



Lindisfarne

The Holy Island Archaeology Project 2016

Archaeological Assessment Report

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Purpose of document

This Assessment Report has been prepared in partnership with Durham University and DigVentures' global crowdfunding community (Stakeholder Sponsors). The purpose of this document is to provide a comprehensive account of the 2016 field season, with specialist assessment of finds and samples, and recommendations for further investigation and analysis. It is supported by an easily accessible online database of all written, drawn, photographic and digital data, and an Updated Project Design detailing recommendations for the 2017 field season.

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Executive summary

DigVentures, in partnership with Durham University, were invited to undertake a crowdfunded community-based archaeological research project at Lindisfarne (hereafter 'the Site'). This report details the results of the first field season of a five-year multi-staged project, encompassing an evaluation and assessment stage (Years 1 – 4), followed by final analysis and publication (Year 5).

Fieldwork took place between 13th and 26th June 2016 (LDF16). The project was designed to build upon results from a major geophysical survey of the island, undertaken in 2012 by Archaeological Services Durham University with the financial support of National Geographic. The geophysical survey identified a series of features to the east and west of the present day village, which have been targeted during this phase of work by locating three evaluation trenches to investigate specific anomalies. In addition, non-intrusive aerial survey has provided a detailed topographic model of the area. The combined investigations have allowed greater definition of the archaeology, helping characterise the extent and preservation of remains and obtain baseline data that will facilitate future management of the site.

The results presented in this report are an assessment of the data and materials recovered during the first stage of the project, and have been circulated for peer review and consultation with the wider specialist team (Review Point 3). The potential of these results to achieve the aims and objectives of the project are discussed in the final section of this report, followed by an Updated Project Design (bound separately) detailing recommendations for further work, analysis and publication (Review Point 4).

Results summary

Three evaluation trenches were excavated over the course of the 2016 field season, each located to investigate possible features identified as a result of the geophysical survey. In addition, low level aerial survey of the site has provided a georeferenced digital terrain model of the 70-hectare area, which is publicly accessible and will form the basis of further analysis of the abbey and its landscape context. All data was recorded on site by community participants using a web accessible relational database (www.digventures.com/lindisfarne).

Trenches 1 and 2 were located to explore the possible remains of the Anglo-Saxon monastic complex to the east and southeast of the medieval priory church. Results suggest that the area may have originally formed part of an early Christian burial ground which was later abandoned, disturbed and cleared to make way for a later phase of construction. Disarticulated human remains, stone demolition rubble and broken funerary objects, as well as sporadic quartz pebble fragments and the extremely rare find of a broken 'name-stone' burial marker, were recovered within deposits sealing in-situ burials. The disarticulated skeletal remains recorded represent a minimum number of five individuals, representative of one foetus/perinate, two young juveniles, and two adults. The burials had been disturbed and cleared to make way for later structures, although fragments of human bone were large in size and seem not to have been displaced too far from their original burial placement. Radiocarbon dates from three samples of human bone indicate that the cemetery was in use between the late 8th to late 10th century AD. Structural remains were recorded in both trenches and found to be medieval in date, indicated by the recovery of an 8th century Anglo Saxon coin during excavation of a floor surface.



Trench 3 targeted a possible medieval boundary and revealed a cobbled trackway, that could represent the continuation of Prior's Lane to the west of the island, or perhaps correspond to an earlier infilled monastic ditch surrounding the complex. Possible structures were identified to each side of the trackway, and a flagged surface was recorded. Later truncation of both the trackway and structures was identified, comprising four intercutting pits to the south. Deposits within the pits included finds of animal bone, shells, slag and Medieval green glazed pottery. Palaeoenvironmental analysis points to the domestic nature of the waste deposited within these pits. The discovery of cereal grains within samples and the evidence of small-scale charcoal waste points to the processing of cereals such as barley for consumption. Evidence of weeds within assemblages also suggests the presence of arable cultivation on the island. Later deposits suggest that the structure was used as a fisherman's cottage due to the large quantity of shell waste and the retrieval of fish hooks and ships nails.

As the project moves into the second of the proposed five-year plan, an Updated Project Design has been produced (bound separately) distilling these results into proposals for the second year of fieldwork in advance of analysis and publication.

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1 INTRODUCTION AND SCOPE

1.1 Project background

- 1.1.1 DigVentures, in partnership with Durham University, were invited to undertake a crowdfunded community-based archaeological research project at Lindisfarne (hereafter 'the Site' – Figure 1). The project has been designed in collaboration with Dr David Petts, Durham University, using a MoRPHE framework (Management of Research Projects in the Historic Environment - 2006). This research will comprise a five-year multi-staged field research project, encompassing an evaluation and assessment stage (Years 1-4), and a final publication and presentation stage (Year 5).
- 1.1.2 This report provides an assessment of results from the first year of evaluation and assessment completed over the course of 2016. The aims, objectives and methods of the season can be found in the project design (Wilkins and Petts 2016). Field investigations took place between the 13th and the 26th June 2016.
- 1.1.3 The results presented in this report detail that work and have been circulated for peer review and consultation with the wider specialist team (Review point 8). This report is one of a number of archive and dissemination products to have been generated by the project, including a digital archive and metadata, paper archive and artefact archives processed for temporary storage. All records are available on the Lindisfarne project microsite (<https://digventures.com/lindisfarne/ddt/browser.php>).

1.2 Project scope

- 1.2.1 Holy Island is a small island lying off the mainland to the north-east coast of Northumberland. Historically, the site is best known as the location of a major Anglo-Saxon monastery founded in AD635 by Oswald, King of Northumbria and Aidan, a monk from Iona. Despite a significant quantity of early medieval sculpture relating to the later medieval priory, there is scant archaeological evidence for either the location or development of the early monastic settlement.
- 1.2.2 This new crowdfunded research project aims to locate elements of Anglo-Saxon Lindisfarne, building on work previously undertaken by David Petts (Durham University). Assessment of historic archive material, fieldwork reports, and non-intrusive survey work has defined a number of targeted questions (see Wilkins and Petts 2016, Section 1). One of the most pressing is the need define and characterise the physical extent of the site through a programme of non-intrusive investigation and excavation, obtaining baseline data that will facilitate further investigation and inform the future management of the site.
- 1.2.3 The overarching aim of this first phase was, therefore, to target anomalies identified during geophysical survey and to investigate the extent and preservation of archaeological features. Dating evidence was recovered to inform an understanding of the chronological development of the site, and a metrically accurate 3D model of the landscape provides the topographic context. The programme of non-intrusive and intrusive work has helped define and characterise the physical extent of the site, obtaining baseline data that facilitates its future management (see Wilkins and Petts 2016, Section 3).



