpose; this may have either been for a shelf or loft. Above the doorway, and visible from the interior, is a small rectangular hole with timber lintel; his may have been a vent of some sort. On the opposite wall is a small window with a splayed reveal and is approximately 0.65m high, although it appears that it has been reduced somewhat as evidenced by two vertical scars below each jamb. This is also visible externally on the east facing elevation.

8.3.21 There are several examples of graffiti on the plastered walls, much of which consists of numbers and other words, names and dates; a date of May 12 1887 being visible for example. Most of the graffiti is drawn on in pencil or crayon although some is scratched into the plaster. On the west wall, adjacent to the doorway a number of tally marks are drawn in red/orange crayon (Plate 79).

Plate 79: Example of graffiti on the north wall of Room 4

8.3.22 **Room 5:** this room is situated below Room 4 in the easternmost extension and comprises a small room on the same footprint as Room 4. It can only be accessed from Room 7 and is cluttered, being used for the storage of used telegraph poles; much of the room was, therefore obscured. The floor of the room is of bare earth and the ceiling (2.05m high) consists of obviously reused joists that exhibit redundant slots and stave holes that may have once held wattle panels used in wattle and daub construction (Room 7; Section 8.3.30); it is highly likely that these are reused. All the walls are of random rubble and are mainly limewashed.

8.3.23 The east wall houses a single small window opening with a splayed aperture and a simple timber unglazed window frame covered with galvanised wire mesh. This window, in common with that described in Room 4, appears to have been partially reduced in size. A very large possible pad stone is present at the base of the jamb of the doorway leading to Room 7 (Plate 80).
8.3.24 **Room 6:** situated at the east end of the barn (Fig 19), this room is, again currently being used for storage. Much of the space being occupied by large pieces of furniture and other items (Plate 81). Prior to its current use, the room was last used as a shippon and numerous features still survive.

8.3.25 The most visibly obvious remaining features are surviving elements of cattle stalls as well as a cobbled floor. The stalls are situated on the east side of the room and comprise a raised cobbled area with a single timber stall divider. The stall divider is of timber and consists of an upright post set into a socket within the floor and tennoned into a ceiling beam. A horizontal member is tennoned half way up into this post and fixed into a socket on the east wall. Most of the visible members measure approximately 0.15m (6 inches) by 0.08m (3.5 inches) and nearly all exhibit simple chamfering. Some later, plain framework of smaller scantling, is also present. The raised floor of the stalls is cobbled with a limestone kerb. Concrete
filled scars within the floor are suggestive of former postholes for removed stall partitions.

8.3.26 The opposite side of the room also has a raised cobbled area with a similar kerb that may also have housed cattle stalls but is almost wholly obscured with stored materials. Possible evidence of former stall dividers in the form of mortise holes in the ceiling beam above. The central area of cobbled floor has two drainage channels that lead toward the doorway and out to an external drain. Further evidence for animal housing exists in the form of a wooden tether located on the south wall (Plate 82). This consists of a timber baulk set into the wall through which is a vertical pole. This enables animals to be tethered and removed easily. A similar arrangement appears to have been fitted to the south wall.

8.3.27 The ceiling of this room consists of three chamfered beams, two of which have failed and have been repaired with iron straps and plates. The central beam is additionally supported by a sixteen sided timber post. These beams appear to have been reused and there is evidence for former joist slots. The current joists are a mixture of ages, some of which appear to have been inserted relatively recently; many of them show evidence of re-use. The floorboards are modern replacements.

Plate 82: Animal tether on the south wall of Room 6

8.3.28 There are four ventilation holes in the east wall that served the stalls on this side of the room. They are simple square apertures with timber lintels and are visible externally. A window aperture is situated within the south wall with a splayed reveal and a simple timber frame similar to that in Room 5.

8.3.29 Access into this room is via a plank and ledge door in the north wall that is constructed from beaded planks and plain un-chamfered ledges. There are three vertical ventilation slits and a simple wooden latch. The door is hung on wrought iron hinges, similar to others in the building. There does not appear to be any
evidence for a former arrangement. A further, internal, doorway once allowed access between this room and Room 7 (Fig 19). The door is currently fixed shut, therefore no access between Rooms 6 and 7 is available. The door is harr hung and is made from different sized planks. The wall that this door is set into (the west wall) appears to have been inserted and is built up to a ceiling beam and a clear vertical butt join is visible where the wall meets the north wall.

8.3.30 **Room 7**: this is the largest space on this level and was once part of a larger space that included the National Trust offices at the west end of the building (Fig 19). The space may once even have comprised the whole of the lower floor as evidenced by the possible inserted wall dividing this room from Room 6. A further cinder block wall divides Room 7 from the National Trust office (Room 8). In common with Room 6, there is surviving evidence of former animal stalls both in the form of remaining stalls timberwork as well as features in the floor. The general appearance of the room is similar to Room 6 (Plate 83).

![Plate 83: General aspect of Room 7](image)

8.3.31 There are several access points to this room: four doorways in the north elevation as well as two doors to the cart storage area below the central extension, and internal doorways to Rooms 5 and 6. A single window with louvre shutter is present in the south wall; no other ventilation, blocked or otherwise was observed. All of the doors bar one, are of plank and ledge construction of varying types, two of the doors within the north elevation being of similar style to those in Room 6. The other door differs slightly and appears to have been constructed from randomly sourced timber. All of the doors on the north side have strap hinges hung upon iron pintles fixed into the surround. A fourth, sliding door within the north wall was inserted later possibly to allow cart or motor vehicle access (Fig 19). This may have replaced an earlier door but there is no evidence to support this supposition. The two doors allowing access to and from the cart storage area at the south side are both harr hung with vertical plain iron strap hinges. Both of these have low lintels.

8.3.32 The former layout of stalling can be postulated to an extent by analysing the surviving floor elements together with other evidence such as wall scars and
timberwork (Fig 19). Much of the floor has been removed revealing bare earth but there are surviving areas of cobbles and kerbs, mainly at the eastern end of the room. There is a cobble walkway at the eastern end that leads from the easternmost doorway (Fig 19). Adjacent to this is an intermittent row of limestone kerbstones that define a raised area upon which cattle stalls appear to have been situated (Plate 84). A re-used timber post is present which may have formed part of stalling. There are also two vertical scars situated on the south wall either side of a doorway behind this raised area suggestive of former dividing walls or partitions that may have also been associated with former stalls. A further timber post is present at the eastern end of the room that is fitted into a horizontal member at floor level. A number of mortise holes and a stave slot running along the top of the timber, suggests this was once part of a stall divider. Surrounding this, surviving cobbles and kerbs are present (Fig 19).

Plate 84: Surviving cobble walkway at the east side of Room 7
8.3.33 The ceiling of this room is similar in appearance to that in Room 6 and there is evidence of reuse and alteration both on the main beams and joists. There are seven unequally spaced beams that measure approximately 0.25m by 0.25m and span the whole width of the room (Plate 83). The beams exhibit chamfering as well as adze and axe marks together with several redundant joist slots and in-filled recesses. Several in-filled recesses are at oblique angles to the length of the beam, suggesting that some of the beams may have originally once accommodated struts or braces (Plate 85). Some of the beams are tapered and narrow down slightly to one end. All of this evidence suggests that at least some of the beams are re-used, either from an earlier phase of the barn or a different structure altogether. Similarly, it is apparent that most of the joists are re-used and many are of varying scantling. A large proportion of the joists exhibit both adze and axe marks but a significant number also show evidence of saw marks. Many joists, including several that are adjacent to one another, exhibit evidence of multiple stave holes which is indicative of wattle panelling used in wattle and daub building (Plate 86). The locations of those joists that display this evidence are randomly spread around the ceiling making it highly unlikely that they are in situ.

8.3.34 A number of timbers are known to have been reused from the former hay barn which formed the western side of the courtyard on which a range of garages exist today. This barn was demolished in the mid-twentieth century due to its poor state and its materials were salvaged for use elsewhere on the estate. The inserted props visible in Plate 83 are known to have come from this building (Edward Strickland pers comm; Jamie Lund pers comm).
8.3.35 **Rooms 8, 9 and 10:** Rooms 8, 9 and 10 form the offices of the National Trust and have been extensively modernised internally and little historic fabric, other than the exposed ceiling beams, is visible (Plate 87). The rooms are divided internally partly by stone walls and also by latterly inserted walls probably dating to the twentieth century. The floors are carpeted and are of solid construction, probably concrete. Room 8 was being used as a general office area, Room 9 a small kitchen and WC and Room 10 was a meetings room.

8.3.36 The visible beams in Room 8 are of similar appearance to those already described within Room 7 and bear the same oblique recesses suggestive of the positions of former struts or braces. Again peg holes are clearly visible indicating the methods of construction. Other notches and recesses are present indicative of reuse. All of the beams are supported by timber posts of twentieth century appearance. One of the beams has clearly failed in the middle and is supported by a plank fixed with iron straps supported on two upright posts. The spaces between the beams are plastered and the joists are not visible.
8.3.37 All of the windows and visible ventilation slits have timber lintels that are similar to the others already described. Between the windows on the north wall a short timber bracket projects out of the wall (Plate 88). This may have been a tether similar to those in Room 6.

Plate 88: Possible surviving tether in Room 8
9. CONCLUSION

9.1 DISCUSSION - BURNT MOUND

9.1.1 The classic burnt mound, the Sizergh example being no exception, comprises a kidney-shaped mound, commonly characterised by the presence of a large amount of fire-cracked stone within a dark charcoal-rich matrix (‘burnt mound material’). The mound, again the Sizergh example being no different, often lies slumped over the trough, and, of course there is a close association with water (English Heritage 2011). Nationally, they are a widely recorded monument type, although, morphologically, there is considerable variance, in both size and form, of those identified in the county, and in the country at large (Nixon 1990; Ehrenberg 1991; Banks 1998-9; Hodgson and Brennand 2007).

9.1.2 Much debate has revolved around their possible function (O'Kelly 1954; Hodder and Barfield 1987; English Heritage 2011), with saunas or cooking sites being the most commonly proffered interpretation. They were usually, but by no means exclusively, created in the Bronze Age (Bradley 2007). To date, sites of this kind have been rarely excavated in Cumbria, with only seven existing at the time of writing: Drigg (Brown in press); Garlands Hospital, Carlisle (LUAU 1996; Neighbour and Johnson 2005); Sparrowmire Farm, Kendal (Heawood and Huckerby 2002); Aldingham, near Barrow in Furness (Morecambe Bay Archaeological Society 2006); Stainton West, near Carlisle, where four or five mounds were clustered in a small area (OA North 2011a); and Easthwaite Farm, Nether Wasdale (OA North forthcoming). However, a growing number are being detected through survey (Hodgson and Brennand 2006), often within upland areas, near cairnfields or other areas of Bronze Age activity, and they may actually be relatively common within the region; as such, their investigation has been identified as a research priority (Hodgson and Brennand 2007). For example, five burnt mounds were identified within the low-lying areas around Nether Wasdale during a survey comprising some 24sq km, with a further two sites being identified within the surrounding upland areas (OA North 2009, 31).

9.1.3 Landscape Context: Banks (1998-9) has begun to explore more fully the relationships between burnt mounds and their environs, as originally advocated by Ehrenburg (1991). It appears that, rather than being isolated monuments (cf the original view of Irish *fulacht fiadh*), burnt mounds are often firmly embedded within a complex social and ritual landscape. Particularly noteworthy (Banks 1998-9, 1) is their common proximity to cultivatable land, and to contemporary burial cairns. This is the case with the Aldingham mound, where a standing stone and a cairn associated with cremation burials lay within 1 km of the site (Morecambe Bay Archaeological Society, 2006). A cairn was identified in close proximity to the Sparrowmire Farm example (Heawood and Huckerby 2002), with another potential cairn lying immediately adjacent to the Easthwaite Farm site (F Brown, pers obs), and a Bronze Age cremation cemetery (Hodgson 1956) occurred within a few hundred metres of the Garlands Hospital site (Neighbour and Johnson, 2005). It is also of interest that both the Drigg burnt mound and the burnt mounds at Stainton West (OA North 2011a) seem to succeed earlier phases of activity where wooden platforms had been constructed in association with palaeochannels. The recent landscape survey carried out on the Sizergh identified a number of cairns (Section
2.1.5) on the high ground to the east of the burnt mound (OA North 2011b), are concentrated on the south-facing hillside of Sizergh Fell. The main elements consist of two funerary cairns surrounded by an area of hummocky ground with many clearance cairns and/or natural geological mounds. The excavations at the two cairns and a number surrounding ‘natural’ mounds have revealed a number of Beaker sherds, a small reworked and broken polished axe wedged into the limestone pavement, and a polissoir (Evans and Edmonds 2003). One of the cairns on Sizergh Fell contained a beaker burial, and the second cairn was a multi-phased structure overlying earlier circular settings of stone, both containing disarticulated human bones. Two samples from deposits of skeletal material from one cairn have provided radiocarbon dates of Neolithic (3790-3650 BC) from material deposited on the pavement beneath the mound and Iron Age (760-640 BC) from a deposit higher up in the mound. There was a possible further damaged burial cairn adjacent to Lane End Farm (OA North 2011b). These finds of fragments of Beaker pottery and disarticulated human bones from the surrounding monuments imply a resident population during the Bronze Age. Collectively this material provides an indication of activity from the Neolithic, the early Bronze Age and even an Iron Age reuse, and would certainly encompass the dates we have for the burnt mound.

9.1.4 The siting of funerary cairns in prominent positions with expansive vistas has been recognised as one of the recurring attributes of such sites in Cumbria (Quartermaine and Leech 2012). To a certain extent this is mirrored in the Sizergh Estate where there are cairns that occupy elevated, prominent locations commanding wide vistas, particularly to the south and west towards the coast and into the Lyth Valley (OA North 2011b). In addition, a copper-alloy blade fragment that could offer further evidence of Bronze Age activity was found nearby with a metal detector at ‘Sizergh Castle’ but no further information was available (Richardson 1998; OA North 2011b).

9.1.5 The burnt mound identified during the Sizergh Park survey is located on the edge of an area of soft, churned-up boggy ground to the south-west of the ha-ha. The mound is today surrounded by wet boggy ground and is close to the site of at least two natural springs running out of Chapel Wood. It is interesting to note its location in Sizergh Park, in a lowland context, which would normally have been subject to intensive agriculture and drainage in the nineteenth and twentieth centuries but has survived because of the conservative nature of land management in the park. This has parallels with examples of mounds found in the deer park on the Lowther Castle estate (OA North 2005b). The monumental landscape may have once been more extensive, especially as land to the east, south of Low Park Wood has been subject to this more intensive agricultural regime.

9.1.6 Burnt Mound Chronology: the radiocarbon dates from the burnt mound at Sizergh possibly indicate extended or multiple phases of use, over several hundred years. The earliest date was from the peat immediately beneath the burnt mound and provided a date of 2575-2460 cal BC. The two earliest radiocarbon dates for the burnt mound (Section 6.3.1), one of which was from the backfill of the excavated trough, closely agree with each other and suggest that the mound was accumulating c 2450-2150 cal BC, which is at the very end of the Neolithic period/start of the early Bronze Age. Significantly these dates are only a short time after the upper deposits of the peat, and reinforces the chronological sequence. A third burnt mound radiocarbon date (Section 6.3.1), from material recovered from, stratigraphically, the uppermost part of the mound deposit sequence dates to
between c 2200-1980 cal BC, towards the end of the early Bronze Age. In comparison with the other Cumbrian burnt mounds, the Sizergh example is almost of identical radiocarbon age to Drigg, which was in use between c 2430-2210 cal BC, and it is very close in age to both Burnt Mound 6 at Stainton West (c 2570-2290 cal BC) and the earliest date from Garlands Hospital (c 2580-2200 cal BC). These all lie fairly early on in the sequence of Cumbrian burnt mounds, which have been radiocarbon dated at Stainton West, as having a c 1400-year currency, between 2890 and 1430 cal BC, with the radiocarbon date of c 1408-1121 cal BC from Sparrowmire Farm possibly suggesting that they remained in use into the later Bronze Age.