1.3 Public impact

- 1.3.1 Lindisfarne lies within the extreme northeast corner of England near Berwick-Upon-Tweed. Owing to its geographic location, the island is isolated and only accessible by a causeway during low tides. As a popular tourist attraction, Lindisfarne hosts over 650,000 visitors during the summer months, the island however is rural in its makeup and inhabited by a small community of 160 residents in total. The seasonality of Lindisfarne's economy and its lack of accessibility, impacts on the islands infrastructure and its ability to showcase heritage assets to their full potential. The extensive public engagement and outreach programme therefore provided a central feature of the project, and efforts were made to ensure the excavations were visible both within the local community and to wider audiences.
- 1.3.2 The project was funded entirely through public crowdfunded contribution, with the professional excavation team assisted throughout by crowdsourced voluntary public participation. The project's crowdfunding community has so far amounted to 203 people from 15 countries, including many local residents as well as UK-wide and international visitors of all ages, walks of life, and different levels of archaeological experience and knowledge.
- 1.3.3 In addition, the project has also facilitated investigation into archaeological recording systems and their usability, as a case study for collaborative research between DigVentures, Digital Humanities Durham (DH2) and Durham University Archaeology Department. The Digital Dig Team database has provided the basis for an on-site user study, the results of which will be collated and published as part of peer reviewed papers in 2017.

1.4 Site description and previous work

- 1.4.1 Holy Island (Lindisfarne) is a small tidal island (technically a tombolo) lying just off the north-east coast of Northumberland. It is best known, historically, as the site of a major Anglo-Saxon monastery founded in AD635 by Oswald, King of Northumbria and Aidan, a monk from Iona. Whilst a significant quantity of early medieval sculpture has been recovered from the area of the later medieval priory, there have been no confirmed archaeological sightings of the early monastic site. This new, crowdfunded excavation project aims to locate elements of Anglo-Saxon Lindisfarne, building geophysical survey work undertaken previously by David Petts and detailed below (section 6).
- 1.4.2 Excavations led by Brian Hope Taylor in 1962 were the first major archaeological investigations on the island. This included three evaluation trenches in Glebe Field, west of the parish church and a series of trenches in an area known as the Heugh, south of the priory complex. Results from the two areas of investigation revealed post-conquest medieval activity and earlier pre-ceramic phases, and a turf and rubble structure aligned west-east which may correspond to an earlier Anglo-Saxon phase of the monastery.
- 1.4.3 In 2012, a new phase of work was carried to characterise archaeological and topographical features, including a major geophysical survey conducted by Durham University. A series of features were identified to the east of the village in Sanctuary Close, which may be a possible second cloister belonging to the priory. To the west

of the village, Glebe Field also produced several positive anomalies including field boundaries and enclosures. In addition, the extension of medieval streets such as Prior Lane and Marygate was also clear running to the West of the island and potentially following the alignment of an earlier monastic *vallum* (boundary ditch).

- 1.4.4 The site is considered to include some of the most important extant evidence of early Christian activity in the British Isles. Research value is increased by the site's proximity to the Medieval priory, village and castle on the island, enabling a direct comparison of two chronologically and topographically distinct sequences. Evidence for the earlier Anglo-Saxon occupation of the site also allows a comparison of economic regimes and shifts in religious focus. Charting Lindisfarne's development as one of the earliest known Christian sites in England to a flourishing place of pilgrimage. A synopsis of the known history of Lindisfarne is provided below, followed by a summary of the circumstances and dates of previous fieldwork.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 In addition to Holy Island's important early religious heritage, the island has seen long-term settlement from the Mesolithic to the 21st century. The current Holy Island village and the adjacent priory ruins have been the focus of occupation since the Middle Ages. Following the dissolution of the monasteries in the 16th century, there was substantial investment in constructing defensive installations to protect against possible incursions from Scotland as well as raids from the Dutch. The fishing industry grew increasingly important in the 18th century and in the 19th century the island became an important centre for the quarrying of limestone and its subsequent conversion into lime in the two large limeworks that were operated. These declined in the early 20th century. Since then, whilst farming and fishing remain important to the local economy, tourism has become increasingly central to life on the island.
- 2.1.2 Compared with other major early monastic sites, such as Iona, Whithorn, Monkwearmouth and Jarrow, there has been relatively little archaeological work in the probable area of the monastic enclosure. The most significant programmes of work in the immediate locality have focused on the ruins of the medieval abbey and castle. Extensive clearance of the rubble-choked complex of standing structures was undertaken by William Crossman, the landowner in the 1890s, whose work was centred on the cloistral range. His work was supplemented by further clearance by the Ministry of Works (MoW) under the supervision of Charles Peers in the early 20th century. Both sets of work have seen only limited publication (Crossman 1890b; Peers 1923-4) although most of the finds are held by Historic England in their stores in Helmsley. Notes relating to Crossman's work are held in the Northumberland Archives and the paperwork relating to MoW work is at Helmsley. Crossman also carried out some limited exploration on the site of nearby St Cuthbert's Island, the location of a probably Anglo-Saxon hermitage and certainly used as such in the medieval period.

2.2 Summary of previous work

- 2.2.1 There was no further archaeological work on the island until 1962 when Brian Hope-Taylor, the noted field archaeologist and excavator of the major Anglo-Saxon palace site at Yeavering, turned his attention to Holy Island. Over the course of a month he



carried out a series of excavations in and around the village including three trenches in Rectory Field, to the west of the parish church. The results provided evidence for later medieval occupation, with some limited hints to earlier features. Hope-Taylor excavated a further three trenches on or against the Heugh. Two of the trenches revealed evidence for medieval occupation and the third, which had targeted a rectangular feature on top of the Heugh, revealed a small building. The lack of any identifiable ceramics from this structure may suggest an early date, although this has not been confirmed by scientific dating. Although Hope-Taylor's excavations were never published, some of his plans, sections and site notes were recovered after his death and are now in the RCAHMS in Edinburgh. One of the aims of this project is to provide greater access to these earlier excavations through the digitisation of the archive, and its eventual publication.

- 2.2.2 Following a small excavation on the site of the current English Heritage visitor centre by Deirdre O'Sullivan in 1977, a major campaign of archaeological work was initiated by O'Sullivan and Rob Young under the auspices of the Department of Archaeology, University of Leicester. This ran from the mid-1980s to the mid-1990s. A wide range of activities took place including geophysical survey (particularly of the Heugh and the area to the east of the Priory), survey of Mesolithic sites on the north side of the island, earthwork survey of the Kennedy limekilns and other sites, excavations at the major midden of Jenny Bell's Well and fieldwalking. Perhaps most significant in the context of this project, was the investigation of an early medieval site at Green Shiel, an important rural settlement on the north side of the island which comprised a series of longhouses and produced a substantial faunal assemblage. A large number of interim reports related to this material have been published, although no final report has yet been produced (O'Sullivan 1985; O'Sullivan 1989; O'Sullivan and Young 1991, 1992, 1993, 1995, 1996). Since the cessation of the Leicester investigations during the 1990s, archaeological research on the island has been largely limited to excavations undertaken in the context of the planning system. The most significant intervention of this kind took place at the Lindisfarne Winery, during an extension of the shop. Excavations revealed a sequence of post-medieval and medieval activity, including a significant build-up of midden deposits overlying a number of earlier linear and pit features, one of which contained an early medieval comb (NAA 2000).
- 2.2.3 Possible early medieval activity was also identified during excavations carried out in advance of the construction of community housing on Castle View Gardens. The investigation revealed a substantial post-medieval/recent soil accumulation overlying at least one, if not two, medieval structures fronting Green Lane. In addition, the remains of a possible early medieval sunken floored building was also recorded. Unfortunately, the archive from this site, including the finds and environmental samples, appear to have been lost. A number of smaller interventions have been made across the village, several of which have produced evidence for late medieval and post medieval midden deposits and some structural features though none have produced clear indications of early medieval activity.
- 2.2.4 In 2012, a major new magnetometry survey of the island was carried out by Archaeological Services Durham University on behalf of David Petts (Durham University) and with the financial support of National Geographic. This work resurveyed some areas previously investigated by University of Leicester, as well as taking in large areas to the north and west of the village. The results produced evidence for a second cloister at the Priory, probably an infirmary cloister, and

identified a series of features of uncertain date to the east of the Priory church. Little was recorded to the north of the village, apart from evidence for medieval agriculture and a small ditched enclosure of uncertain date. To the west, the western extensions of both Marygate and Priors Lane were identified as well as a network of small paddocks or enclosures and an area of potential industrial activity of uncertain type or date (Petts 2013).

- 2.2.5 Evidence from previous fieldwork and from the wider analysis of documentary records and maps, suggests that the area in and around the Priory and Holy Island village is the strongest candidate for the site of the early medieval monastery. It is likely that the boundaries of the monastery would have been considerably larger than the later medieval Priory. In addition, most of the substantial corpus of Anglo-Saxon sculptural material has been found in the vicinity of the Priory and parish church (although none has been found in a secure archaeological context).
- 2.2.6 The sculptural material includes fragments of burial monuments indicating the presence of a probable monastic cemetery. The discovery of a small number of diagnostically Anglo-Saxon artefacts from O'Sullivan's excavations on the site of the English Heritage visitor centre, the NAA Winery excavations and hidden amongst the collections from the Peers/Crossman clearance work are all further indication of an early medieval presence in the area. Structural remains are more limited, but do include possible paved areas at the Visitor Centre, a small number of ditches and pits from the Winery, a possible ditch from Hope-Taylor's excavations at Rectory Field and the possible wattle sunken featured building from Castle View Gardens. All indicate the potential of surviving early medieval deposits in the area. In addition, the lines of Marygate and Prior's Lane have been tentatively suggested (Petts 2013) to preserve the earlier course of concentric monastic boundaries of Anglo-Saxon date, and their earlier extensions westwards as indicated on the 2012 geophysical survey may support this. Whilst there is clear evidence of an early medieval presence around the village and priory, it is not well understood. Currently little can be said in terms of the site's chronological development, nor the potential nature and significance of surviving archaeological features.

3 PROJECT AIMS & OBJECTIVES

3.1 Background

- 3.1.1 The aims and objectives of the project are listed below, and were previously identified in the project design (Wilkins and Petts 2016, Section 2 and 3). It is important to note that the investigations undertaken in 2016 formed the first year of a five-year project, with the initial stage providing an evaluation of the archaeology present at the site, followed by an assessment of the archaeological materials recovered (this report). The overarching aim of the project is to define and characterise the physical extent of the site through a programme of ongoing intrusive investigations and excavation obtaining baseline data that will facilitate its future management. Following assessment of the archaeological archive, aims and objectives have been updated with recommendations for further investigation, analysis and publication (see Updated Project Design, bound as a separate document).



- 3.1.2 The wider objective of this project is to understand, manage and promote the archaeology of Lindisfarne. The accessibility of the archaeology of the site is an important part of the project design, and much of the approach taken encourages and maximises potential for anyone interested to engage with and participate in the project (see Figure 13).

3.2 Project aims

- 3.2.1 The aims of the project will be addressed via a series of questions (objectives) which are listed below. These questions provide a framework for the project methodology, tasks and products which are fully articulated in the project design (Wilkins and Petts 2016, Appendix 2).

- 3.2.2 **Aim 1:** Define and establish the precise physical extent and condition of the site with a programme of remote sensing and metric survey.

- Q1: Can the layout and associated sub-surface archaeology be established by remote survey?
- Q2: Can we identify the location of the structural remains?

- 3.2.3 **Aim 2:** Characterise the results of non-invasive survey, refining the chronological phasing of the site with a programme of trial trenching.

- Q3: What can we say about the scale and nature of any structural remains?

- 3.2.4 **Aim 3:** Understand the palaeoenvironmental conditions at the site

- Q4: What is the current state of the archaeological and palaeoenvironmental material across the site?
- Q5: Can the palaeoenvironmental data recovered from sampling in the trenches inform us about farming, food processing, industrial or medical activities?
- Q6: Can we increase our understanding of the local environment in the medieval period?

- 3.2.5 **Aim 4:** Making recommendations, analysis and publication.

- Q7: How well do deposits survive, and how deeply are they buried?
- Q8: Can we assess the state to which the archaeological and palaeoenvironmental resource at Lindisfarne is being successfully preserved in situ, and how is this being impacted by farming and bioturbation?
- Q9: Formulate recommendations for further archaeological and palaeoenvironmental analysis at Lindisfarne based on Aims 1-3, and implement a programme to publish and disseminate the results.

5 METHODOLOGY

5.1 Archaeological fieldwork

- 5.1.1 Archaeological fieldwork was carried out in accordance with the methodology defined in the project design (Wilkins and Petts 2016). All work was undertaken in accordance with best practice, national guidelines and ClfA Standards and guidance (*ibid*, Section 5 and 6). A summary of the methodology is presented below, and more detailed description can be found in the project design (*ibid*, Section 2).
- 5.1.2 The 2012 geophysical survey results informed the location of three archaeological evaluation trenches across two main areas.
- Sanctuary Close: Trenches 1 and 2 (both 4m x 10m in size) were excavated in Sanctuary Close to the east of the Priory church. The trenches were located to investigate possible structural remains pre-dating the current monastic complex (Figure 3).
 - Glebe Field: Trench 3 (2m x 20m) was excavated in Glebe Field to investigate the possible continuation of Prior's Lane, as well as putative industrial features extrapolated from the 2012 geophysical survey data (Figure 4).