9.1.7 Burnt Mount Trough: many of the excavated Cumbrian burnt mounds were, like Sizergh, associated with troughs. The trough at Sizergh was similar to the one found at Sparrowmire Farm, in that both were rectangular in form with some wooden lining being preserved. There were also suggestions of plank lining on the base of the troughs at Garlands Hospital, although these were sub-circular in form, as were the troughs at Easthwaite Farm and Stainton West.

9.1.8 The date from the upper level of the Sizergh cairn was up to 200 years after the excavated trough started filling up, which raises a number of questions. Firstly does this later date reflect that the burnt mound had an extended period of use or was it a later re-use of the burnt mound? Secondly if the mound was being built up some time after the main trough was filled, how was the mound being operated, and was there a second trough that has yet to be revealed. It is significant to note that there are other examples of burnt mounds with multiple troughs. At the Stainton West site, one of the mounds was associated with several troughs and another had a trough that had been recut, implying more than one distinct phase of use for each of them. The Garlands Hospital mound was similarly associated with multiple troughs, belonging to different phases of use. Distinct, successive layers of mound deposit, at both Sizergh and Sparrowmire Farm, may also be interpreted as accumulating at different times, during different episodes of activity. At Easthwaite Farm, two successive phases of activity could clearly be discerned, as the features and burnt mound deposits were stratigraphically separated by a layer of alluvium.

9.2 The Bank and Ditch

9.2.1 ‘New’ Sizergh Deer Park (around the castle): the deer park surrounding the south side of Sizergh Castle appears to have been enclosed in the second half of the seventeenth century, and is mentioned at this location by antiquarian visitors by 1691-3 (Section 3.5.7). It is defined by the northern carriage drive to the north, the main A591 road running past it to the east, the demesne boundary edging Sizergh Common to the south and a linear boundary along Ash Bank to the west (Fig 2). There is a substantial park wall surviving in places, extant on all but around the northern end of the park. The wall may have been constructed during a redevelopment of the park dating to the same period as the walling around Brigsteer Park, in the early 1700s. As with the reduced-sized High Brigsteer Park, the walls of Sizergh Park were deer-proofed with the construction of internally overhanging coping stones, although some of the walling on the eastern side of the deer park may have been remodelled during successive improvements undertaken on the A591 in more recent times. The park contains interspersed woodland and open lawns for deer at the southern end. The north end of the park contained two areas of
broad ridge and furrow cultivation, one area probably relating to late-Medieval or Post-Medieval arable agriculture in the park (NTSMR 181426) and one definitely Post-Medieval in origin (NTSMR 181436); it is debatable as to whether the former area of cultivation predated the construction of this park or merely reflected a later agricultural episode of cultivation.

9.2.2 The park contained formal elements of designed landscape with a profusion of elaborate gateways built of large limestone gate piers which are found at the entrances and exits of each of the carriage drives (Fig 2). The same style of gateway can be found on the external edge of High Brigsteer Park, as well as at the entrance to Low Sizergh Farm and on the northern edge of the estate on Windy Howe. The park was subdivided laterally by a ha-ha boundary, three sections of which were recorded running along the northern edge of Chapel Wood during the present survey (NTSMR 181419). It consisted of a deep sinuous ditch with a drystone retaining wall on the northern side. The overall length of the three sections in total measured 260m and ranged up to a maximum of 4.5m wide by 1.7m deep in places. The ha-ha was shown for the first time on the 1827 estate plan and was probably intended to keep cattle out of the parkland in front of the castle, but the ha-ha was seen as a fashion statement in its own right and was intended to reinforce the concept of a tamed wilderness.

9.2.3 There is evidence of three historic carriage drives running east from the house to the main road; the northern, central (NTSMR 181438) and southern (NTSMR 181443) drives. The northern driveway is skirted by the last few remaining trees that were once part of a beech avenue, first depicted as a double row of 22 trees on the OS mapping in 1860. The central driveway was constructed during renovations undertaken in the gardens at the castle in the first years of the twentieth century and contains a semi-ruinous monumental gateway flanked by lime trees (NTSMR 181594). The southern driveway originally ran to a further ruinous monumental gateway (NTSMR 181573). The entrance to this drive was subsequently remodelled with a smaller entrance to the north (NTSMR 181586) and an original section of the drive survives as a raised earthwork within a triangle of cleared ground. Both monumental gateways and the middle drive were abandoned after the development of the Kendal by-pass in the late 1970s. A new spur of the south drive running due south towards the Strickland Arms public house was constructed as the main public access for the castle, and it remains in use today.

9.2.4 **The Double Bank and Ditch:** within this context is the double bank and ditch; it is a substantial, prominent earthwork with a deep ditch and flanking banks. While there is a single section (167m long) that survives in good condition, it is evident that sections to both the north-east and south-west have been degraded by landscaping, but are still evident on the ground. LiDAR images indicate that the earthwork continued into the south garden, and also as far as the eastern edge of the Lake Garden, and seemingly beyond, so that it defines a perimeter boundary that extends approximately around half the castle and gardens (*Section 4.2*). The excavation has demonstrated that there was a substantial and very deliberate ditch, but rather haphazard, and rather ill-defined banks (*2008*), on both sides which were apparently constructed from the upcast of the ditch. However, much of the bulk of the existing banks (*2003*), comprises later stony deposits that post-date the filling of the ditches. On this basis it has been interpreted that the hap-hazard form of this later stone material in the banks reflects the deposition of stone cleared from agricultural lands some time after the ditch was cut. While this cannot be confirmed
by the evidence, if this was the case then it would imply that arable farming had been undertaken on both sides of the feature, and is reinforced by the topographic survey which has demonstrated that there are ridge and furrow earthworks on both sides of it. The fact that there were banks on both sides from the outset, and that the key aspect of the feature was the ditch, rather than the banks, this would argue that it did not have a defensive function, be it against people or animals. Any earthwork intending to keep animals or people out, would typically have a single substantial bank with a ditch in front, but this is contrary to the observed evidence. Interestingly though, the putative park pale at the east end of Low Park Wood (NTSMR 181408), has the ditch as its most substantial extant element, and only an insubstantial bank; however, the bank is primarily on one side although there is a case for suggesting that in places it existed on both. While a palisade constructed on one side of the double bank and ditch could potentially have restricted the movement of stock, but if that had been the primary intention when the feature was cut, then the spoil from the cutting of the ditch would have been placed only on one side to reinforce the defensive function of the earthwork. However, the situation at Sizergh is not necessarily so straightforward given that there is a possibility of a low bank on the forward side of the Low Park Wood pale. The double bank and ditch feature at Sizergh was undoubtedly a substantial earthwork and may have reflected the line of a boundary ditch but was not necessarily intended as a barrier.

9.2.5 To understand the function and context of the earthwork, it is essential that we have an understanding of its chronology to allow us to relate it to a specific phase of the castle and estate. Because of the paucity of organic material within the ditch fill, it was only possible to get a single radiocarbon date for the ditch fill, and the results of this was anything but clear and diagnostic because of the eccentricity of the calibration curve at the end of the second millennium AD. This indicates that there is a 95.4% probability that the date was within one of three date ranges (Section 6.3; Appendix 4):

- 1647-1694 cal AD
- 1727-1813 cal AD
- 1918-present cal AD

9.2.6 The last date range can be definitely excluded because, being so close to the present day, if there had been any construction work on this scale it would have been remembered by members of the Hornyold-Strickland family, or documented within the estate records, or shown on Ordnance Survey mapping, or even aerial photographs. There is nothing within any of these records and so it is possible to exclude that possibility. Similarly if the bank had been constructed within the middle period, it is probable that it would have shown up as a boundary or feature on the eighteenth century mapping or survived in use until it could show up on Ordnance Survey mapping. Interestingly it seems likely that the ha-ha was constructed towards the end of the middle period; the ha-ha is depicted for the first time on the 1827 estate plan. It seems unlikely that another major boundary, of a very different form but in the same general area, should be cut at the same time and yet not be shown on the same map.

9.2.7 Again there is no evidence of any features that would correspond in the location of the identified earthwork, and while it may have been in existence as an earthwork
during these periods it seemingly did not have a function as a boundary otherwise it would have been depicted.

9.2.8 This would bias the date of the double bank and ditch to the seventeenth century, and just after the Civil War. Given the proximity of the date range to the period of the Civil War, it may be tempting to suggest that it was a siege feature reinforcing the defences of the castle, but Civil War defences were typically very substantial, and any ditches were upwards of 3-4m deep (Harrington 2003), which contrasts with the double bank and ditch which was seemingly only 0.7m deep. The Lathom house siege works, for example, had ditches upwards of 7m deep and 15m wide (J Quartermaine pers comm).

9.2.9 The added complication is that as we have only a single date, and therefore no opportunity to confirm the accuracy of the date. There is also the fact that there is some uncertainty as to how quickly the ditch filled; the ditch in Trench 2 having a high energy fill, but that in Trench 1 seemingly having a lower energy fill (Section 7.5). It is therefore uncertain how long prior to the deposition of the charcoal that the ditch was cut.

9.2.10 It has been conjectured that the line of the double and bank and ditch continues beyond the southern edge of the Lake Garden, round the east side of the castle (Section 4.2.6). This follows the later line of a field boundary (OS 1914 1:2500 map), which is on the line of an extant broad ditched earthwork evident on LiDAR, which does not correspond in form to the early twentieth century boundary and follows a slightly different line. One possibility is that this earthwork is the continuation of the double bank and ditch, and may make sense as a boundary that enclosed only part of the estate lands, leaving the orchard plot outside. It would, however, make sense if this enclosing boundary predated the expansion of the northerly enclosures around the castle, and on that basis it is possible to suggest that the double bank and ditch was earlier than the orchard which was first depicted on a map in 1771, and may have been substantially earlier. As such this reinforces the premise that the radiocarbon date corresponds to the earliest date range (seventeenth century).

9.2.11 The date of the ditch to the second half of the seventeenth century coincides with when it is believed that the deer park was established around Sizergh Castle, and which was first referred to by Thomas Machell in 1691-3. It is tempting, therefore, to infer that the boundary was directly related to the establishment of the deer park, separating it off from the castle and gardens. However, to what extent it served as a barrier to keep out the deer is uncertain, given that we have no knowledge of any palisade / fence from the excavation evidence that would have presented an effective defence against deer.

9.2.12 The presence of what may be interpreted as stone clearance on top of the banks after the ditch was substantially filled implies that it had served as a boundary for arable activities, although that was not necessarily its original function. The area to the east of the feature was seemingly part of open fields as evidenced by the curved broad ridge and furrow (NT 181438) to the north of the central carriage drive and there exists the possibility that there was early ridge and furrow to the immediate east of the feature (albeit potentially overlain by post-medieval ridge and furrow).

9.2.13 In conclusion, despite extensive topographic, geophysical surveys and the excavation of a number of trenches, there are seemingly still many unanswered
questions as to the date and function of the earthwork. While it is not possible to exclude an eighteenth / nineteenth century date, the probability is that its filling corresponds with the earlier date range in the seventeenth century. Its most substantial element was the ditch and it may potentially have served as a boundary at the outset, and subsequently seemed to serve as an agricultural boundary in later periods. The key aspect to enable an assessment of its function is the line that it followed, and one possibility is that is that it extended around the northern side of the castle; however, this line cannot be confirmed without further investigation. While the study has undoubtedly brought some considerable light on the feature, at the end it still remains somewhat of an enigma.

9.3 THE GREAT BARN

9.3.1 The Great Barn at Sizergh is an impressive example of a traditional form of agricultural barn construction, nearly all of which occur in the county of Cumbria. Prior to the coining of the term ‘Bank Barn’ in 1974 by RW Brunskill (Brunskill 1974, 82-86) they were often known as ‘Underhoused’ or (as in West Cumbria) ‘Lead in’ barns (Whittaker 1989, 4). The example at Sizergh is built upon a level site, probably due to it replacing an earlier timber-framed structure, although level-sited bank barns are common enough and the example at Sizergh is not unusual in this respect. Bank barns fulfilled many important roles within a single building, the storage of grain and hay, housing for animals and also the feeding of those animals.

9.3.2 The general appearance and nature of construction of the Great Barn is characteristic of other seventeenth century barns, of which the earlier examples date to the seventeenth century, the earliest surviving example being at Rydal Hall, Cumbria dating to around 1659 (Whittaker 1989, 14). The investigation has further revealed that the current appearance of the barn has developed through several phases of addition and alteration down the centuries before becoming (agriculturally) redundant in the late twentieth century. The barn was used for the threshing/processing and storage of crops on the upper floor together with animal housing on the lower floor. The ground floor had space to accommodate up to 48 cows (Whittaker 1989, 17).

9.3.3 The following discussion will attempt to outline the basic phases of evolution of the barn based upon the physical evidence, commencing with the earliest phase of the current building, which probably dates to the seventeenth or eighteenth centuries and is shown on Figure 25.

9.3.4 Phase 1: the current building is of stone construction comprising several phases of alteration and addition. There is evidence, however, to suggest that parts of the structural fabric of the building predate the erection of the stone barn. This is primarily based upon evidence from the timber beams visible in the ceiling of the cow house (Rooms 6 and 7), all of which appear to be reused. Many of the beams contain evidence for former braces or struts and a number of the joists between the beams exhibit evidence of wattle and daub panelling, which are obviously not in situ. It is possible that these were sourced from a building that once existed either on or close to, the site. It is also possible that most, if not all (except for three modern replacements, Trusses 7 to 10) of the timber from which the current roof trusses are manufactured, originated from this phase. All of the tie beams exhibit evidence of reuse in the form of redundant joist or frame slots together with adze
and axe marks similar to those visible on the ceiling beams below. Most of the other roof members are sawn and probably date to later phases. There is considerable consistency in the form of the reused timbers, in style and form of the cut marks and would suggest that the majority of timbers came from a single earlier timber building.

9.3.5 Further evidence such as a clearly visible plinth along the northern and eastern elevations, together with a substantial stone (possible pad-stone) near the doorway between Rooms 7 and 6, suggests the presence of a cruck or timber-framed building. Re-use of timbers (which were expensive and time consuming to produce) is common in many agricultural buildings. On the evidence of the plinth, it would appear that the earlier structure had a similar plan as the Phase 2 stone founded barn.

9.3.6 The earliest building on the site was potentially of timber framed/crucked construction but there is a question as to whether this earlier building was the ‘New Barne’ referred in the inventory of 1569 (Section 8.2.2) or was the earlier tithe barn referred to in 1529 (Section 8.2.1) which could potentially have been on the same site (see Section 9.3.16 for further discussion).

9.3.7 Phase 2: the earliest phase of the current structure was a stone barn that was constructed as a bank barn to allow for stock on the ground floor and storage of grain and winnowing on the first floor. It is possible that an original single-storey timber-framed structure was dismantled to make way for the current, expanded, rectangular, two storey structure (comprising Rooms 1, 6, 7 and 8–10). Rooms 2, 3, and 4 were clearly added later as evidence in the form of the butt joins and blocked ventilation slits visible within Room 2, attests. Some of the timber fabric (outlined above) of the earlier building was incorporated into this structure.