5.2 Remote sensing and metric survey

- 5.2.1 Remote sensing and metric survey includes both the 2012 geophysical survey and work undertaken during the 2016 fieldwork. Survey results provided greater definition of the precise physical extent and condition of the site (Aim 1, above). Investigations included Lidar survey, non-intrusive geophysical survey (resistivity and ground penetrating radar) in combination with a low-level aerial survey to determine likely features for targeted trenching.
- 5.2.2 Geophysical survey (magnetometry) was completed in September 2012 by Archaeological Services Durham University (Figure 2, and see Petts 2013). This work targeted three areas in particular: (1) Sanctuary Close, lying east of the medieval priory ruins and the site of the earlier surveys; (2) an area to the west of the parish church, including the site of Brian Hope-Taylor's 1962 excavations; and (3) ground around St Coomb's Farm to the north of the village. This work resurveyed some areas previously investigated by the University of Leicester project, as well as taking in large areas to the north and west of the village. Survey grids were geo-referenced relative to the Ordnance Survey National Grid using a Trimble Geo XR GPS. The magnetic survey was carried out using a Bartington Grad 601-2 dual magnetic gradiometer. Geoplot 3 (Geoscan Research) software was used to process and present the data.
- 5.2.3 A UAV mounted photographic survey was undertaken on the landscape that surrounds the known medieval monastic complex, to complete a metrically accurate 3D digital surface model (DSM) (see Appendix 6). A low aerial survey of the site was also completed with a full digital model of a 70-Hectare area created using a quad-copter with mounted cameras to build a georeferenced digital terrain model. This model is publicly accessible and will form the basis of further analysis of the abbey and its landscape context (<https://goo.gl/pE0d9Z>). The resulting DSM is an accurate and versatile record of the form and condition of the landscape and the historic

environment, and will facilitate research into the site. The survey data also provides a baseline dataset for comparison with future surveys to provide a landscape context. Low-level aerial photography using UAV mounted cameras to investigate potential crop marks and landscape features was also carried out to underpin the main survey work.

5.3 Excavation methodology

- 5.3.1 Excavation took place over the course of a first field season (13th to 26th June 2016) addressing the research questions associated with Aims 1 and 2. This entailed a programme of targeted intervention designed to investigate results of remote sensing and metric survey, identifying and investigating any archaeological features encountered, and obtaining appropriate samples for archaeological, artefactual and palaeoenvironmental assessment.
- 5.3.2 Trenches were initially excavated by machine and then hand-dug. All trenches were located using GPS prior to the commencement of work, and initially scanned for surface finds with a metal detector prior to excavation. Machine excavation was carried out using a JCB 3CX fitted with a toothless ditching bucket, removing the overburden to the top of the first recognisable archaeological horizon, under the constant supervision of an experienced archaeologist.
- 5.3.3 Trenches were subsequently hand-cleaned, planned and photographed prior to hand-excavation. Any archaeological features and deposits exposed in the evaluation trenches were hand-cleaned and excavated to determine their nature, character and date. Carefully chosen cross-sections were then excavated through features to enable sufficient information about form, development, date and stratigraphic relationships to be recorded. All excavated features were 100% dry-sieved for artefacts using a 100 mm gauge, and/or wet-sieved on site using a standard archaeological floatation device.
- 5.3.4 A complete drawn record of the evaluation trenches comprises both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix 1. Layers and fills are recorded using curved brackets [001]. The cut of the feature is shown in square brackets [002]. Each number has been attributed to a specific trench by being prefixed with the Trench number (eg Trench 1, 1001+, Trench 2, 2001+). Features are specified in a similar manner, denoted by the addition of the letter F (i.e. Trench 1, F101+, Trench 2, F201+).
- 5.3.5 All interventions were surveyed using a dGPS linked to the Ordnance Survey grid. Recording was undertaken using the DigVentures Digital Dig Team recording system (digventures.com/lindisfarneddt/browser.php). Digital Dig Team is DigVentures' bespoke, cloud-based, open data recording platform, designed to enable researchers to publish data directly from the field using any web-enabled device (such as a smartphone or tablet) into a live relational database. Once recorded, the born-digital archive is instantly accessible via open-access on a dedicated website, and published to social profiles of all project participants (community, professional and specialist). Links to all individual trench, feature and context records are provided in Appendix 1, from where all associated finds, samples, plans, sections, photographic records and 3D models can also be explored.



5.4 Health and safety

- 5.4.1 All work was carried out in accordance with standards defined in The Health and Safety at Work etc. Act 1974, and *The Management of Health and Safety Regulations* 1992, and in accordance with the SCAUM (Standing Conference of Archaeological Unit Managers) manual, *Health and Safety in Field Archaeology* (1996), and DigVentures *Health and Safety Policy*.

6 REMOTE SENSING RESULTS

Archaeological Services Durham University and David Petts

6.1 Introduction

- 6.1.1 This section presents the results of the geophysical survey in 2012 undertaken by Archaeological Services Durham University on behalf of David Petts (Petts 2013, including archive CD of raw data). The principle purpose of the work was to define and establish the precise physical extent of the site (Aim 1), with each survey area designed to address a specific research objective (See Section 3.2, 4.1.1 and 4.1.2 above). Figure 2 shows the overall location of each target area, and Figures 5–8 provide greyscale plans and interpretations.
- 6.1.2 The survey area covered large areas to the north and west of the village as well as revisiting areas already surveyed by the Leicester project in 1982. The Archaeological Services survey targeted three areas, (two of which were used as part of this project), Sanctuary Close, lying east of the medieval village priory ruins and the site of earlier surveys, Glebe Field an area west to the parish church and the site of Brian Hope-Taylor's 1962 excavations; and land around Coombe Farm to the North of the village.
- 6.1.3 The area under investigation covered the Glebe Field and Sanctuary Close areas the magnetic survey was carried out using a Fluxgate Gradiometer. The underlying geology consisted of deep well drained sandy soils. Bedrock geology consisted of sedimentary outcrops and coal seams, including intrusive igneous outcrops; which could affect data collection, although in this case not substantially.

6.2 Results: Sanctuary Close, Figures 5 and 6

- 6.2.1 The clearest feature observed in Sanctuary Close was a large quadrangle stone structure immediately south-east of the priory's *hospitium*. Other features are also observed between the east end of the priory church and the western edge of the raised beach. Two rectangular structures can be traced, one aligned roughly southwest—northeast and the other aligned west—east. One interpretation of this alignment is that the positioning of these features with the priory and parish churches reflects the arrangement of two Anglo-Saxon churches within the monastery. However, it is also possible that the alignment may relate to 16th century fortifications recorded for this area. Several ditches and probable former track were also detected in Sanctuary Close.

6.3 Results: Glebe Field, Figures 7 and 8

- 6.3.1 The precise location of Hope-Taylor's 1962 excavation trenches was not identified within the magnetometry results. However, the survey successfully identified the street alignments of Marygate and Prior Lane and their continuation westwards towards the coastline. Comparisons with Armstrong's mid 19th century map suggest that Marygate extended this far west, running directly to an earlier causeway from Fenwick to the mainland. Structures were also identified in addition to small possible field boundaries or paddocks. To the South of Prior Lane, a high area of magnetic anomalies was identified which could indicate to an area of industrial activity.

7 EXCAVATION RESULTS

Brendon Wilkins, David Petts, Nigel Steel, Xose Gago and Raksha Dave

All digital context and feature records have been archived on the Digital Dig Team system and can be reviewed here: digventures.com/lindisfarne/ddt/browser.php

7.1 Introduction

- 7.1.1 During 2016 three small-scale evaluation trenches were investigated; two small trenches located in Sanctuary Close (Trenches 1 and 2, Figure 3) and the third in Glebe Field (Trench 3, Figure 4). The principal purpose of these excavations was to define and establish the physical extent of the site (Aim 1), characterise the results of non-invasive survey, refine the chronology and phasing of the site with a programme of trial trenching (Aim 2) and establish the current state of preservation of the *in situ* archaeological and palaeoenvironmental material (Aim 3). Each trench was designed to address a specific research objective, which are discussed with the excavation results below. Detailed descriptions of each context are included in Appendix 1.

7.2 Stratigraphic sequence

- 7.2.1 A common stratigraphic sequence was recognised across the site, and corresponds with the results from previous investigations. This was characterised by topsoil overlying light brown sandy silt subsoil followed by a mid-yellow brown silty sand natural. The stratigraphic sequence fluctuated in depth across the site predominantly due to natural height variation with the underlying sloping topography.

7.3 Sanctuary Close; results

- 7.3.1 Two small evaluation trenches (Trench 1 and 2, Figure 3) were located in Sanctuary Close due east of the Priory church. These were situated to investigate the possible structural remains predating the current monastic complex (Q4). Results from the magnetometry survey, completed in 2012 by Archaeological Services Durham University, indicated the possibility of two structures highlighted on the results data, east of the priory church. The alignment of these structures in relation to the priory and parish church suggest that these may be cloister buildings associated with the Anglo-Saxon monastic complex. Trenches 1 and 2 were placed over these anomalies in order to ground-truth the results and to create baseline data for future investigations.

7.4 Trench 1 (Figure 9) <https://goo.gl/7EivnH>

- 7.4.1 Trench 1, measuring 4m x 10m, was located over a structure identified from the geophysics results. Turf was removed by machine and then the trench was hand excavated to the depth of potential structural remains, which were exposed in plan and section. Due to time constraints, deposits were only excavated further at the east side of the trench. The earliest archaeological remains relate to a probable cemetery of early medieval date. Disarticulated human remains were discovered during the excavation of the earlier deposits and left in-situ. These remains, whilst ephemeral, support evidence that the burial ground was abandoned, disturbed and cleared in order to accommodate a later phase of construction. The structure identified within the geophysics results was not convincingly pinpointed, although two potential wall foundations were exposed (F101), including the partial excavation within the structure of an internal drain and floor surface (F102), as well as external surfaces (F103).
- 7.4.2 The linear rubble feature F101 (<https://goo.gl/iWec4k>), interpreted as a wall foundation, was aligned roughly west-east and composed of a spread of rubble and associated foundation deposits. Excavation was limited to defining and recording the rubble and, as such, no construction cut was observed for the putative wall [1012]. The feature was excavated to a depth of 0.20m–0.30m and appeared to have been constructed on a flat terrace cut into earlier deposits. The terrace surface had been consolidated prior to building by a layer of firm clay silt (1016) onto which the rubble feature [1011], running north–south, and [1012], range running east-west was laid (Plate 9.3). It consisted of roughly hewn sandstone blocks (ranging up to 0.45m x 0.30m in size) bonded with mid brown sandy silt. The foundation courses were abutted by an internal clay consolidation layer (1010) consisting of sandy clay with gravel and small sub-angular pebbles.
- 7.4.3 A stone-lined drain and a potential internal floor surface, F102 (<https://goo.gl/pQf3ht>), were also partially excavated in sondage. These deposits are associated with the internal construction of F101. The drain (Plate 9.5) was constructed on a linear east-west alignment and cut into a sandy clay levelling layer (1016). The cut has a gradual break of slope at the top to a flat base. The feature is shallow and the fill (1015) suggests that this drain was constructed with a stone lining due to the deliberate placement of large flat stones at the base of the deposit. Animal bone and shell were recorded within the drain fill, it is unclear, however whether this material relates to waste material during use or whether this is attributed to the silting-up and abandonment phase of the feature. An internal surface, most probably a make-up layer (1004), consisting of orange-brown sandy silt was constructed on top of the drain feature. Finds included slag waste, pottery, redeposited human remains and, most notably, the recovery of an Anglo-Saxon coin (LDF_13, <https://goo.gl/5nMHUY>, Section 8.3) dating to the 8th century suggesting that this building was in use during this period.
- 7.4.4 External surfaces, F103 (<https://goo.gl/znf80V>) were identified to the west of feature F101, providing evidence for the maintenance and construction of surfaces and thoroughfares adjacent to the structure. The excavation of subsoil layers revealed a compact external gravel levelling-layer (1005) and a partially flagged floor surface surviving in-situ [1013]. The full extent of these surfaces are unknown as these deposits were left in situ and not fully excavated.

7.5 Trench 2 (Figure 10) <https://goo.gl/iMU65y>

- 7.5.1 Trench 2 measured 4m x 10m was excavated down to the depth of in-situ burials indicating the extent of the Anglo-Saxon cemetery in association with the monastic precinct. The trench was located over a possible structure as identified in the magnetometry results. Five distinct phases have been identified within this trench on the basis of stratigraphic relationships, which mirror a similar attribution of phasing determined in Trench 1. The earliest phase, identified as a burial ground (F202), was followed by its eventual disuse and demolition, making way for later construction (F201), use and demolition.
- 7.5.2 Whereas the burial ground phase in Trench 1 was ephemeral, the discovery of two probable long-cist burials provides far more substantive evidence that this area is within an early Christian burial ground. Deposits were excavated to the depth of the two possible burials (F202, Plate 10.3 and 10.4, <https://goo.gl/m0BzqO>). The excavation of both potential burials was limited to the definition of the structural remains, and both have been left in situ. They appeared to be defined by stone settings which may relate to either grave mounds or cist-lined burials. A large fragment of cranium was recorded within the fill of masonry feature [2013], and was left in-situ.
- 7.5.3 A large deposit of rubble and demolition overburden covered the whole area of Trench 2. These deposits were assigned the feature number F201 and appear to be associated with the systematic destruction of a burial ground in the vicinity to make way for a later construction phase. These deposits contain fragments of human bone and redeposited or reworked material. Two substantially broken sculptural fragments, an inscribed name stone (LDF_22 <https://goo.gl/bgNm81>) and a cross-incised carved stone fragment (LDF_17 <https://goo.gl/II7ZZ5>), were recovered from the fill of a linear feature (2004). Both finds are funerary in nature, and although very fragmentary, provide an important indication that there was a cemetery in the local vicinity. The fragmentary nature of both the finds makes it difficult to draw comparisons with similar finds; the presence of two partial Latin crosslets on the cross-incised stone may provide links to Scotland and Ireland (Section 8.2, below, Plate 12.3), and the namestone provides a new addition to the existing series of fourteen Lindisfarne cross-slabs and as well as a previously unrecorded Old English personal name (Section 8.4, below, Plate 12.4). Both finds are likely to be Anglo Saxon in date, marrying well with the radiocarbon dates recovered from human bone samples (see Section 12).
- 7.5.4 Fragmentary human remains found within these deposits also suggest that they have been redeposited from their original place of burial (Section 10, below). However, fragments are large in size and seem not to have been greatly disturbed or scattered too far from their original burial placement. This correlates with the archaeological deposits excavated in Trench 1. The excavated area and the depth of deposits excavated in Trench 2 were not sufficient to characterise a potential structure within the confines of the trench. Radiocarbon dates from three samples of human bone indicate that the cemetery was in use between the late 8th to late 10th century AD (Table 2, Section 12).