9.3.8 The upper floor of the barn originally housed two threshing floors located between large opposing, unequally sized wain doors. The doors on the south elevation survive but those on the north have been reduced in size and partially in-filled to create smaller pedestrian sized winnowing doors, the evidence for this being clearly visible in the north elevation (the wain doors originally present on the south elevation were smaller than those on the north). The date of this reduction in size is impossible to deduce but the alteration is likely to have taken place sometime after the addition of the extensions at the rear, and probably within a third phase of alteration. Access to the threshing floor via the two ramps abutting the south elevation of the barn was probably part of this phase of construction but the ramps appear to have been altered following the addition of the extensions. Bank barns typically have smaller winnowing doors opposite the main double doors and if Sizergh had two sets of large, double, winnowing doors this would have been unusual (Whittaker 1989, 13). It seems logical to assume that the large double winnowing doors allowed access/egress from the threshing floor and that there would have been ramps also to the north for the movement of carts. While there is no physical evidence for this, the 1827 estate plan of Sizergh (and the 1860 Ordnance Survey map) shows ramps also to the north (Section 8.2.8), and this would have warranted the full size doors on the northern side. Timber baulks projecting from above the lintels of the former large doorways on the north elevation, may be evidence of some sort of winch or pulley system but this is conjectural and they may have simply been part of porches.
9.3.9 The ground floor of this new stone barn was undoubtedly used for animal housing as evidence in the form of cattle stall dividers, wall scars, animal tethers, cobbled surfaces and drains still survives. Up to 48 animals could have been housed here (Whittaker 1989, 18), in the low-ceilinged space below the upper floor. As already described, the beams used in the construction of the ceiling between the upper and lower floors, exhibit evidence for re-use and probably came from a timber-framed or cruck barn. The cobbled pavement running along the north, and south sides of the building dates to his phase and it appears that many of the plank and ledge doors originated during this phase.

9.3.10 **Phase 3**: this phase was centred around the addition of the three extensions to the south side of the building. There is unequivocal evidence supporting this in the form of vertical butt joins, blocked ventilation slits and extended roof structure. It is probable that the barn was still functioning as a threshing barn with animal housing as the upper floor rooms (Rooms 2, 3 and 4) were probably used as granaries and the lower rooms (Rooms 5 and 9) were probably loose boxes or calf hulls (Whittaker 1989, 17). Room 2 contains a blocked fireplace and may have been used as an office; no chimney stack survives, however. The stone wall dividing Rooms 6 and 7 may also date to this phase but this is pure conjecture.

9.3.11 The date of these extensions is slightly uncertain, but there was at least one extension, which contained Room 5, depicted on the P Atkinson painting of 1805 (Section 8.2.7), and then by the time of the first edition Ordnance Survey map (1860; Plate 43) all of the southern extensions were in place (Fig 20; Section 8.2.9). The space below Room 3 forms a cart shed, and most examples of these date to the eighteenth and nineteenth centuries.

9.3.12 **Phase 4**: a further extension was added during this phase which now houses a meeting room (Room 10). This is of a single storey and clearly bisects a blocked window set within the west facing elevation of Room 2. This was also probably already added by 1859, as it too is illustrated on the OS map of that date. There is no evidence to suggest what this room may have been used for. Little else was probably changed during this phase.

9.3.13 This western extension was shown on the first edition Ordnance Survey map (1860) was compiled (Section 8.2.9) along with all the other southern extensions.

9.3.14 The reduction in size of the wain doors on the north elevation, together with the removal of the putative northern ramps and their replacement with steps that were flush with the barn wall, had taken place by the time of the 1899 Ordnance Survey map (Plate 44).

9.3.15 **Phase 5**: all of the changes within this phase of development relate to late twentieth century alterations. Following redundancy as an agricultural building, much of the internal fabric pertaining to the use of the lower floor for animal housing was been removed and/or damaged. The stone steps extending out from the north elevation were documented as having been constructed at some stage in the twentieth century and before a post-war aerial photograph was taken; these replaced earlier steps set against the barn elevation (Section 8.2.15). Much of the floor boarding on the upper floor was replaced but parts of earlier boarding on the threshing floors remains. Several trap doors are present, all of which are recent and may not betray the position of earlier arrangements. A large sliding doorway was added to the centre of the north elevation, together with a scoop in the floor of Room 7, and suggests the
storage of a cart or vehicle. The east end of the ground floor was divided (by way of a cinderblock wall) from the main space (Room 7) to form the offices of the National Trust (Rooms 8, 9 and 10). The rooms have been extensively modernised and most elements of earlier fabric have been obscured. Similarly, the doors and windows at this end of the ground floor have been altered in accordance with the change of use.

9.3.16 Conclusion: the survey has established that the earliest phase of the Great Barn was seemingly a timber framed, and potentially cruck based, barn, and was potentially located on the site of the present barn as implied by the existence of the plinth and pad stone. Then at some stage the barn was rebuilt in stone, reusing a lot of timbers that probably came from the earlier barn. Stylistically the character of the stone founded barn (Phase 2) was seventeenth century; however, there are questions as to whether this broad period fits in with periods of wealth and expansion for the Strickland family. In the 1560s Walter Strickland was both wealthy and influential and was undertaking large and impressive building projects as a demonstration of his status, and had already built the two Elizabethan wings at Sizergh Castle. Certainly, the inventory of 1569 confirms that a new, large barn was constructed at some time shortly before that date. Subsequent members of the Strickland family were not so committed to affluent projects; his son lost much of the family fortune in London and following the Civil War the family ended up in France and the house in the hands of retainers (Section 2.1.30). It was not until the early to mid eighteenth century that the family was once again in a position to invest in the upkeep of the estate. Accepting that the seventeenth century was an unlikely period for the construction of what was evidently an extremely large and opulent structure, the implication is that the stone barn was either built in the 1560s by Walter Strickland, or was built in the early eighteenth century when the fortunes of the family were eventually restored. It is the nature of vernacular styles that they can have an extended period of usage and it is certainly possible that a stone barn, of this style and character, could have been constructed in the early eighteenth century. Alternatively, the period of the 1560s was one when there was significant expansion, and when there was a documented construction of a new barn; in which case the timbers could have come from the earlier tithe barn that was documented in 1529 (Section 8.2.1). However, it is very unusual for a stone built barn of the size and character of the Sizergh Great Barn to have been constructed in the sixteenth century, and if it were confirmed that the Phase 2 stone structure was from this century it would mean that this barn is of great rarity and of very considerable archaeological significance. As it stands, while it is possible, in the light of the architectural survey to have established with a reasonable degree of confidence the broad phasing of the building, the early chronology of the individual phases is still uncertain and cannot be reliably established.

9.3.17 Recommendations: the dating of the stone barn is therefore of considerable importance in being able to assess the significance of the structure and in terms of enabling an appropriate long term management strategy for the building. During the survey there had been concerns about the use of dendrochronological techniques to date the timbers because it was evident that the timbers were all reused and therefore the dating would not enable the establishment of a date for the stone barn. However, given that it has been established that the timbers potentially derive from an earlier barn that may have been on the same site as the stone constructed barn there is considerable potential for the use of dendrochronological techniques to
establish the date of these timbers which would significantly inform the chronology and the development of the barns.

9.3.18 It is therefore recommended that a programme of dendrochronological dating be undertaken of key timbers, particularly the floor timbers of the first floor, but also a number of the roof trusses. It is important that the timbers are large enough to have at least 50 rings and to include sap wood, which is necessary to obtain any accuracy for the felling date.
10. BIBLIOGRAPHY

10.1 PRIMARY SOURCES

Cumbria Record Office - Kendal (CRO(K))

Levens Box 2 (25) Including:

WD/D Hawes Estate Map: a sixteenth century dispute map of Helsington Manor, with a depiction of Sizergh on the right hand edge. It is the first depiction known of Sizergh but is very diagrammatic

WDB/22/68 Sizergh Estates, Title Book of 12 maps, early nineteenth century

Hornyold-Strickland Family Archive, Sizergh Castle

1569 - Inventories of Walter Strickland Esq

1771 – A map of an estate called Sizergh in the parish of Helsington and of two closes called High and Low Cinderbarrow in Levens parish in the county of Westmoreland belonging to Thos. Strickland Esqr – Surveyed and Mapp’d 1771

1784 – Field Book of the Sizergh landed estate as deliver’d up by Cecilia Strickland guardian to Thomas Strickland Esqr, dated 1784

1798 – Copy of a Plan of Calf Paddock & Low Meadow part of Sizergh Demesne, exhibiting the situation and length of drains, done and completed by Wm. Ellison tenant thereof, surveyed by R Goad, 1798

1805 - Painting by P Atkinson, View of the castle from the South

1827 - A survey of Several Estates in the township of Helsington, Levens and Sedgwick belonging to Thomas Strickland, dated 1827 – A field book relating to the plan of the estate of the same date

1857 - A plan of several estates in the townships of Helsington, Levens & Sedgwick belonging to Thomas Strickland Esqre, – copy made by James Fox 22nd April 1857

1901 Sizergh Castle and Home Farm, Copy of Plan of 1901, reproduced by Fisher Hoggarth

National Trust Records

National Trust, Sizergh Archive, Black Box of Photos, Grasmere Box 1 and 2

Outbuildings to Sizergh Castle, Book of plans or surveys of Sizergh Properties, dated mid twentieth century, copy Grasmere Box 2

Edward Hornyold-Strickland 1985, Sizergh Farm and North Wing during the period 1907-1928, National Trust

Ordnance Survey and Published Maps

British Geological Survey (BGS) 1982 1:250,000 maps of Great Britain (North)

Ordnance Survey, 25” to 1 mile, 1860, Westmorland, Sheet XLII.3
Ordnance Survey, 6” to 1 mile 1862-3, Westmorland, Sheets XXXVIII and XLII
Ordnance Survey, 6” to 1 mile (1899), Westmorland, Sheets XXXVIII SE and XLII NE
Ordnance Survey, 25” to 1 mile (1898), Westmorland, Sheets XXXVIII.15 and XLII.3
Ordnance Survey, 25” to 1 mile (1912), Westmorland, Sheet XXXVIII.15
Ordnance Survey, 25” to 1 mile 1914, Westmorland, Sheet XLII. 3
Ordnance Survey, 6” to 1 mile 1920, Westmorland, Sheet XLII NE
Ordnance Survey, 25” to 1 mile (1969), Westmorland, Sheets NY 4887, NY 4988, SD 4987, SD 4988
Ordnance Survey, 25” to 1 mile 1969, Westmorland, Sheets SD 4887 and SD 4987

10.2 SECONDARY SOURCES

Ainsworth S, Bowden, M and McOmish, D, 2007 Understanding the Archaeology of Landscapes: a guide to good recording practice, Swindon

Association of County Archaeological Officers (ACAO) 1993. Model briefs and specifications for Archaeological Assessments and Field Evaluations, Bedford.


Behre, KE, 1982 The interpretation of anthropogenic indicators in pollen diagrams, Pollen et Spores, 23, 225-45


Bradley, R, 2007 The prehistory of Britain and Ireland, Cambridge

Brooks, D, and Thomas, KW, 1967 The distribution of pollen grains on microscope slides. The non randomness of the distribution, Pollen et Spores, 9, 621-9

Brown, F, in press The Excavations and Analysis of a Burnt Mound, Drigg, Cumbria, Trans Cumberland Westmorland Antiq Archaeol Soc

Brown, F, forthcoming Excavations at Stainton West (Parcel 27 North)

Burl, A, 2000 The stone circles of Britain, Ireland and Brittany, London

Cappers, RTJ, Bekker, RM, Jans, JEA, 2006 Digitalezadenatlas van Nederland, Digital Seed Atlas of the Netherlands, Groningen


Cherry, J and Cherry, P, 2002 Coastline and Upland in Cumbrian Prehistory - a Retrospective, Trans Cumberland Westmorland Antiq Archaeol Soc, n ser, 2, 1-21
Cook, B, 2009 *A Survey of Deer Parks in the Barony of Kendal, with Case Studies of the Parks at Levens and Rydal*, unpubl MA Thesis, University of Lancaster


Cressey, M, 2005 Carbonised wood (17-18), in T Neighbour and M Johnson, A Bronze Age burnt mound in lowland Cumbria at Garlands Hospital, Carlisle, 1997’, *Trans Cumberland Westmorland Antiq Archaeol Soc 3rd ser*, 5, 11-23

Druce, D, forthcoming *CNDR Stainton West (Parcel 27): Charred Plant Remains and Charcoal*, unpubl rep

Earle, J and Plummer, C, (eds), 1892 *Two of the Saxon chronicles*, Oxford


English Heritage, 1994 *Extract from the record of Scheduled Monuments no. 23684, Castlesteads small multivallate hillfort on The Helm*

English Heritage, 1997 *Extract from the record of Registered Parks and Gardens no. 1664, Sizergh Castle*

English Heritage, 2000 *Sizergh Castle, Helsington, Cumbria, Architectural Survey Report*

English Heritage, 2001 *Guidelines for Environmental Archaeology*, 2nd edn, Swindon

English Heritage, 2004 *Extract from the record of Scheduled Monuments no. 35020, Round cairn 230m north of Berry Holme*

English Heritage, 2006a *Management of Research Projects in the Historic Environment (MoRPHE)* Swindon


English Heritage, 2008 *Geophysical Survey in Archaeological Field Evaluation*, Swindon

English Heritage, 2011 *Introductions to heritage assets: burnt mounds*, London,

Evans, H, and Edmonds, M, 2003 *Report on Archaeological Fieldwork undertaken on Sizergh Fell, South Cumbria, July 2003*, unpubl rep


Ewbank, JM (Ed), 1963 *Antiquary on Horseback: The Collection of the Rev. Thos Machell, Kendal*


Farrer, W, 1923-4 *Records relating to the Barony of Kendale*, Cumberland Westmorland Antiq Archaeol Soc, Record Ser (ed J Curwen), 4-5, Kendal

Goodall, I, 2000 Sizergh Castle, Helsington, Cumbria: Architectural Survey Report, English Heritage Report, NBR INDEX No.99114
Haigh, S, 2013 Garden Cottage, Sizergh Castle, Helsington, Cumbria: Historic Building Survey for the National Trust, unpubl rep
Harrington, P, 2003 English Civil War fortifications 1642-1651, Oxford
Hather, JG, 2000 The identification of the Northern European Woods, London
Heawood, R, and Huckerby, E, 2002 Excavation of a burnt mound at Sparrowmire Farm, Kendal, Trans Cumberland Westmorland Antiq Archaeol Soc, Ser 3, 02, 29-49
Higham, M, 1978 The -erg place-names of northern England, in Crosby, AG, 2007 Of Names and Places: Selected Writings of Mary Higham, 3-10
Higham, N, 1986 The Northern Counties to AD1000, London
Hodder, M A and Barfield, L H (eds.), 1991 Burnt mounds and hot stone technology: papers from the Second International Burnt Mound Conference, Sandwell, 12-14th October 1990, Dublin,
Hodgkinson, D, Huckerby, E, Middleton, RM, and Wells, C, 2000 The Lowland Wetlands of Cumbria, Lancaster Imprints, 9, Lancaster
Hornyold, H, 1928 Genealogical Memoirs of the Family of Stricklands of Sizergh, Kendal
Hughes, E, (ed) 1961 Fleming Senhouse Papers, Carlisle
Institute for Archaeologists (IfA), 2006 Standard and guidance for the for the creation, compilation, transfer and deposition of archaeological archives
Institute for Archaeologists (IfA), 2008b Standard and Guidance for the Creation, Preparation, Transfer and Deposition of Archaeological Archives, Reading
Institute for Archaeologists (IfA), 2008c *Standard and guidance for the archaeological investigation and recording of standing buildings or structures*, unpubl

Institute for Archaeologists (IfA), 2010a *Code of Conduct*, Reading

Institute of Field Archaeologists (IFA), 2010b *Standards and Guidance for Archaeological Geophysical Survey*, Reading.