7.6 Glebe Field; results

- 7.6.1 The main purpose of this trench was to ground-truth anomalies revealed in the 2012 magnetometry survey (Petts, 2013). Results of the survey highlight a series of features



that point to possible medieval boundaries or street alignments. Trench 3 was located over the possible western continuation of Prior's Lane in Glebe Field incorporating a structure as well as a possible field boundary or paddock. This trench was also located to incorporate the south of Prior Lane which produced strong magnetic anomalies, suggesting putative industrial features.

7.7 Trench 3 (Figure 11) <https://goo.gl/dnkoym>

- 7.7.1 Trench 3 located to investigate a probable structure in alignment with a possible medieval boundary and the continuation of Prior's Lane. Five distinct phases were identified in Trench 3; a cobbled trackway, construction of structures, the truncation of the trackway by four intercutting pits and, finally, the levelling and disuse of the structures and pits.
- 7.7.2 Topsoil was removed by machine, and the subsoil excavated by hand in segments to assist finds retrieval. A partial trackway bounded by the outer walls of a structure was identified, (recorded as feature F306 <https://goo.gl/VXss1H>), these were uncovered and left in situ at this depth. Two possible outer foundation walls and an internal wall were uncovered running on an east-west alignment. Walls [3029] and [3034], were constructed in a similar style, from roughly hewn sandstone blocks and cobbles, (ranging from 0.20m x 0.30m in size), with no bonding material present. A construction cut was not observed during fieldwork as this was not fully excavated, but the visible material suggested that it had been cut into earlier deposits and constructed onto a terrace. The trackway [3029 and 3034], formed of roughly hewn cobbles, appeared to be comparable in both size and alignment to the potential westward extension of Prior's Lane or early monastic boundary visible in the geophysics.
- 7.7.3 Later structures were identified bounding either side of the trackway, a flagged surface was uncovered which corresponds in alignment with a series of wall foundations running east-west across the trench. External and internal wall foundations were discovered belonging to the same structure including evidence of an internal floors. Features within these 'rooms' included the construction of a compacted clay internal floor layer (3032) and a corridor constructed from large sandstone flags [3036] bonded with pebbled galleting (Plate 11.5).
- 7.7.4 To the south and immediately outside the building later truncation of the cobbled trackway and the structures was identified. A series of four intercutting pits were identified and partially excavated and have been recorded as F302, F307, F308 and F309. Excavation suggest that the pits were used in two phases: a later phase of pitting that may include the construction of trackways filled with large sandstone cobbles and an earlier phase of domestic refuse pits associated with a later use of the structure excavated in Trench 3. Pits [3018] and [3021] contained several fills of clear episodic phased deposition (Plates 11.6 and 11.7). The fills include domestic waste containing a large frequency of limpet and mussel shells, animal bone and slag retrieved. Pit feature F307 was the only feature with any form of clear dating evidence, with 14th century green glazed pottery retrieved from fill (3020, see Section 9). Later layers and dump deposits suggest that the structure was used as a fisherman's cottage due to the large quantity of shell waste and the retrieval of fish hooks and ships nails. Finds retrieval in these layers also point to domestic settlement with the retrieval of worked horn, LDF_6 <https://goo.gl/X06lqi> and a decorated bone comb plate, LDF_3 <https://goo.gl/ruYHxT> (Section 8.2, Plate 12.1).

- 7.7.5 Later intrusions were recorded in the north of the trench where three postholes, (F301) were excavated. These truncated a silt deposit (3025) containing stone rubble demolition, their shallow nature and depth suggest that this was a much later intrusion and belonged to one of the latest phases on site. Demolition rubble and silting up of features were also recorded (F303), and post-medieval material was recovered from deposit (3035), suggesting that the structure was demolished and abandoned over a large period of time. Evidence of wind-blown silting and the final levelling of the intercutting pits were identified and suggest that the abandonment of this settlement took place over a prolonged period of time due to the post-medieval pottery from these layers.

8 THE FINDS

David Petts

All digital records relating to small finds from the Site can be reviewed on the Digital Dig Team system here: <https://goo.gl/7FBPM5>

8.1 Introduction

- 8.1.1 The finds assemblage recovered includes a range of materials reflecting the use and chronology of the site at Lindisfarne. The artefactual record provides an additional means to understand how the site has developed over time (Aim 2, Q3), as well highlighting the nature of preservation and survival of different materials at the site (Aim 3, Q4) and, through detailed recording and analysis, understanding how well archaeological deposits survive at the (Aim 4, Q7). Assessment of the full assemblage has been undertaken, including specialist analysis of some key material groups (the silver coin, namestone fragment, pottery and human bone). Recommendations provided will inform future research strategy and publication (Aim 4).

8.2 Assemblage summary

- 8.2.1 Excavations recovered a moderate assemblage of mixed finds, dominated by medieval and post medieval pottery (Section 8.5), and including metal, worked stone, worked bone, a small group of fossils and some metalworking debris. Some exceptional small finds have been recorded, including a silver sceat (see Section 8.3) and fragment of inscribed namestone (revealing a new Anglo Saxon name, Section 8.4). Fragments of disarticulated human bone representing a minimum of five individuals, representative of one foetus/perinate, two young juveniles, and two adults (Section 10).
- 8.2.2 Other finds which provide a sense of daily life on the island, include iron clench bolts, which join overlapping sections of timber and are most commonly used on clinker-built boats, although other uses are known. The nail is passed through the two sections of plank and then through a small iron plate (rove) and hammered over to produce a secure fastening. Given the coastal location of Holy Island and the presence of other material related to fishing, it is most likely that the eleven recovered from the excavations (see Appendix 2.1, Table 2) relate to boats, although sections of boat strakes and planking were often re-used in secondary contexts. There is little that can be said about the type of boats being used, although the local coble tradition of

beach-launched vessels used clinker construction. The plank widths range from c.28mm-36mm which allowing for additional thickness due to overlapping strakes seems broadly commensurate with probable boat planking recovered from fragments of 12th century boat-timbers re-used in a dock revetment in Hartlepool (Young 1987).