Institute for Archaeologists (IfA), 2012, *Code of Conduct*, unpubl


Lawes Agricultural Trust (Soil Survey of England and Wales), 1983 *Soils of Northern England*, 1:250,000


LUAU, 1996 *Garlands Hospital, Carlisle: evaluation report*, unpubl rep

McKenny Hughes, T, 1904a Some notes on mound opening, with a description of one recently explored on Sizergh Fell, Westmorland, *Trans Cumberland Westmorland Antiq Arch Soc*, n ser, 4, 71-9

McKenny Hughes, T, 1904b On another tumulus on Sizergh Fell, *Trans Cumberland Westmorland Antiq Arch Soc*, n ser, 4, 201-4

McKenny Hughes, T, 1912a On an Ancient Enclosure and Internment on Heaves Fell, *Trans Cumberland Westmorland Antiq Arch Soc*, n ser, 12, 397-402


National Trust, 2001 *Sizergh Castle, Cumbria*, Swindon


OA North, 2004 *Site 123, Harrison Combe, Great Langdale, Cumbria: Archaeological Excavation*, unpubl rep

OA North, 2005b *Lowther Deer Park, Cumbria: Archaeological Survey and Evaluation*, unpubl rep


OA North, 2011a *Stainton West (Parcel 27 North), CNDR, post-excavation assessment*, unpubl rep

OA North, 2011b *Sizergh Estate Lands, Cumbria. Historic Landscape Survey*, unpubl rep

OA North, 2014 *Stainton West (Parcel 27 North) CNDR Cumbria Post-excavation Analysis* unpubl Rep
OA North, forthcoming *Nether Wasdale pipeline, post-excavation assessment*, unpubl rep


Peglar, SM, 1993 The mid-Holocene *Ulmus* decline at Diss Mere, Norfolk, UK: a year by year pollen stratigraphy from annual laminations, *The Holocene*, 3, 1-13


Potter, TW, 1979 *Romans in North West England*, Cumberland Westmorland Antiq Archaeol Soc Res Ser, 1, Kendal


Rain, J, 1853 *Wills and inventories from the registry of the archdeaconry of Richmond, extending over portions of the counties of York, Westmerland, Cumberland, and Lancaster*, Surtees Society, XXVI


SCAUM (Standing Conference of Archaeological Unit Managers), 1991 *Health and Safety Manual*, Poole


Start, M, 2002. *The Osteological analysis of the human remains from Tumulus 2, Sizergh Fell, Cumbria*, unpubl rep

Stockmarr, J, 1972 Tablets with spores used in absolute pollen analysis, *Pollen et Spores*, 13, 615-21

Troels-Smith, J, 1955 Characterisation of unconsolidated deposits, *Dans Geol Unders IVR*, 3 (101), 1-73

United Kingdom Institute for Conservation (UKIC), 1990 *Guidelines for the preparation of archives for long-term storage*, London


White, R, ed 2009, *Beyond the Guidebook*, unpubl rep


Winchester, AJL, 1987 *Landscape and Society in Medieval Cumbria*, Edinburgh

Wimble, G, Wells, CE, and Hodgkinson, D, 2000 Human impact on mid- and late Holocene vegetation in south Cumbria, UK, *Vegetation History and Archaeobotany*, 9, 17-30
10.3 **On-line Sources**

www.bgs.ac.uk

www.landis.org.uk
APPENDIX 1: PROJECT BRIEF

Invitation to Tender: Provision of archaeological support and community training services at Sizergh Castle, Cumbria

Introduction
Levens Local History Group and the National Trust jointly invite tenders to deliver various archaeological themed services as part of a Heritage Lottery Funded community project at Sizergh Castle, property located 3 miles south of Kendal. These services include on-site supervision and training for volunteers in field archaeology, topographic and geophysical survey, environmental sampling, along with off-site archaeological skills training workshops for volunteers and the creation of information packs for schools.

The community project at Sizergh Castle will focus on two archaeological sites discovered and recorded during the recent Historic Landscape Survey of the National Trust’s Sizergh Estate undertaken by Oxford Archaeology North and volunteers from Levens Local History Group and Sizergh Castle in 2009 (OAN 2011b). The sites to be investigated by the project include a small burnt mound and a putative deer park boundary located in the southern eastern quarter of Sizergh Park.

Given the intention to undertake the proposed program of field archaeology as part of a community project, we feel it prudent to have a number of other archaeological themed activities on ‘stand by’ in case it proves impossible to access these sites for whatever reason (the burnt mound might be difficult to investigate after a period of prolonged wet weather). The ‘stand by’ activities include the survey of the substantial seventeenth century barn associated with the former High Sizergh Farm, along with survey of a possible prehistoric funerary mound in Brigsteer Park.

The proposed program of field archaeology will form the centrepiece of an archaeological event taking place in July 2013 advertised as part of the Festival of British Archaeology and witnessed by the visitors to the National Trust’s Sizergh Castle. To help visitors to Sizergh Castle to engage with the event the contractor will be required to deliver various interactive activities aimed at families including hands-on finds handling and geophysical survey. The contractor will also be required to produce interpretation suitable for outdoor display on the project themes and archaeological techniques to inform the casual visitor.

In addition to the on-site archaeological works the contractor will be required to design and deliver a set of archaeological skills training workshops at a local venue in advance of the on-site works. The aim of these workshops will be to introduce project participants without prior experience of archaeology to the main techniques used in field archaeology. The contractor will also be required to deliver a presentation on the project at a local venue at the end of the project.

The contractor shall also be required to undertake any post excavation works required and create an appropriate site archive. A full site report will be required, along with a popular report produced which as a brighter ‘designed’ appearance which includes a well illustrated summary of the results written using simple language that can be passed on to all project participants.

Location
Sizergh Estate is situated c 4km south-west of Kendal in a predominantly rural and agricultural setting (SD 4938 8798 approx centre). The 633ha (6.3 sq.km.) estate consists of pasture, woodland and parkland situated in rolling countryside sandwiched between the River Kent and the Lyth Valley. It is skirted by the A591 on the east side and lies between the villages of Brigsteer and Levens.

The proposed community themed archaeology project at Sizergh Castle will take place within the bounds of Sizergh Park, an area of grazed pasture immediately in front of Sizergh Castle. Sizergh Park is outside the pay barrier for regular visits to Sizergh Castle, with free public access all year round.

All regular visitors to Sizergh Castle arrive via Sizergh Park, which means that an activity taking place within its boundaries would be visible and easily assessable for the 200,000 annual visitors. This makes Sizergh Park an ideal location to stage a community project that aims to encourage local people to participate and engage visitors to the property.
If it became necessary to ‘shift’ the focus of the project onto the ‘stand by’ activities as a result of prolonged wet weather, the focus would move closer to Sizergh Castle and within the current pay barrier, in order to access the seventeenth century barn associated with the former High Sizergh Farm, as well as into neighbouring Brigsteer Park to access the possible prehistoric funerary mound.

**Archaeological background**

The recent Historic Landscape Survey of the Sizergh Estate (OAN 2011b) identified a rich archaeological resource within the estate that dates back to the Neolithic and Bronze Age periods. Notably, there are at least two funerary cairns on Sizergh Fell, along with a seemingly ritual deposition of Neolithic axe fragments found nearby within the grykes of limestone pavement. Other putative prehistoric funerary mounds exist on the higher ground within the former estate. A small Bronze Age burnt mound was also identified in Sizergh Park.

A Romano – British enclosed settlement site exists on land near Lane End Farm on the western edge of Sizergh Fell, which has a scooped interior, and contained burials of Roman date. There were also a number of finds spots dating to this period, including quernstone fragments, several Roman coins and some pottery.

Sizergh was granted by William de Lancaster II, Lord of Kendal, to Gervase Deincourt between 1175 and 1180. It passed down the Deincourt family until it was acquired by the Strickland family between 1251 and 1271, as a result of the marriage of Elizabeth Deincourt and Sir William Strickland in 1239. Sir Walter de Strikeland was the first member of the family to make Sizergh his principal seat and the earliest substantial house at Sizergh was probably constructed in c 1310.

In 1336, Walter was authorised by Edward III to enclose his demesne lands at Sizergh forever and to make a park there. The limits of Sizergh Park (now Low Park Wood) were defined using a sixteenth century map of Hawes Farm, whilst a section of the western boundary of the former deer park was found to survive as a large bank and ditch. This Medieval deer park was disparked in the seventeenth to eighteenth century and a new landscape park was established around the castle which afterwards became known as Sizergh Park.

Evidence survives for another Medieval deer park on the estate at Brigsteer. This was probably emparke d c 1361, and a boundary consisting of a 190m long section of earthen lynchet survives on its southern end, which follows the line of the parish boundary between Helsington and Levens. The line of Park End Lane running through the park probably may have formed originally a longitudinal sub-division of the deer park, which was later rationalised and reduced, possibly in the early 1700s, shrinking in size to only contain the land on the east of Park End Lane with a large park wall around it.

The first available map showing the gardens is from 1771 and depicts a terrace to the east of the house, two areas marked ‘gardens’ to the south of the terrace, and an extensive deer park surrounding the terrace and gardens. Between 1771 and 1827 the gardens to the north of the house had almost doubled in extent. The kitchen garden was extended and a probable ornamental pond was constructed in the wooded area to the south. A garden was constructed to the south of the main lawn and was linked to it by an urn-surmounted gateway.

Modernisation works were undertaken to the house and gardens at Sizergh by Sir Gerald Strickland, using the Kendal architect JF Curwen, between 1897 and 1902, which included a new drive, known as the Middle Drive, which ran west from the main Lancaster to Kendal road to the house, with a long triangular pond created downslope of the drive. A series of new gardens were commissioned by Sir Gerald Strickland’s second wife, Margaret Hulton between 1926 and 1928.

In 1950 Henry and the Hon. Mary Hornyold-Strickland and their son Thomas donated the house, contents and adjoining lands to the National Trust. In the sixty years of National Trust ownership many changes have taken place on the estate, in particular to restore and maintain the house and gardens and provide more comfortable access to the general public. The rock garden was restored in the 1980s, the Dutch garden was recreated in a simpler form in 1984 and landscaping was undertaken around the lake in 1994.

**Relevant designations**

The proposed community project at Sizergh Castle will take place within Sizergh Park which is a Grade II* Registered Park and Garden (GD 1849).

The seventeenth century barn located a short distance to the south west of Sizergh Castle is a Grade II Listed Building (LBS 75287).
Project aims

Our aim is to provide a set of meaningful and memorable learning experiences for all participants in the proposed archaeology themed community project, while also offering an enjoyable learning opportunity for those who simply witness or encounter the archaeological events as a visitor to Sizergh Castle.

A detailed break down and description of the project aims is contained within the application form recently submitted to the Heritage Lottery Fund. The contractor is requested to read this and develop a good understanding of the project aims before producing a tender.

Description of work to be undertaken

The contractor will be required to undertake the following:

• design and deliver four archaeological skills workshops,
• to direct and supervise the excavation and recording of a small burnt mound and putative deer park boundary located in Sizergh Park by project participants who may have little or no previous archaeological experience,
• to direct and supervise the detailed survey of the seventeenth century barn adjacent to Sizergh Castle, along with the detailed survey of a putative prehistoric funerary mound in Brigsteer Park.
• undertake the washing and processing of any finds recovered on-site with the assistance of project participants, while also engaging with visitors on the subject of archaeological finds, providing opportunities for them to touch and handle archaeological finds,
• to undertake a geophysical survey within the bounds of Sizergh Park with the assistance of project participants, while also engaging with visitors on the subject of geophysical survey, providing opportunities for them use the equipment themselves,
• to undertake environmental sampling and probing of the waterlogged ground surrounding the small burnt mound feature with the assistance of project participants,
• to produce large format posters for outdoor display on the aims of the project, the archaeology being investigated and the various archaeological techniques being employed,
• to prepare a presentation on the event and aims of the investigations suitable for young people, before visiting the nearby schools at Dallam and Levens, and the Young Archaeologists Club based at Kendal Museum, to introduce the project to the children in preparation for their visit to site and participation. It is anticipated that the presentation will be followed by some hands-on activity suitable for older school aged children. A follow up visit to the two schools and Young Archaeologists Club will be undertaken in the autumn of 2013 will be carried out to update those who took part on the results.
• to design and deliver a presentation on the project at a local venue at the end of the project,
• to undertake any post excavation works required and create an appropriate site archive,
• to produce a full excavation report, along with a popular report produced which as a brighter ‘designed’ appearance which includes a well illustrated summary of the results written using simple language that can be passed on to all project participants at the end of post-excavation work.

Archaeological skills workshops

During the period leading into the event all registered participants will be offered the opportunity to attend workshops on archaeological techniques and skills to be designed and delivered by the contractor. The contractor will provide all necessary tools and visual aids required to deliver the workshops.

These workshops will cover various techniques of field archaeology including; excavation and site recording, geophysical survey, finds processing and environmental analysis. These workshops will be delivered by experienced and professional field archaeologists and aimed at the novice. The aim will be to allow participants to learn something of the techniques they will be using during the event in a warm and relaxed setting, as well as providing a forum for the different groups and volunteers to meet each other.
The provisional date for the delivery of these workshops is June 2013. It is expected that they would take place on one or two Saturdays (depending on the final number of participants and the preferred approach of the Contractor) prior to the start of the event. It is planned that all four workshops can be delivered in a single day, and the approach would be to keep the presentations short and light (45 minutes on each theme) and that the day would include at least two activities for participants.

These workshops will be delivered at the National Trust’s property at Sizergh Castle or at a venue close by, such as Levens Village Institute. It will be the responsibility of the client to ensure that a suitable venue is available for the workshops and that project participants are invited.

The contractor should assume that the workshops will be attended by between 30 and 50 people.

**Schools and YAC**

The Client will make arrangements for groups from the nearby schools at Dallam and Levens to visit the site to take part in the event (including the excavations) on one day between the 16th and 19th July 2013. The Contractor should prepare a set of activities for the group to undertake on the day, including excavation, geophysical survey and finds handling, suitable for the age of the group.

The Client will also make arrangements for an archaeologist from the Contractor’s staff to visit pupils at Dallam and Levens schools prior to their visit to site. This will provide an opportunity for the Contractor to deliver a presentation on the proposed event and what will be involved.

The Contractor will also be asked to return to Dallam and Levens schools with an update on the results of the project in the form of an illustrated presentation.

The Client will make arrangements with the Kendal Young Archaeologist Club to visit the site to take part in the event (including the excavations) on one day during the two weekends of the project. The Contractor should prepare a set of activities for the group to undertake on the day, including excavation, geophysical survey and finds handling, suitable for the age of the group.

The Client will also make arrangements for an archaeologist from the Contractor’s staff to visit Kendal Young Archaeologist Club members at Kendal Museum on one Saturday prior to their visit to site. This will provide an opportunity for the Contractor to deliver a presentation on the proposed event and what will be involved. The Contractor will also be expected to deliver a hands-on session for the club members on a particular archaeology theme or topic in order to fill the session.

The Contractor will also be asked to return to provide the group with an update on the results of the project in the form of an illustrated presentation. Once again the Contractor will be expected to deliver a hands-on session for the club members on a particular archaeology theme or topic in order to fill the session.

**Excavation of the dairy or stable building**

The contractor will be required to deliver a professionally organised and supervised archaeological excavation of a small burnt mound and putative deer park boundary located in Sizergh Park. This will be undertaken while providing training and instruction for project participants who may have no previous experience of archaeology or who might have psychical limitations.

The contractor will be required to supply adequate staff (we suggest a team of four) to direct and supervise the two separate excavations. It should be remembered that progress will be slow and that the contractor will be expected to teach the project participants aspects of excavation and recording, including site photography and section/plan drawing. It is proposed that the ratio of professional staff to volunteers be around 1 to 3 and that we will aim to have approximately 12 volunteers involved in the excavation each day.

It should be remembered that the contractor’s priority will be to encourage project participants to learn new skills and feel encouraged in doing so. It must be made clear that it is the quality of the experience for the participant that is the clients primary concern, rather than the complete excavation of the two sites under investigation.

The contractor will make provision for participation on site by members of the Kendal Young Archaeologists Club and parties from Dallam and Levens schools. These three groups should be given an opportunity to take part in the excavation and finds processing under the direct supervision of the Contractor. The Client will be responsible for arranging these visits and will ensure that only one group visit on any one day to avoid overloading the site.
The contractor will work over the two weekends of the project (13th and 14th and 20th and 21st July). It is anticipated that these are likely to be the busiest days for casual visitors to Sizergh Castle, and that the Kendal Young Archaeology Club will plan a visit on one of those weekends.

The Contractor will also be required to engage with the casual visitors and be available to answer questions and engage when required. It is anticipated that the National Trust Archaeologist, along with members of the project Steering Group will attempt to take the lead in this role.

The area to be excavated should be tailored to match the needs and numbers of anticipated participants.

It is the contractor’s responsibility to ensure that the work is carried out according to best practice and the guidelines for archaeological field work as set out by the I.F.A. In addition to this the contractor should develop an appropriate scheme of sampling during the excavation and identify the need for specialist reports and services.

The contractor should provide all equipment necessary to undertake excavation and recording of the former dairy or stable building including trowels, spades, shovels, buckets, wheel barrows, mattocks, drawing boards, drawing frames, paper, film, cameras, recording sheets, line levels and pencils etc.

The contractor will be expected to supervise and assist with the removal of turf by hand from the two excavation sites at the start of the excavation. The turf and topsoil should be moved by hand and stored nearby on large tarpaulins ready for backfilling.

The contractor will also be required to assist in making good the site (including backfilling and laying the turf by hand) at the end of the project. This should take place on the 22nd July after the end of the two week long event. If possible the National Trust will assist with the backfilling operation using a tractor mounted mechanical arm.

**On-site finds processing and handling**

The contractor will be required to undertake all basic archaeological finds identification and processing on-site in such a way that it provides an opportunity for training and instruction in finds processing to project participants, as well as providing opportunities for basic finds handling for young people and families visiting Sizergh Castle.

The contractor will be required to supply adequate staff with suitable knowledge (we suggest a single person) to undertake this activity.

The contractor should provide all equipment necessary to undertake this activity such as washing up bowls, brushes, water carrier, chairs and tables, bags, boxes, labels, pens etc. The contractor will also be required to provide a gazebo or shelter suitable for use inside Sizergh Park (to be agreed by the National Trust).

It is very likely that there will be very few finds of note recovered during the excavations given the nature of the sites to be investigated. As such we ask the Contractor to put together a collection of finds that could be brought to site for use as a handling collection. Ideally this collection of finds would compliment the on-site interpretation.

**Geophysical survey**

The contractor will be required to undertake a geophysical survey of Sizergh Park while the main program of field archaeology is ongoing. The geophysical survey should be undertaken in such a way that it provides an opportunity for training and instruction to project participants, as well as providing opportunities for casual visitors Sizergh Castle to use the equipment.

The contractor will be required to supply adequate staff (we suggest a single person) for this activity with suitable knowledge to undertake this activity in addition to the field archaeologists working with participants on the excavation of the burnt mound and the putative park pale.

The contractor should provide all equipment necessary to undertake this activity such as tapes, strings, geophysical survey equipment, data logger, computer and printer.
On-site interpretation

The contractor will be required to produce approximately six large format posters for outdoor display on the aims of the project, the archaeology being investigated and the various archaeological techniques being employed by the project participants. The interpretation should have a high design quality to be both attractive and engaging, and be aimed at those visitors who perhaps wish to know a little more about the project, its aims and the techniques being used.

The contractor may need to work with National Trust staff to ensure internal National Trust guidelines for interpretation and presentation are followed. These will be supplied to the Contractor by the National Trust on request.

End of project presentation

The contractor will be required to design and deliver a PowerPoint presentation on the project at a local venue to be booked by the Client at the end of the project. This should include a full account of the results of the excavations, as well as the results of the geophysical survey and finds post excavation work.

Post-excaVation work and archive production

The contractor will be required to undertake all necessary post excavation works required to examine any finds and environmental samples taken, and to produce a full written report of the excavation and other investigations, and will be required to create an appropriate project archive to be handed to the National Trust at the end of the project.

Report writing

At the conclusion of the project the contractor will provide the following products:

Ten bound paper copies of the full excavation report along with ten complete digital copies of the full excavation report on CD with jewelled cases. The digital report should appear as a locked PDF format and as a Word file that allows easy extraction of blocks of text, images and maps etc for uploading to the NTSMR. Copies of any digital survey information should also be supplied in a CAD compatible format as a dwg file and as a tab file compatible with MapInfo Version 6. Copies of all digital photographic files should also be supplied as individual J pegs.

The contractor will also be required to produce fifty copies of the short site report along with twenty complete digital copies of the short report on CD with jewelled cases. This will take the form of a shorter version of the excavation report (running to approximately 24 to 30 pages). This shorter report should be fully illustrated with helpful plans and photographs, and describe the results of the excavation using simple language. The intention is to pass on copies of the short report to all participants at the end of the project.

The contractor will allow for significant consultation with the client on the content of the long and short reports.

Monitoring

The contractor will allow access to the site at any time for National Trust staff and the County Archaeologist, Mark Brennand (or his representative).

Current site conditions

The survey area is unenclosed and has open public access. The contractor will need to ensure that the site is secure throughout the duration of the project, including during the normal hours of work when the property is open to the public and at night when intrusion is possible.

Fencing will be the responsibility of the Contractor after consultation with the National Trust. It is recommended that crash barrier style fencing is used, as opposed to herras fencing or soft orange plastic fencing.
Contract Conditions

Levens Local History Group and the National Trust will retain copyright over the information produced during the course of these investigations and all information that appears in the final report. Levens Local History Group and the National Trust fully recognise the originator’s moral right to suitable accreditation in any subsequent publication of the results.

It is National Trust policy to deposit copies of all reports with the relevant regional archives, in this case the offices of the Cumbria County Archaeologist based at County Hall in Kendal and the National Monument Record in Swindon.

Insurance and Health and Safety

The Contractor will take sole responsibility for all Health and Safety requirements arising from the event. The Contractor will also be expected to supply a suitable risk assessment and to provide evidence of adequate public liability insurance prior to the start of work.

It is critical that the Contractor can demonstrate that they have previous experience of working and interacting with volunteers, community groups and the general public, children and young people and that the Health and Safety implications of this have been fully understood.

Separate risk assessments should be produced for all activities undertaken by the Contractor that involve working with volunteers, community groups, school groups, Young Archaeologist Groups, and the general public, including family groups and young people.

It is assumed that any children under the age of 16 will only be allowed to participate in the event if accompanied by a parent or guardian. As such the Contractor will not be asked to assume ‘responsibility’ for young people taking part in the event, although they will be expected to ensure their safety while on-site like any other participant.

The Kendal Young Archaeologist Club will be required to bring their own supervisors and staff as appropriate for their visit to site.

The schools groups from both Dallam and Levens will similarly be required to bring their own supervisors and staff as appropriate for their visit to site.

Sizergh Park is open to the general public at all times, the health and safety, comfort and enjoyment of visitors to the National Trust’s property at Sizergh Castle must be a priority at all times.

Timescales

The provisional date for the delivery of the archaeological skills workshops is during June 2013. It is expected that they would take place on one or two consecutive Saturdays prior to the start of the event.

The archaeological excavation, on-site finds processing work and geophysical survey will run from the 15th July and the 28th July 2013 inclusive. This will provide a total of fourteen working days on-site which would be available for active participation and visitor enjoyment.

The 14th July would be available for the contractor to set up and undertake any necessary site safety work. Similarly the 29th July will be available to the contractor to dismantle the site infrastructure and restore the ground.

The post excavation work should be undertaken soon after the end of the on-site work and a final project report, along with a shorter project report which can be printed and made available to all project participants should be completed by the start of October.

The contractor will be required to produce and deliver a presentation on the results of the project at a venue close to Sizergh Castle during October on a date convenient to the project participants (likely to be a Saturday or weekday evening). The copies of the long and short project report should be available to hand out on this day.
Tenders for the above project (including a detailed breakdown of costs set out in line with the sub-headings used in the invitation to tender for easily comparison) should be returned to Allan Stewart by the end of May 2012.

The Contractor will be informed that they have been chosen as the preferred contractor by the end of July 2012. Final confirmation that the project is going ahead (or has been turned down for funding) will be passed onto the Contractor as soon as the project steering group receives notification from the Heritage Lottery Fund.

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APPENDIX 2: PROJECT DESIGN

1. INTRODUCTION TO THE PROJECT

1.1.1 The National Trust and The Levens Local History Group are proposing to undertake a programme of community archaeological work at Sizergh Castle (SD 499 879) for July 2013. This would be intended to provide training for volunteers in a broad range of archaeological skills, which will include archaeological excavation, topographic survey, geophysical survey, building survey; the work would be funded by the Heritage Lottery Fund. The proposal is to excavate a burnt mound and a putative deer park boundary. In addition, as an option, there will also be a survey undertaken of a seventeenth century barn and a detailed topographic survey of a prehistoric burial mound in Brigsteer Park. This project will be the centrepiece of a celebration of archaeology that will be undertaken as part of the Festival of British Archaeology events. While the archaeological investigations would provide the focus there would also be a number of open days or school days when there would be events staged to highlight archaeological techniques and the heritage of the area that would be enjoyable and would be targeted at a younger audience.

1.1.2 Oxford Archaeology North (OA North) has been invited to submit a proposal to provide supervision and oversee the community archaeology project and the wider interpretation and presentation that will provide an archaeological focus for both a select number of volunteers but also the wider visiting public. OA North will provide supervision and guidance for the excavation of the putative deer park boundary and the burnt mound, the detailed topographic survey, geophysical survey and the building survey.

1.1.3 In addition there will be a series of outreach events, which will entail talks and demonstrations of archaeological techniques, the use of interpretation panels, and also a series of interactive training events that will appeal to the younger generation. The interactive events will, where possible, work be tied to a wider theme, and given the Bronze Age burnt mound excavation and the very rich Bronze Age finds from the Sizergh area, it is suggested that where possible the broader theme should be the Bronze Age. Child / young person friendly interactive events for example would include finds handling with Bronze Age or late prehistoric artefacts, the making of Bronze Age type urns using air drying clay. Other possible options include the creation of crouched burials using a plastic skeleton. In addition, if required, it would be possible to stage a low key medieval reenactment that would accord with that period. Guided tours could be provided to give the visitors an insight into the heritage of the Sizergh Estate, which would include the burial mound in Brigsteer Park.

1.1.4 As part of the presentations it is proposed to establish temporary interpretation areas, which would use either the lower section of the seventeenth century barn or under gazebos adjacent to the excavation sites. These would include display panels that would provide background to the themes and the excavations and would provide a focus for the wider outreach. The barn would have electrical power and can be used to present the results of survey work using a power point projector.

1.1.3 A principle aim of the project is to involve the local community as widely as possible, and to provide new information on the wealth of archaeological remains in the Sizergh estate. This will entail providing a presentation of the results and guided walks to the volunteers make them aware of the rich heritage in the region. It will entail getting them directly involved in undertaking field surveys, excavations, geophysical surveys and building surveys and to ultimately disseminate that information in reports, and updated records for the Cumbria Historic Environment Record and the National Trust SMR.

1.2 SIZERGH PARK - BACKGROUND

1.2.1 A programme of archaeological survey (OA North 2011) has been undertaken of Sizergh Estate, which identified a rich archaeological resource and the present programme of archaeological work will develop from this. The survey identified an archaeological resource that dates back to the Neolithic and Bronze Age periods; and includes two funerary cairns on Sizergh Fell, and a seemingly ritual deposition of Neolithic axe fragments found nearby within the grykes of limestone pavement. A Bronze Age burnt mound was also identified in Sizergh Park.
1.2.2 In the Roman period there was an enclosed settlement near Lane End Farm on the western edge of Sizergh Fell, which has a scooped interior, and contained burials of Roman date.

1.2.3 Sizergh was granted by William de Lancaster II, Lord of Kendal, to Gervase Deincourt between 1175 and 1180. It passed down the Deincourt family until it was acquired by the Strickland family between 1251 and 1271, as a result of the marriage of Elizabeth Deincourt and Sir William Strickland in 1239. In 1336 the demesne lands at Sizergh were emparked and the limits of Sizergh Park (now Low Park Wood) were defined using a sixteenth century map of Hawes Farm, whilst a section of the western boundary of the former deer park was found to survive as a large bank and ditch. This medieval deer park was disparked in the seventeenth to eighteenth century and a new landscape park was established around the castle which afterwards became known as Sizergh Park.

1.2.4 The proposed project will examine the following sites:

- **Site 181421 - Burnt Mound** in Sizergh Park located on the edge of an area of soft, churned up boggy ground to the north west of the park ha-ha. The feature is a classic 'burnt mound' being kidney shaped with a depression or concavity on the western side. The stone work exposed in the upper surface has the appearance of having been burnt. The site is today surrounded by wet boggy ground and is close to the site of at least two natural springs.

- **Site 181425 - Putative Pale**: a double bank and ditch earthwork curving through parkland to the south of Sizergh Castle. The western corner disappears under the south western corner of the present garden, while the eastern end runs out at a point to the south of the southernmost extent of the pond. The abrupt end of the eastern end of the bank and ditch earthwork may suggest recent disturbance. This is further supported by the existence of a mound of redeposited earth against the inner edge of the earthwork which could have resulted from any work to break through the bank to create a clear view into the parkland. The function of the earthwork is difficult to understand. Its function as a former ha-ha, park pale or driveway are all possible.

1.3 **Oxford Archaeology North**

1.3.1 **Outreach:** OA is committed to outreach. As an educational charity, OA seeks to promote an active public relations policy in relation to archaeology, and has a publications department that is experienced and fully equipped to provide general interest text and graphics for release to the press and general public in a wide variety of forms including display boards, leaflets and popular books. In certain circumstances it is possible to hold open days or install public viewing galleries on major sites. OA has considerable experience in the establishment of community based projects, and includes numerous training surveys and excavations. OA North has been providing the professional support for a programme of archaeological investigation into Lathom Park, nr Ormskirk, funded by Local Heritage Initiative. This involved the provision of expertise, training, and resources for surveys, excavations and documentary studies into the landscape associated with the major fourteenth century palace Lathom House. OA North has also been involved providing the consultancy and supervision for the excavation and survey of a complex enclosed settlement at Ingleton in conjunction with the Ingleborough Archaeology Group, and the supervision and of a survey of a nineteenth century designed landscape at St Catherine’s Park, Windermere, on behalf of the National Trust, and the local community. OA North is presently undertaking a community excavation of a nineteenth century church, that was demolished when Stocks Reservoir was constructed in the early part of the twentieth century, and is being undertaken on behalf of United Utilities and the Forest of Bowland AONB. OA North is also undertaking a community survey of woodlands and fulling mills with the catchment of Lake Windermere.

1.3.2 **Holwick:** more recently OA North has undertaken a major survey of Holwick village and valley landscape in the North Pennines on behalf of the AONB and also Natural England. This entailed a broad range of survey techniques from specially flown oblique aerial photography, LiDAR, Documentary Studies, Identification Surveys, detailed surveys using a theodolite and Disto. The latter technique was designed to allow cheap, but efficient survey techniques that would be within the pocket of amateur groups (the maximum budget for equipment was £300.00) and which would result in the plotting / draughting of the survey drawings on site.

1.3.2 OA North employs an experienced and qualified archaeological land surveyor, Jamie Quartermaine, who has considerable experiencing in training survey techniques. He has the expertise to train local teams in a broad and diverse range of low tech survey techniques that will be appropriate for the volunteers who do not have access to modern equipment.
1.3.3 **Landscape Archaeology**: OA North has considerable experience in the field of landscape survey work, particularly in the uplands of Northern England and Wales. Numerous surveys have been undertaken across the region and North Wales, and has taken the form of rapid identification surveys of large areas of unimproved land as well as detailed surveys of specific landscapes.