- 8.2.3 Three possible iron fish hooks, all from Trench 3 (dating mid-13th century AD or later), and probably related to the large quantity of limpet shells from features in this area suggest that long-line fishing was taking place. Their condition is not good and in some case fragmentary. Allowing for this, the lengths of the shanks (24mm-49mm) reflect the main distribution of hook sizes found at Hartlepool and noticeably smaller than the published material from London and Great Yarmouth (Daniels 2010, 162; Steane and Foreman 1991, 92).
- 8.2.4 Two fragments of hone stone, LDF_15 and LDF_24, recovered from (1004) and (3024), are another part of the everyday toolkit. Both are red sandstone beach cobbles, likely to have been picked up and utilised as hone stones due to their natural shape. Clear use-wear is visible on both in the form of burnishing on the longer faces. A fragment of a stone lamp (LDF_23), provides good parallels with examples from the Anglo-Saxon monastery at Hartlepool (Daniels 2007, 130; McGarry 1991). Carbon deposits survive on the interior surface.
- 8.2.5 The namestone fragment (LDF_22), reported on below in Section 8.4 is not the only evidence recovered of Anglo Saxon sculpture. Find LDF_17 (Plate 12.3) is a fragment of cross-incised carved stone, comprising the incised image of a shaft (possibly a cross) running down centre of main face defined by parallel incised lines c.20mm apart. There is a possible small bulge on the shaft, which is flanked by two partial Latin crosslets (W. c.40mm; H. c.70mm). It is not easy to find parallels to this stone from amongst the existing repertoire of early medieval stone sculpture from Anglo-Saxon England or from Scotland; the difficulty in finding a good parallel is exacerbated by this stone's fragmentary state. A group of upstanding crosses with subordinate crosses are known from the Rhinns of Galloway, including examples from Cragganget, Laggangarn, Larg Liddesdale and the Golgotha Stone from Whithorn (Craig 1992). This cluster has clear Northumbrian connections, with Whithorn becoming the centre of diocese by the early 8th century AD. From elsewhere in Scotland, a slab from Gleann na Gaoith' (Islay, Argyll) has two crosslets flanking the extended top arm of an outline ring cross (Fisher 2001, 137, 356, Fig.37S), whilst another fragmentary cross, also from Islay, has a ringed cross with flanking crosslets within the ring. Finally, there are parallels with a group of stones from Inishmurray (O Carragain and O'Sullivan 2008), although the Lindisfarne crosslets are not as expanded as these Irish examples. The larger examples are mainly associated with excavated leachta (dry stone built rectangular stone structures, associated with pilgrimage and possibly functioning as altars), and probably date to the 10th or 11th centuries AD, however, the smaller examples, similar in size to the Lindisfarne stone (e.g. 004.09) could be earlier.
- 8.2.6 A number of fossils were recovered during the excavation, most notably LDF2, a carboniferous crinoid. Known colloquially as "St Cuthbert's Beads", these fossils are found commonly on the coast of the Holy Island. Probably first became associated with the cult of Saint Cuthbert in the 12th century AD (Lane and Ausich 2001). Despite local sources, it is likely that this and other fossils arrived on site having been brought from beach.

- 8.2.7 Finally, finds of worked bone (n=3) included a plate or mount of possible horn (LDF_6), a plaque of cetacean bone (LDF_5) and a fragment from a comb plate (LDF_3, Plate 12.1). The most datable find, the comb plate, is probably an Ashby Type 8b (10th-12th century AD). The plate has two parallel central lines with paired ring-and-dot motifs either side enclosed with further parallel lines on edge of plate. Indications of rivet holds at each end suggesting the bone has snapped off at these weak points. Notching caused by sawing of comb teeth visible on one side (6 to 7 teeth/cm). According to Ashby's atlas of bone combs, this is the most northerly English example, although they are also recorded in northern and western Scotland (Ashby 2011).

Table 1: *Finds assemblage summary*

Type	Number
Metal - Coins	1
Metal - Cu alloy	3
Metal - Lead	7
Metal - Iron	105
Metalworking debris - Cu alloy slag	29
Stone - fossils	9
Stone - general	17
Glass - modern	4
Ceramic - med/post med pottery	982
Ceramic - clay pipe	34
Worked bone	3
Human bone	524
Animal bone	3324
Unworked shell	401

8.3 Coin Identification; the silver sceat

Dr John Naylor

- 8.3.1 The silver coin (LDF_13, <https://goo.gl/ZhU4UZ> , Plate 12.2) recovered from internal floor surface (1004), Trench 1. The coin belongs to Booth's Class F of Eadberht's coinage (Booth 1984, 93-4, fig. 1) dating to the middle decades of the 8th century, one of the smaller groups within Eadberht's issues. The reversed S in the obverse inscription is unusual, although not entirely unknown with a Class F coin from the Whithorn excavations shows the same, albeit with a different central motif (Metcalf 1994, 586). The coin appears to be in generally good condition, and is worn in appearance suggesting it may have been in circulation for a reasonable period of time before deposition.
- 8.3.2 This is not the first early-medieval coin to be discovered on Holy Island. Excavations in Holy Island village produced another sceat of Eadberht – of Booth Class A – which was a residual find in a later medieval pit, and may have circulated for some time given its worn state (O'Sullivan 1985: 112). At the north side of the island at Green Shiel,

early-medieval buildings dating to the 9th century were excavated during the 1980s, although finds were originally made in the 19th century. These Victorian finds included two mid 9th-century Northumbrian stycas (a predominantly copper-alloy coinage) of Æthelred II (841-9) and Archbishop Wigmund (837-54) (O'Sullivan and Young 1991: 55). The later excavations of three buildings with stone foundations uncovered six stycas from building A and two stycas, the latter one each of Eanred (810-41) and Æthelred II, plus a broad flan silver penny of Æthelred of Wessex (866-71), a very rare find this far north, from Building C.

- 8.3.3 Elsewhere in Eastern Britain, north of the River Tyne, finds of early-medieval coinage are rare. Various excavations at Bamburgh Castle and its environs have recovered numerous stycas, including at least 67 from Brian Hope-Taylor's excavations. Pirie (2004: 69) stated that these 67 were only from a single season of Hope-Taylor's excavations in 1971. A hoard of over 300 stycas was found by metal-detectorists between 1999 and 2002 (Pirie 2004), and another hoard of at least 125 stycas was found during excavations at the castle in 2009 (see PAS database NCL-D147A7). A hoard of thousands of stycas was found at Hexham in the mid-19th century. A very small number of stycas have been reported to PAS from Northumberland. A series Y sceat of Eadberht and 11 stycas have also been found at Aberlady (East Lothian) and were reported to EMC.