2.1 **AIMS OF THE PROGRAMME**

2.1.1 The primary aims of the project are as defined within the HLF Application and are as follows:

- To encourage local volunteers to gain an understanding of the history of catchment through surveying, excavation and researching their local history. The volunteers will learn techniques of surveying that they will be able to continue beyond the life of the project. To gain a set of meaningful and memorable learning experiences and offer a learning opportunity for visitors.
- To facilitate access for project participants to professional training and supervision in a number of archaeological skills and techniques before and during the excavation.
- To provide opportunities for informal learning and engagement for visitors to Sizergh Castle during the event. These opportunities will attempt to capture the interest of young people and families through active and stimulating games and activities, as well as more in-depth interpretation material and guided walks for the more mature and inquiring.
- To introduce to visitors and participants, through a program of formal and informal learning, to subject topics including archaeology and archaeological resource management, historic and vernacular buildings, historic parks and gardens (including deer and veteran tree management) and the social and local history of the Sizergh Castle Estate.

3. **METHODOLOGY**

3.1 **PROJECT PREPARATION**

3.1.1 At the outset there will be a process of liaison between OA North, The National Trust and the Levens Local History Group. This will entail defining the output formats for incorporation into the HER, and having a field visit to examine the site and to refine the project methodology. OA North will liaise with the Natural Trust to enable a close co-operation the estate and to ensure that the community project works in close accord with the other visitor activities and estate management.

3.2 **Archaeological Skills Workshop**

3.2.1 The first stage of the project will be a skills workshop that will preferably be undertaken at Sizergh Castle and will entail a power point presentation as well as a practical demonstration of archaeological methods either in the venue or outside in the grounds (subject to the prevailing weather conditions). This would provide a general introduction, outlining the range of techniques available to the archaeologist, before addressing in detail the methods that will be undertaken by the participants. This would include an introduction to the theory and practices of archaeological excavation, palaeoenvironmental analysis, finds processing, and survey techniques. This would be followed up by demonstrations and instruction in geophysical survey, instrument survey and building survey techniques. The survey techniques would include theodolites, plane tables, a total station with pen computer (to display the results), and survey grade GPS. The aim would be to introduce the participants to the proposed programme but also to raise interest. Experience of previous launch events (eg at Holwick and Windermere Reflections) was that these attract lots of people, lots of interest and set the project off to a good start.

3.2.2 It is proposed that a series of workshops be delivered over one or two Saturdays and that there will be up to 50 attendees, and will require a number of OA North staff. The large numbers of attendees will demand that they are split into smaller groups and the activities will be staggered to allow full use of the day and provide for a more individual instruction by the professional archaeologists.

3.3 **EXCAVATION OF THE DEER PARK BOUNDARY AND THE BURNT MOUND**

3.3.1 The following section outlines a methodology for the undertaking of excavations of the Deer Park Boundary and the Burnt Mound. The excavations will run over a period of 14 consecutive days -
15th July to 28th July 2013 which includes two weekends. The emphasis for the excavation will be upon providing training, and providing a valuable experience for the participants, rather than undertaking extensive areas of excavations to tight timetables. The extent of the excavation areas will be defined on site and will be determined by the rate of observed progress of the participants. While it is important that all areas opened are fully excavated, the extent of the excavation areas will be defined so as to ensure that the participants can comfortably complete these areas within the time allowed. No more than half of the burnt mound will be excavated. At the end of the excavation the excavations areas will be backfilled and the turf will be relaid.

3.3.2 It is anticipated that there will be four members of professional archaeologists supervising the excavations and surveys, and that there will be a ratio of three participants for every professional. It is anticipated that there will be three supervisors working on the excavations and one supervisor undertaking the survey work (geophysics, buildings, topographic and palaeoenvironmental).

3.3.3 Site Preparation and Preliminary Survey: prior to the commencement of any work, a risk assessment will be compiled by the OA North Project Director. The initial element of the fieldwork will comprise the establishment of survey control, and an outline measured survey of both sites. The survey control will be established using survey grade GPS. The participants will be involved in the survey of the earthworks and will be undertaken using basic survey techniques, typically a theodolite and Disto, which will be plotted up on site (Section 3.5.2). This data will then be digitised and overlain onto historic mapping to allow the key areas of archaeological interest on the site to be identified.

3.3.4 Turf Clearance and Excavation: at the outset the turf will be carefully removed from the excavation areas by manual techniques and the turf will be stored separately from the spoil and adjacent to the excavation on tarpaulins / terram.

3.3.5 All excavation will be carried out using exclusively manual techniques. Spoil from the excavation will be stored at a location subject to discussions with the estate. Structural remains will be cleaned to define their extent, nature, form and, where possible, date. It should be noted that no archaeological deposits will be entirely removed from the site. It is not anticipated that excavation in any of the trenching will proceed below a depth of 1.2m, although should this be considered necessary, then the trench will be widened sufficiently to allow the sides to be stepped in or battered back to a safe angle of repose.

3.3.6 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage. Results of the evaluation will be recorded on pro-forma context sheets, and will be accompanied with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.3.7 A full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using 35mm cameras on archivable black and white print film, and all frames will include a visible, graduated metric scale. Extensive use of digital photography will also be undertaken throughout the course of the fieldwork. Photographs records will be maintained on special photographic pro-forma sheets.

3.3.8 Planning: the precise location of all archaeological structures encountered will be surveyed by a combination of manual techniques using a planning frame or using a theodolite / Disto. All survey drawings will be completed by manual draughting techniques on site. This process will ultimately generate scaled plans within an AutoCAD system, which will then be refined by manual draughting by local community volunteers. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required. Sections will be manually drafted as appropriate at a scale of 1:10. All information will be tied in to Ordnance Datum.

3.3.9 Backfilling: the excavation areas will be backfilled by OA North / NT staff using a backhoe mechanical excavator (to be provided by NT). The turfs will be relaid manually.

3.3.10 Finds policy: finds recovery and sampling programmes will be in accordance with best practice (following current Institute of Field Archaeologists guidelines) and subject to expert advice in order to minimise deterioration. OA has close contact with Ancient Monuments Laboratory staff at the University of Durham and, in addition, employs in-house artefact and palaeoecology
specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation.

3.3.11 Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham. Samples will also be collected for technological, pedological and chronological analysis as appropriate.

3.3.12 Human remains are not expected to be present, but if they are found they will, if possible, be left in situ covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the Burials Act 1857.

3.3.13 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

3.4 BUILDING SURVEY OF THE GREAT BARN

3.4.1 Introduction: the survey of the barn would be undertaken alongside the excavations, and would be undertaken to provide training for the participants in building recording. There is a need to produce a complete and accurate survey of the barn, so if at the end of the training project the barn has not been completed, then it will be taken to completion by OA North building surveyors, after the end of the main fieldwork, using the same techniques outlined below. A broad range of techniques will be undertaken in order to provide effective general training for the participants. This will include manual surveys using tapes, but also reflectorless total stations, and photogrammetry.

3.4.2 The measured survey will be carried out to English Heritage guidelines level 3 (English Heritage 2006). The detailed survey will provide for a full record of the ground plan, first floor plan, external elevations and cross sections through the structures. For the most part this will be undertaken by means of a Reflectorless EDM (REDM) totals station survey with respect to survey control established by GPS survey. This will be undertaken as a teaching opportunity and participants will be instructed in all aspects of building survey, from the principles of survey techniques, manual survey techniques, and methods of building analysis. It will take them through the whole process of building recording from initial examination through the mapping of plans and the creation of elevations, through to undertaking phasing of the structure and matching with historical plans.

3.4.3 The drawings will in part be undertaken using modern instruments, because of the need to capture 3D data, but it will take the participants through the whole process of instrument recording so that they have an effective grounding in building survey. The data will be captured and displayed on a pen computer, and this can serve as an effective presentational tool as the drawing can be displayed on a wall using a power point projector and visitors and participants can visualise the drawing being created.

3.4.4 It is understood that the ground floor is being used as storage, and the first floor is used as office space. The contents of the ground floor would need to be moved to enable the survey, and it is intended to minimise persons undertaking the survey on the first floor to limit any disruption to the users of the building.

3.4.5 Control: the survey control will be established by closed traverse using a Leica TC805 total station, and will be located using the Leica 1200 differential GPS, which maintains 0.015m accuracy. Height control will be established by the same process.

3.4.6 Instrument Detail: the detail survey will be established by REDM instrument (Leica 805), and the data will be superimposed onto the same grid within a CAD system. The instrument survey will be generated by EDM tacheometry using an REDM total station linked to a pen computer running TheoLT software. The digital data is transferred onto the pen computer for manipulation and transfer to other digital or hard mediums. The survey data will be accurate to ± 0.005m. The survey will result in the production of a ground plan and first floor plan. At least one cross section will be produced through the building, and will necessitate access / sight of the trusses and roof structure.
3.4.7 **Manual Survey Detail:** in addition it is proposed to undertake sections of the survey, particularly the ground floor plan by manual survey techniques and will entail the use of low cost survey equipment, such as tapes. In this instance the external outline of the plan will be undertaken by instrument survey in order to minimise errors that can be derived from purely distance based survey methods, but the internal plan would be by manual techniques based upon the instrument outline. It is intended to record floor surfaces by manual survey, using a planning frame and will provide participants experience in such techniques.

3.4.8 **Elevation Production:** a range of techniques will be implemented in order to implement the drawing of the external elevations. The most efficient survey technique is to record the elevations by photogrammetry, using ground based photographs, but this has the disadvantage that much of the processing of the drawings is undertaken in the office, and makes it difficult for the participants to understand the process. The alternative is to use the reflectorless total station and the drawing can then be seen being created on the pen computer screen. It is proposed to undertake some elevations using both techniques so that participants will have familiarity with both techniques.

3.4.9 **Photogrammetry:** a series of ground oblique photographs of each elevation will be undertaken using a 10 megapixel digital SLR from many different camera positions, which will include some taken from a telescopic mast. Survey control will be established on each elevation by means of a reflectorless total station. Models of each elevation will be created by photogrammetry using the photogrammetric Agisoft package and this will provide accurate elevations surfaces draped with corrected photographic images. These will then be digitised in outline to create the final elevation drawings. The drawings will depict key features, such as quoins, and ashlars, but not all stones.

3.4.10 **Reflectorless Survey:** select elevations will be undertaken by reflectorless total station and by training the laser dot around the architectural detail. The digital data will be output straight into a pen computer which will allow the user to visualise and check the output.

3.4.11 **Drawing Up:** the raw data from the total station and the GPS will be combined within a CAD system, and then plots will be generated to enable the drawing up of the sites within the field. The archaeological detail is drawn up in the field as a dimensioned drawing on the plots with respect to survey markers. On completion of the field survey the drawings will be enhanced within the CAD environment to produce the final drawings.

3.4.12 The survey will record all pertinent archaeological detail. The survey will be combined with general topographic mapping of the locale and any other mapping identified during the DBA.

3.4.13 **Annotation of drawings:** irrespective of the means used to generate drawings, they will be annotated with salient information, including wear marks associated with machinery, wear patterns on floors, masons or carpenter’s marks, graffiti and daub marks relating to historic and contemporary use, and the location of re-used structural timbers.

3.4.14 **Photography:** in conjunction with the archaeological survey a photographic archive will be generated, which will record significant features as well as general views. This photographic archive will be maintained using high-quality digital cameras with 10 mega pixel resolution. The use of a digital camera provides very effective manipulation of photographic images, and these will be used in the report. The use of photography in this way considerably enhances the usability of a database and greatly assists the analysis of the monument. The photography will provide general views, and wider context. It will record then internal and external character and will provide for internal and external detail, including opening, timber framing, assembly marks and other significant features. A metric scale will be used for all photographs.

3.4.15 **Description:** a detailed description of the complex will be carried out to English Heritage Level 3 guidelines as appropriate, utilising pro-forma sheets. This provides for a comprehensive analytical account for buildings of special importance and the following methodology will be followed.

3.4.16 The written account will provide the understanding required in order to place the building in its historical, architectural and cultural context. The descriptive record will include the following accounts:

- A general description of the buildings, which will include details of the plan, form and function. Allied to this, a detailed description of the materials used and development sequence and phasing, including any alterations, repair and rebuilding, will be provided;
- An account of the wider context within which the buildings are situated. For example, its relationship to places and buildings within the local area, as well as its historical relationship to the area;
- An appropriate description of each individual room/discrete space and component.

3.7.14 **Lighting:** the building has lighting in most areas but it may be necessary to bring in additional temporary lighting to assist with the fabric recording.

3.5 **Environmental Probing / Coring Survey**

3.5.1 A process of environmental coring will be undertaken by experienced palynologists to examine the palaeoecological potential of the area around the burnt mound. This will reconstruct the extent of former tarns/standing water and show the relationship between the burnt mound and the local hydrology. This will be undertaken by two methods: probing and transect coring. The former technique will record the shape of the underlying basin and the second technique will examine the stratigraphic development of the infilling of the tarn.

3.5.2 **Probing:** probing will be used to trace the former buried topography and any buried landscape features such as field boundaries. Specially designed probes will be used which will have a survey prism mounted on top. Probing will be undertaken on an approximate 2-3m grid across the sites. When the probe has been achieved a solid base then the depth and position of the probe will be recorded using a total station. This will result in a series of survey points recording the depth of the mire and will be used to generate a contour model of the bottom of the former basin. In addition survey points will be created for the upper surface of the mire to generate a contoured DTM; this will provide a comparison between the upper and lower extents of the mire deposits. This work will be undertaken by the participants under the guidance of a surveyor.

3.5.3 **Transect Coring:** a lightweight gouge auger will be used to obtain variably-spaced peat borings along transect lines through the area of the mire. The depth, type, and preservation of the waterlogged stratigraphy will be recorded on pro-forma record sheets, and the survey will seek to record the character of the basin mires. The spacing between the cores will be variable and will be dependant on the depth of deposits, the topography, and the archaeological context. The sediment stratigraphy will be recorded using the terminology and procedures outlined by Troels–Smith (1955). The cores will be located, both spatially and in altitude, by means of total station. Sampling intervals will be dependant on the nature of the deposits, but as far as possible will attempt to achieve approximately regular spacing. This data will be utilised to produce stratigraphic diagrams, using symbols based on Troels-Smith (1955), which will illustrate the extent and depth of the deposits. Samples will be taken at the top and bottom of the cores to facilitate radiocarbon assay. This work will be undertaken by the participants under the guidance of a palaeoenvironmentalist.

3.5.4 **Analysis of Stratigraphic Data:** in addition to the recording of the deposits in the field, small samples of peat will be taken from significant levels. These will be examined microscopically in the laboratory for plant macrofossils to confirm the field identification and some will be assessed for pollen sampling. Larger samples from basal deposits will be assessed for radiocarbon dating to provide inception dates for the waterlogged deposits. By means of the dating of selected cores, the palaeoenvironmental methods will be used to help establish the chronology of the mire and provide a chronological context for the burnt mound.

3.6 **Topographic Survey of Deer Park Boundary and Environs**

3.6.1 Alongside the excavation works it is proposed to undertake a detailed survey of the Deer Park Boundary and all earthwork features in the environs of the castle. This is essential to provide an appropriate context for the excavation and would also be intended to record the wider topography in the environs of the Deer Park Boundary. The same will be happening for the burnt mound, but this will be undertaken as part of the palaeoenvironmental survey. The detailed topographic survey of the environs of the Deer Park Boundary will be undertaken to English Heritage Level 3 (Ainsworth et al 2007).

3.6.2 **Survey Methods:** it is intended that this primarily serve as a training exercise for the volunteers, so the survey techniques will be devised to be easy to understand, and will allow for plotting in the field, and using equipment that is easily affordable by volunteers. This will inevitably mean the use of more outdated technologies, and this will have a significant impact on productivity. There is a broad range of survey options that can be achieved by volunteers with access to non-expensive
equipment, and it is proposed to introduce the volunteers to a range of techniques and then concentrate the survey using a theodolite and disto. A disto mounted on top of a theodolite telescope will be used to provide the base data for on site plotting. The disto is self reducing and has a range of c120m. The data would be drawn up in the field using an accurate film based protractor and ruler. A gazetteer and photographic record will also be compiled.

3.6.3 In addition it is proposed to purchase a tile of Ascii LiDAR which will provide the height information that will be used to create a detailed contour map of the area and will enhance the final product.

3.6.4 **Survey Control:** it is proposed that survey control be introduced to the sites by means of a high accuracy survey type differential GPS where possible. This can achieve accuracies of +. 20mm, and will ensure that the survey is accurately located onto the Ordnance Survey National Grid. If at any of the sites there is no mobile reception (necessary to provide corrections for the GPS) then the control will be established by means of a total station.

3.6.5 **Detail Survey Overview:** the detail survey by theodolite / disto will record all structural and earthwork components, which will be drawn by hachure survey. Survey points will be marked on the ground using spray paint and the survey drawing will be manually drawn up with respect to them. On completion of the survey the field drawings will be digitised into a CAD system. The survey will record all archaeological features, earthworks and elements. The survey will aim to identify, locate and record all built elements of the landscape.

3.6.6 **Aerial Photography:** it is also proposed to record the excavation sites and immediate environs by means of high altitude photography, which, using specialist photogrammetric software, can be used to create accurate three dimensional models of the site and topographic surfaces. There are two means of achieving this by means of an extendable mast or using a UAV. The mast has a maximum height of 8m, and for small sites it is very effective in that it can provide high resolution surface images for the modelling process. However, for more extensive sites it generates more photographs than the software can handle. The alternative is the use of the UAV, which provides photography from any altitude up to approximately 80m height. Survey control is introduced to the photographs by the placement of survey control targets across the site which are located by means of survey grade GPS.

3.6.7 The photogrammetric processing is undertaken using Agisoft software which provides detailed modelling using the overlap of up to 50 photographs, and creates a very detailed DTM (Digital Terrain Model) across the site. The photographs are then digitally draped over the model to create an accurate three dimensional model of the ground surface. The primary output, however, is an accurate two dimensional image which can be used to generate accurate plans or profiles although 3D models can be provided for the participants in PDF form.

3.6.8 **Gazetteer:** a descriptive record of all features will be compiled using a standard proforma, which will incorporate a provisional interpretation of the function of the site / feature, where possible, and similarly will provide a provisional interpretation of the site's chronology where possible. Once the digital gazetteer has been collated and edited, it will be output as an Access Report and input directly into a Microsoft Word format. The gazetteer out put will be compatible with the NT SMR and the LDNPA HER. This data will be formatted and topped and tailed within word to produce the gazetteer volume for the survey project. The description will include the following fields:

- NTSMR Number
- LDNP HER number
- Site Number
- Form
- Site Name
- NGR
- Site Description
- Monument Type
- Period
- Interpretation
- Dimensions
- Threats
- Management
- Photo reference

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3.6.9 **Photographic Record:** a photographic archive will be generated in the course of the field project, comprising landscape and detailed photography. Detailed photographs will be taken of the archaeological features using a scale bar. All photography will be recorded on photographic pro-forma sheets which will show the subject, orientation and date. The photography will be undertaken using a digital SLR camera with 10 megapixel resolution.

3.7 **Geophysical Survey**

3.7.1 A detailed magnetic and resistance survey will be carried out using a Bartington Grad601-2 gradiometer and/or a Geoscan RM15 resistance meter. Both of these instruments have internal data loggers. Data will be collected in zig-zag mode over the same 30m by 30m grids, the magnetic data being collected at 0.25m intervals on profiles 1m apart (3600 readings per grid) whilst the resistance survey data will be collected at 1m intervals on profiles 1m apart (900 readings per grid). These instruments are easy to use and handle and the basics of survey operation and technique can be easily explained.

3.7.2 The survey grid will be staked out and surveyed using either an RTK GPS system or total station to Ordnance Survey co-ordinates to at least 0.05m accuracy. Bamboo canes will be placed at grid node points and survey ropes and canes will be used to mark out the survey traverses.

3.7.3 All data will be downloaded immediately following collection using specialist survey software (Archaeosurveyor) and will be minimally processed where applicable. Raster images will be exported, usually in .png or .jpeg format for presentation and dissemination. These images will be imported into CAD software and overlain on a geo-referenced base plan. An interpretation of the anomalies will be presented in CAD and a non-technical summary and discussion of the results will be included in a report which will accompany the interpretation.

3.7.4 It is proposed that much of the survey area will be surveyed by an experienced geophysicist prior to project participants and casual visitors’ involvement in order to allow for some final example data to be available for viewing at the commencement of the project. This has worked well at similar events undertaken in the past. The survey will be carried out in accordance with English Heritage guidelines (2008) and IFA standards (2010).

3.8 **Interpretation Banners**

3.8.1 It is proposed to produce a series of six interpretation banners / panels, which will be produced at the outset and in the course of the project. These panels would be printed onto a very durable PVC banner fabric which can be suspended from its corners by eyelets or mounted onto a solid wooden base, and would be A0 sized. They would have limited amounts of text and a small number of large photographs, and would be similar to those used at Dunham Massey and would be intended to steer people into the area of the excavation. There would, however, be one panel that would have more information and would be intended to provide appropriate background information and would be set up at the finds processing gazebo.

3.8.2 These banners are cheap to produce, typically £ 15.00 for an A1 sized banner, and can be printed for next day delivery. A banner of this form was used at the recent Stocks in Bowland excavations (See below); the design work took 0.7 man days and the printing and delivery took a day, so it was possible to create an interpretation banner from inception in two days. The implication is that at least some of the banners / panels can be produced with a very short lead in during the course of the project, and can be used to present initial results of the excavations. After the completion of the Stocks excavation the panel was left on display at the site and has now been exposed for six months, which includes last winter, and has shown no deterioration or fading over that period.

3.8.3 It is suggested that the panels would have the themes, but these can be varied to fit in with specific needs.

- Aims of the project, and credits to organisations involved.
- Prehistoric Activity in the Sizergh area (including examples of BA vessels)
- Layout of the Sizergh park boundaries (including examples of park pales and medieval artefacts)
- Survey techniques that will be employed in the project
3.9 FINDS PROCESSING AND OUTREACH

3.9.1 Finds processing for the excavations will be undertaken on site, and will entail washing, bagging, marking and indexing. The two sites that will be excavated typically will produce very little in the way of any finds; however, in this instance finds processing will provide a means of outreach interaction with the visitors who will be interested in the excavation but will not have a direct involvement with the excavation. The intention is to undertake the limited finds processing that will be undertaken alongside a presentation of finds (ex-situ) from other sites that will allow the visitors to visualise and handle finds from the Bronze Age and medieval periods. OA North has a teaching collection of material from these periods, which for the Bronze Age is entirely lithics. However, on select occasions during the excavation it would be possible to bring to site special artefacts, including intact BA funerary urns, as long as there is sufficient supervision to ensure the security of these valuable artefacts. In this instance these artefacts would be accompanied by Chris Howard Davis, who is OA North’s most senior finds specialist, and will provide considerable insight to all aspects of finds for the participants and visitors.

3.9.2 A gazebo will be erected adjacent to the excavations and will have all the materials necessary for the storage and processing of finds including tables and chairs. A poster / interpretation panel will be erected in the gazebo (Section 3.8) and will provide information for the visitors about the sites, the excavation process, and artefacts from these periods.

3.9.3 Demonstration of Pottery Making: OA North has in the past had considerable success with the making of hand made Bronze Age vessels as this provides a fantastic opportunity to engage the involvement of children. The vessels would be made by the visitors under OA North guidance using Air Dried Clay which hardens without the need for firing in a kiln. The vessels are made in the traditional way using coils of narrow tubes of clay to build up the vessel walls, and the pot would then be decorated using stamps. OA North has examples of vessels produced by this method (see left) and photographs of actual vessels which would serve as a template for the visitors to create their pots. On completion the visitors would take their vessel away as a lasting momento.

3.9.4 The production of pottery vessels would be undertaken as part of the Schools / KYA events (Section 3.10) and would require a dedicated person to enhance the outreach; an additional person would be provided for these days. The proposed member of staff has considerable experience of historic reenactments and would be dressed in prehistoric period clothing, with appropriate tools, such as a replica Bronze Age axe, and this would add to the period atmosphere.

3.10 SCHOOLS AND GENERAL OUTREACH

3.10.1 Dallam, Lewis Schools and Kendal Young Archaeologists Club: there will be a process of interaction with the Dallam and Levens schools, and the Kendal Young Archaeologists Club (KYAC) as part of the projects outreach. The first stage will be a presentation to the schools (and KYAC at Kendal Museum) at the outset of the project, then a site visit from both schools in the course of the project and for KYAS on one of their monthly Saturday meetings in the period leading up to the event. This will be followed by a recap presentation at the end of the project to demonstrate the interim results. This outreach phase would be undertaken by a member of staff who is a former headmaster and has considerable experience of teaching. On the day of the site visit, there will be a range of child friendly activities such as finds handling, geophysical survey, pot making, topographic survey and excavation, and additional members of supervisor staff will be brought in for specific events.

3.10.2 On completion of the project a final presentation will be established for all the participants and dissemination to the local community through an evening talk. This will be at a local venue and will present the final results of the programme.

3.11 REPORT PRODUCTION

3.11.1 Archive: the results of the management programme will form the basis of a full archive to professional standards, in accordance with current English Heritage MoRPHE guidelines (The Management of Research Projects in the Historic Environment, 2006). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing of any features, finds or other data recovered. This archive will be provided in the English Heritage Central Archaeological Services format. A
synopsis (normally the index to the archive and the report) should be placed in the Cumbria Historic Environment Record. The artefacts will be deposited with Kendal Museum. The archive will include the raw survey digital data in AutoCAD format.

3.11.2 **Analysis and Report:** OA North accords with best practice for the analysis of the excavation results in accordance with the guidelines of MoRPHE. This would involve a brief assessment of the data-set generated by the excavation, followed by a review of the excavation archive; this process will be undertaken in close consultation with the client. The report format will be agreed at this stage. The Harris Matrix, largely produced during the excavation programme will be completed and checked as part of this assessment phase. The proposed programme anticipates assessment of the artefactual evidence and of the site stratigraphy leading to the production of a final report.

3.11.3 **Palaeoenvironmental Assessment:** subject to the results of the evaluation an assessment of any environmental samples will be undertaken by the in-house palaeoecological specialist, who will examine the potential for further analysis. The assessment would examine the potential for macrofossil, arthropod, palynological and general biological analysis. A programme of detailed analysis may be recommended subject to the results of the assessment, but the extent and requirements of such work can not be determined at this early stage of the project.

3.11.4 **Absolute Dating:** subject to the availability of material from secure contexts, it may be appropriate to undertake radiocarbon dating of sampled organic material if the possibility can be demonstrated that this technique will aid the establishment of a tight chronology. Absolute dating will be particularly useful for the interpretation of archaeological remains from which no other dating material is available, and for palaeoecological material. Sufficient dates will be required to improve the reliability and accuracy of dating. The actual number required will be subject to the results of the trenching. The dates will be taken by the OA North palaeobotanist (Elizabeth Huckerby), who will undertake the initial processing of the dates and submit them to the radiocarbon laboratory.

3.11.5 **Final Report:** the final report will present, summarise, and interpret the results of the programme and will incorporate specialist reports on artefact assemblages and environmental reports. It will include an index of archaeological features identified in the course of the project, with an assessment of the site’s development. It will incorporate appropriate illustrations, including copies of the site plans and section drawings all reduced to an appropriate scale. The report will consist of a statement of acknowledgements, lists of contents, executive summary, introduction summarising the brief and project design and any agreed departures from them, methodology, interpretative account of the site and associated structures, gazetteer of features, a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work.

3.11.6 The report will incorporate appropriate illustrations, including copies of the site plans, detailed survey plans of each excavation area, maps of the wider landscape, all reduced to an appropriate scale. The site mapping will be based upon the CAD base. The report will be accompanied by photographs and historic illustrations illustrating the principal elements of the landscape.

3.11.7 **Survey Reporting:** the report will also incorporate the results from the topographic survey, the building survey, and the geophysical survey, which will be accompanied by appropriate illustrations. The results of all the techniques will be assessed alongside the results of the earlier Sizergh Estate report (OA North 2011), and an assessment of the development of the landscape will be made in the light of this work.

3.11.8 **Short Report:** a reduced version of the final report will be compiled, which will be heavy on illustrations and photographs and will be 24-30 pages in length and in A4 format. Although based on the final report, it will be subject to desk-top publishing design, and will include a well designed cover to improve the visual appearance. It will be commercially printed and it is anticipated that there would be an output of 50 copies.

3.11.9 **Editing and submission:** the report will be subject to the OA North’s stringent editing procedure; then a draft will be submitted to the National Trust for consultation. Following acceptance of the report, ten bound copies and CD copies of the report (and digital copy in PDF and Word formats) will be submitted to the National Trust. A summary of the work will be provided for OASIS.
3.12 OTHER MATTERS

3.12.1 Access: the sites are within the Sizergh Estate and in the ownership of the National Trust; parking will be at the Sizergh Castle car park and it is assumed full pedestrian access will be available to the sites. The survey will entail recording of the seventeenth century barn, which has a ground floor that is occupied for storage; the contents would need to be reduced or removed to enable the survey. The first floor is occupied and it is assumed that there would be limited access to this floor.

3.12.2 Fencing: a barrier needs to be provided between the excavation and the general public to prevent injury to the public, but also must not restrict visibility of the excavations. It is suggested that movable crowd control style barriers are used which can be erected quickly and are stock proof.

3.12.3 Health and Safety: full regard will be given to all constraints during the survey, as well as to all Health and Safety considerations. The OA North Health and Safety Statement conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual. Risk assessments are undertaken as a matter of course for all projects, and will anticipate the potential hazards arising from the project. A specific risk assessment is provided to address the specific issues relating to children under the age of 16.

3.12.4 Insurance: insurance in respect of claims for personal injury to or the death of any members of the public in the course of the project will be covered by OA North, who has insurance cover which complies with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North in respect of personal injury or damage to property by negligence of OA North. The insurance cover is as follows:

- £10 million public liability
- £10 million employers liability
- £5 million professional indemnity

3.12.5 OA North regularly undertakes community projects that include children under the age of 16 and is incorporated within the insurance cover. These children should be under the supervision of a parent or guardian, or a responsible CRB checked adult who has agreed to take on the responsibility of the child.

4. WORK TIMETABLE

4.1 OA North will be able to deliver the services according to the agreed project timetable as specified in the project brief.

5. RESOURCES

5.1 OA NORTH PROJECT TEAM

5.1.1 The excavation will be directed by Andy Bates (Project Officer) and the survey will be undertaken by Peter Schofield (Project Officer) and Alastair Vannan, under the guidance of the project manager, Jamie Quartermaine. The reports will in part be written by members of the society, and part by staff of OA North. The OA North element of report production will be split between Peter and Alastair.

5.1.2 Project Management: the project will be under the project management of Jamie Quartermaine, BA Surv Dip MIFA (OA North Project Manager) to whom all correspondence should be addressed. Jamie is a very experienced landscape surveyor, who has undertaken or managed literally hundreds of surveys throughout Northern England since 1984, and has considerable experience of working on similar projects to that proposed. He has managed a major recording programme of Lyme Park, Cheshire, and very detailed surveys of the South West Fells including areas such as Barnscar and Burnmoor. He has also undertaken surveys of Lowther Park, Cumbria, Rufford Park, Lancashire and has also managed the recording programme of Lathom Hall and Park, Lancashire and the survey of the Forest of Bowland for United Utilities. He has been a project manager since 1995 and has managed over 250 very diverse projects since then, which are predominantly survey orientated, but of all periods from the Palaeolithic to the twentieth century.
5.1.3 Jamie is a qualified land surveyor (Topographic Sciences Diploma Glasgow University) and has an exhaustive knowledge and understanding of surveying techniques. He regularly runs training courses in survey techniques and has the expertise to devise a variety of low tech survey techniques for training volunteers.

5.1.4 **Excavation Director:** the excavations will be directed by Andy Bates BSc Msc (OA North Project Officer) who has considerable experience of archaeological excavation, having undertaken complex urban excavations in Gateshead and has undertaken a number of high profile community excavations, such as the medieval Castle at Lathom House. He specialises in studies of animal bone and has published extensively on the subject.

5.1.5 **Project Surveyors:** the survey will be undertaken by Peter Schofield and Alastair Vannan. Peter Schofield (OA North Project Officers). Peter works full time on landscape surveys across the north-west. He has undertaken surveys at Hardknott Forest, Cumbria, Hartley Fold Estate, Cumbria, Ennerdale Valley, West Cumbria, a major programme of landscape survey across nine upland areas in North Wales, Little Asby Common for the Friends of the Lake District, and the Holwick and Force Garth surveys, Teesdale. With the exception of Jamie Quartermaine, he is our most experienced landscape archaeologist.

5.1.6 **Alastair Vannan:** Alastair Vannan has considerable experience in the survey of upland landscapes. For example he undertook with Peter the surveys of Buttermere and Nether Wasdale on behalf of the National Trust. He also has considerable experience of documentary work and undertook both the documentary study for the recent Holwick community survey, but also supervised the field teams. Alastair would undertake the documentary study for the proposed fulling mill survey. Alastair has been leading a number of community excavations, which included the major excavation of Lathom House (nr Ormskirk), and also the excavations of Stocks Church, Forest of Bowland.

5.1.7 **David Maron:** support for the surveyors will be provided by David Maron, who has considerable experience of assisting with surveys from all across the country. He was formerly a head teacher and has a remarkable aptitude for training volunteers.

5.1.8 **Karl Taylor:** the geophysical survey would be undertaken by Karl Taylor who has considerable experience of geophysical surveys having worked as a project manager for Stratascan and now works for Phase Surveys.
### APPENDIX 3: EXCAVATION CONTEXT LIST

<table>
<thead>
<tr>
<th>CONTEXT NUMBER</th>
<th>CONTEXT LOCATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3002</td>
<td>Burnt Mound Area B</td>
<td>Topsoil, grey, semi-compact silty clay 30-40% roots</td>
</tr>
<tr>
<td>3003</td>
<td>Burnt Mound Area B</td>
<td>Sampling exercise through burnt mound in 0.10cm spits (includes 3004, 3005 and 3006).</td>
</tr>
<tr>
<td>3004</td>
<td>Burnt Mound Area B</td>
<td>Top deposit of burnt mound, dark grey, semi-compact silty clay, 90% burnt stone, 2% charcoal.</td>
</tr>
<tr>
<td>3005</td>
<td>Burnt Mound Area B</td>
<td>Lens in burnt mound, very dark grey, loose-semi-compact silty clay, 60% burnt stone, 25% charcoal.</td>
</tr>
<tr>
<td>3006</td>
<td>Burnt Mound Area B</td>
<td>Main body and lower part of burnt mound, dark grey brown, semi-compact clay, 97% burnt stone, 2% charcoal.</td>
</tr>
<tr>
<td>3007</td>
<td>Burnt Mound Area B</td>
<td>Peat immediately below burnt mound, black, firm peat, 3% roots</td>
</tr>
<tr>
<td>3008</td>
<td>Burnt Mound Area B</td>
<td>Roots in peat below 3007</td>
</tr>
<tr>
<td>3009</td>
<td>Burnt Mound Area B</td>
<td>Clay below topsoil to N over possible channel 3019, mid grey, semi-compact clay, 3% small stones, 20% small roots.</td>
</tr>
<tr>
<td>3010</td>
<td>Burnt Mound Area B</td>
<td>Stony deposit, mid grey-brown, semi-compact clay, 70% small burnt stones, 10% small grit.</td>
</tr>
<tr>
<td>3011</td>
<td>Burnt Mound Area B</td>
<td>Clay below 3010, fill of channel?, pale brown, semi-compact clay, 40% flecks of limestone, 1% small pebbles, 5% small roots.</td>
</tr>
<tr>
<td>3012</td>
<td>Burnt Mound Area B</td>
<td>Fill of possible channel, pale green/brown, semi-compact clay, 5% small limestone flecks, 10% small brown roots.</td>
</tr>
<tr>
<td>3013</td>
<td>Burnt Mound Area B</td>
<td>Lower part of possible channel, pale yellow brown, soft clayey silt, 40% limestone flecks.</td>
</tr>
<tr>
<td>3014</td>
<td>Burnt Mound Area B</td>
<td>Lower layer in possible channel, pale grey brown, semi-compact clay, 20% limestone flecks patches of peat at base, ill defined boundary with lower deposit.</td>
</tr>
<tr>
<td>3015</td>
<td>Burnt Mound Area B</td>
<td>Mixed deposit, ditched shaped in plan, v. dark brown, soft clay peat 5% green clay patches, 10% waterlogged wood, 2% burnt stone.</td>
</tr>
<tr>
<td>3016</td>
<td>Burnt Mound Area B</td>
<td>Black soft peat below roots 3008, 5% small pieces of waterlogged wood.</td>
</tr>
<tr>
<td>3017</td>
<td>Burnt Mound Area B</td>
<td>Marl below peat, slightly mixed, mid brown, very soft fine clay, 30% green colour- decayed shell?, 3% small shells,</td>
</tr>
<tr>
<td>Code</td>
<td>Area/Location</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>10%</td>
<td></td>
<td>10% roots and decayed vegetation.</td>
</tr>
<tr>
<td>3018</td>
<td>Burnt Mound Area B</td>
<td>Decayed/ burnt sandstone in burnt mound 3006, yellow brown, loose, 20% mid grey-brown clay, 2% charcoal.</td>
</tr>
<tr>
<td>3019</td>
<td>Burnt Mound Area B</td>
<td>Cut of channel, irregular- hard to see if linear or edge of small pond, sharp convex edge 70º, quite flat bottom, 2m wide in trench, N-S.</td>
</tr>
</tbody>
</table>

**Burnt Mound Area A**

<table>
<thead>
<tr>
<th>Code</th>
<th>Area/Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100</td>
<td>Burnt Mound Area A</td>
<td>Topsoil, grey, semi-compact, humic silty clay, 30%-40% roots, 2% small stones.</td>
</tr>
<tr>
<td>3101</td>
<td>Burnt Mound Area A</td>
<td>Thin stony layer, grey-mid grey, semi-compact clay 60% small stones- burnt, 2% charcoal, 5% roots, may relate to 3004.</td>
</tr>
<tr>
<td>3102</td>
<td>Burnt Mound Area A</td>
<td>Dark grey semi-compact clay, 50% charcoal, 10% burnt stone.</td>
</tr>
<tr>
<td>3103</td>
<td>Burnt Mound Area A</td>
<td>Upper deposit on mound on lower edge, dark grey, semi-compact slightly silty clay, 90% burnt sandstone and shale, 2% charcoal.</td>
</tr>
<tr>
<td>3104</td>
<td>Burnt Mound Area A</td>
<td>Fill of trough, very dark brown, soft clay, 30% burnt sandstone and shale, 15% charcoal, 20% peat.</td>
</tr>
<tr>
<td>3105</td>
<td>Burnt Mound Area A</td>
<td>Trough.</td>
</tr>
<tr>
<td>3106</td>
<td>Burnt Mound Area A</td>
<td>Construction trench for west side of trough.</td>
</tr>
<tr>
<td>3107</td>
<td>Burnt Mound Area A</td>
<td>Fill of construction trench. Very dark brown/black, soft clay- organic, 20% charcoal, 5% burnt stone, 2% lighter clay patches.</td>
</tr>
<tr>
<td>3108</td>
<td>Burnt Mound Area A</td>
<td>Possible top layer of peat under stones 3103 and cut by 3106.</td>
</tr>
<tr>
<td>3109</td>
<td>Burnt Mound Area A</td>
<td>Fill of trough.</td>
</tr>
<tr>
<td>3110</td>
<td>Burnt Mound Area A</td>
<td>Soil beneath collapsed upright to W of trough, v. dark brown, loose silty clay, 30% green-brown sand, 2% small wood, 2% burnt stone.</td>
</tr>
<tr>
<td>3111</td>
<td>Burnt Mound Area A</td>
<td>Structure, upright stone and rubble fill of S side of trough, 50% Limestone blocks, and smaller stones, some burnt 5, 40% very dark brown clay peat, 10% charcoal.</td>
</tr>
<tr>
<td>3112</td>
<td>Burnt Mound Area A</td>
<td>Cut of 3111, linear, rounded sides/base, aligned W-E.</td>
</tr>
<tr>
<td>3113</td>
<td>Burnt Mound Area A</td>
<td>Large limestone slab in N side of trough. 0.55m X 0.38m high, 0.06m thick.</td>
</tr>
<tr>
<td>3114</td>
<td>Burnt Mound Area A</td>
<td>Spread of burnt stone- 80-85%, charcoal- 10% and soil- very dark brown semi-compact clay in hollow next to mound and W of trough.</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>---</td>
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</tr>
<tr>
<td>3115</td>
<td>Burnt Mound Area A</td>
<td>Very dark-brown/grey soft clayey peat beneath plank base of trough. 2% burnt stone, 2-5% charcoal, small pieces of twiggy burnt wood.</td>
</tr>
<tr>
<td>3116</td>
<td>Burnt Mound Area A</td>
<td>Roots beneath 3115.</td>
</tr>
<tr>
<td>3117</td>
<td>Burnt Mound Area A</td>
<td>Same as 3006.</td>
</tr>
</tbody>
</table>

**Trench 1**

<table>
<thead>
<tr>
<th></th>
<th>Trench 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Trench 1</td>
<td>Topsoil, brownish-grey clay silt.</td>
</tr>
<tr>
<td>1001</td>
<td>Trench 1</td>
<td>Brown- grey, clay silt, abundant- moderate angular- sub-rounded stones 30- 300x 30/ 170x 100mm</td>
</tr>
<tr>
<td>1002</td>
<td>Trench 1</td>
<td>Northern Bank, stones 60-240×16mm</td>
</tr>
<tr>
<td>1003</td>
<td>Trench 1</td>
<td>Southern Bank, stones 10-20mm (abundant), 30-170×100mm (moderate), 230x200/ 300x160x80mm (occasional).</td>
</tr>
<tr>
<td>1004</td>
<td>Trench 1</td>
<td>Subsoil at Northern end of trench, pale yellowish brown clay silt, occasional sub-rounded stones 5-8-mm.</td>
</tr>
<tr>
<td>1005</td>
<td>Trench 1</td>
<td>Subsoil at Southern end of trench (same as 1004).</td>
</tr>
<tr>
<td>1006</td>
<td>Trench 1</td>
<td>Ditch fill, orangey brown, friable (dry) silty clay, abundant small shell fragments (5mm) abundant angular stones 50-180x40-350-200mm.</td>
</tr>
<tr>
<td>1007</td>
<td>Trench 1</td>
<td>Bank (early), brownish- orange silty clay, occasional sub-rounded stones 50-90mm</td>
</tr>
<tr>
<td>1008</td>
<td>Trench 1</td>
<td>Ditch cut</td>
</tr>
<tr>
<td>1009</td>
<td>Trench 1</td>
<td>Natural</td>
</tr>
</tbody>
</table>

**Trench 2**

<table>
<thead>
<tr>
<th></th>
<th>Trench 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Trench 2</td>
<td>Topsoil, dark brown, friable.</td>
</tr>
<tr>
<td>2001</td>
<td>Trench 2</td>
<td>Subsoil, Mid brown- orangey brown silty subsoil. Dry and friable, few stones.</td>
</tr>
<tr>
<td>2002</td>
<td>Trench 2</td>
<td>Upper ditch fill, light Grey-brown dry clay rich silt, frequent charcoal fragments.</td>
</tr>
<tr>
<td>2003</td>
<td>Trench 2</td>
<td>Northern bank stony top layer, medium rounded limestone cobbles 0.15m-0.05m in size, thin layer of 1 or 2 courses.</td>
</tr>
<tr>
<td>2004</td>
<td>Trench 2</td>
<td>Southern bank stony top layer, rounded limestone cobbles 0.18m- 0.08m in size, at least 3 courses of stone.</td>
</tr>
<tr>
<td>2005</td>
<td>Trench 2</td>
<td>Ditch fill, mid brown/orangey brown silt, friable, stone inclusions 80% are small 0.05m-0.8m and 20% larger over 0.25m near the bottom.</td>
</tr>
<tr>
<td>Year</td>
<td>Trench</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>2006</td>
<td>Trench 2</td>
<td>Primary ditch fill, mid/light brown with yellow clay flecks, restricted to the northern side of the ditch.</td>
</tr>
<tr>
<td>2007</td>
<td>Trench 2</td>
<td>Ditch cut, near flat bottom, sloping sides around 45° and even from top to bottom. Cut made into weathered limestone natural.</td>
</tr>
<tr>
<td>2008</td>
<td>Trench 2</td>
<td>Bank material on northern side, mid brown, friable silt, high frequency of stones (70%) high frequency of tiny (1mm) limestone fragments.</td>
</tr>
<tr>
<td>2009</td>
<td>Trench 2</td>
<td>Bank material on southern side, mid brown, friable silt, high frequency of stones- 70%.</td>
</tr>
<tr>
<td>2010</td>
<td>Trench 2</td>
<td>Natural clay to the north of ditch, dark-mid brown even clay, no inclusions.</td>
</tr>
<tr>
<td>2011</td>
<td>Trench 2</td>
<td>Weathered limestone natural on base of ditch and on N and S sides. Limestone pieces- 0.02m-0.1m and pale brown/yellow clay.</td>
</tr>
<tr>
<td>2012</td>
<td>Trench 2</td>
<td>Subsoil at southern end, mid brown friable silt. High % of stone pieces 0.02m-0.06m, high frequency of tiny limestone specks throughout.</td>
</tr>
</tbody>
</table>

### Trench 3

<table>
<thead>
<tr>
<th>Number</th>
<th>Trench 3</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000</td>
<td>Trench 3</td>
<td>Topsoil, brownish grey, friable clayey silt, rare sub-rounded and angular stone inclusions.</td>
</tr>
<tr>
<td>4001</td>
<td>Trench 3</td>
<td>Stone capped bank of ditch, pale brownish- grey, friable clayey silt. Abundant angular limestone fragments 0.01m-0.22m.</td>
</tr>
<tr>
<td>4002</td>
<td>Trench 3</td>
<td>Building platform structure, aligned NW/SE, limestone with occasional sandstone and slate, sub-rounded -sub-angular.</td>
</tr>
<tr>
<td>4003</td>
<td>Trench 3</td>
<td>Subsoil, pale yellowish-grey, firm clayey silt, occasional-moderate sub-rounded- sub-angular limestone fragments.</td>
</tr>
<tr>
<td>4004</td>
<td>Trench 3</td>
<td>Stone scatter, Grey limestone fragments abundant in the NW end of the trench.</td>
</tr>
<tr>
<td>4005</td>
<td>Trench 3</td>
<td>Natural Geology (drift), orangey brown, firm silty clay, abundant- moderate limestone fragments.</td>
</tr>
<tr>
<td>4006</td>
<td>Trench 3</td>
<td>Bedrock, Limestone outcrop.</td>
</tr>
<tr>
<td>4007</td>
<td>Trench 3</td>
<td>Structural feature, possibly wall, within the platform structure, <strong>4002</strong></td>
</tr>
</tbody>
</table>
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Calibration Plot for SUERC-49746

Calibration Plot for SUERC-49747
Calibration Plot for SUERC-50357
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