8.4 Inscribed stone (namestone)

Dr Elisabeth Okasha

- 8.4.1 The inscribed stone fragment (LDF_22, <https://goo.gl/bgNm81>) was found in a spread of rubble (2004) to the east of the Priory along with fragmented human bone. The most-recently found Lindisfarne stone, apart from the current one, was also found to the east of the Priory, in 1957 in the same field (Sanctuary Close). The newly-found stone, named here as Lindisfarne XV, is regrettably fragmentary. Nevertheless it forms a nice addition to the existing series of fourteen Lindisfarne cross-slabs and it is also likely that it furnishes us with a previously unrecorded Old English personal name.
- 8.4.2 The inscribed stone consists of the top portion of a round-headed sandstone cross-slab. The back of the stone is plain as are the remaining original edges. On the face are parts of the top and right-hand arms of an incised cross. The terminals of the cross are circular and continue to the edge of the stone, protruding on to the incised double margin. A portion of the descending top cross-arm is visible as is a small part of the medial circle of the cross, which appears to be slightly sunken. When complete, the maximum width of the stone would have been c.16 cm but its height is not now recoverable.
- 8.4.3 The stone clearly fits well with the existing fourteen Lindisfarne cross-slabs: it is decorated only on the face, as most are; it is inscribed, as most are; and it has an incised cross probably with a sunken medial circle (cf Lindisfarne 0, II: Cramp 1984, nos 22, 24, pp. 202-3 and figs 199, 1111, 1119; Okasha 1971, nos 74, 76, pp. 94-5 and figs 74, 76). However the incised cross seems more crudely executed than those on some of the other stones and the cross terminals and the border are plain, not decorated, as on some of the others. It is possible that the decoration was less skilfully executed or that the stone was left unfinished. When complete the current stone

would probably have been one of the smaller of the series, with a width of c. 16 cm: the widths of the others vary between 13.7 and 32 cm.

- 8.4.4 Text 1 is set in the two upper quadrants of the incised cross, the two elements of the name separated by the descending cross-arm. This position is typical of the texts of others of the Lindisfarne stones. Text 2 is set on either side of the upper cross-terminal. In both cases, the texts are incised and are set horizontally without framing-lines or panels: this is entirely typical of the series of Lindisfarne stones. Both texts are legible and primary, that is, the stone was always intended to contain a text. There are some other marks which might resemble letters but are more probably accidental or later damage: one appears beneath the I of FRID in Text 1, and the other before the first letter of Text 2.

Reading of Text 1

- 8.4.5 Text 1 reads: YT FRID, where the underlined letter indicates that it is slightly damaged. The form of the initial letter Y is very similar to that used on Lindisfarne II (Cramp 1984, no. 24, pp. 202-3 and fig. 199, 1119; Okasha 1971, no. 76, pp. 94-5 and fig. 76) and also on a stone from Lancaster, Lancaster II (Okasha 1971, no. 68, p.90 and fig. 68a). It is possible, but in my view less likely, that the reading of the first part is EAT.
- 8.4.6 This text can plausibly be interpreted as a new personal name *Y^ÞFRID. The second element *-frið* is a common element in Anglo-Saxon male names and there is at least one recorded instance of its forming a female name, Eadfrið (Okasha 2011, 57, 74). The first element *yp-* is rare but there is one occurrence, in a female name Ythsuið in the Durham *Liber Vitae* (LVD 26, Okasha 2011, 54). An alternative explanation, with the reading EAT, is that this is a possible reading of an unusual spelling of the recorded name Eadfrið. This name occurs occasionally with the spelling *eatfrið*, for example in the Durham *Liber Vitae* (LVD 425, Sweet 1885, 500).
- 8.4.7 Spellings of T and D for þ and ð (both of which represent the sound spelled today as *th*) can readily be paralleled in both manuscript and epigraphic usage. The following are some epigraphic parallels: T appears in the name Helmgyth on Jarrow VI (Okasha 1983, no. 170, pp. 94-5 and fig. VIIIc); D is used on Jarrow I, the Jarrow dedication stone, in the names Ceolfrith and Ecgfrith (Okasha 1971, no. 61, pp. 85-6 and fig. 61), as well as in Torhtswith on Hartlepool IV (Okasha 1971, no. 46, p. 77 and fig. 46).

Reading of Text 2

- 8.4.8 Text 2 reads: A W, although the letter read as W is set on its side and has the loops closed, thus making it resemble the letter B. The text forms the abbreviations for *alpha* and *omega*, the reference being to the biblical text Revelations XXII, 13. *Alpha* and *omega* occur in a number of Anglo-Saxon inscribed texts. The closest parallel is on the Hartlepool cross-slab, Hartlepool VI (Okasha 1971, no. 48, p. 78 and fig. 48). On this stone the text appears in the two upper quadrants of the cross with a personal name set in the two lower quadrants. In this case also the *omega* is of an unusual form; it resembles a circle with a vertical line set through its centre.

9 THE POTTERY

Andrew Sage MA ACIfA

9.1 Overview and condition

9.1.1 An assemblage of 982 sherds (6.79kg) from excavations at Lindisfarne was assessed (see Appendix 2, Tables 9 and 10). The assemblage is largely medieval with a smaller post-medieval and modern element. In general, the assemblage is very mixed and abraded. This is highlighted by the low average sherd weight (6.91g) and the relative lack of connecting sherds either within or between contexts. The pottery assemblage has the potential to help understand the spatial and chronological development of the site, and increase understanding of how people used the areas investigated (Aim 2, Aim 3 and Aim 4).

9.1.2 One quarter of the assemblage (232 sherds) came from contexts (1002, 2002, 3001, 3003, 3004) that contained modern (18th and 19th century) pottery. In the case of context (3003), late medieval material was absent. A further 100 sherds came from four contexts (2003, 2005, 3005 and 3007) which contained post-medieval (16th and 17th century) pottery. In the case of (3007) (81 sherds) the post medieval element was very small and may have been intrusive however the medieval pottery from this context was very fragmented and was from a very broad date range.

9.2 Discussion of medieval contexts

9.2.1 The medieval assemblage covers a wide date range (12th to 15th century) and is in the main highly fragmented with most contexts containing pottery from a relatively broad date range. Whilst the assemblage is dominated by 13th to early 14th century Tweed Valley type ware (TWV) the presence of later reduced greenware types (LRG) in the majority of contexts containing significant quantities of TWV (3015, 3019, 3020, 3023, 3040) indicates that these features/deposits date to the 14th century or later. Furthermore, the more fragmented condition of the 13th/early-14th century types present compared with the later medieval material in the same contexts (3015 and 3019) suggests that the earlier material is derived from re-deposited midden material.

9.2.2 Contexts (3006, 3017, 3026) contained either no LRG, or in the case of (3006) only very limited amounts, indicating that these deposits dated to the later 13th or early 14th century. However, both (3006) and (3017) have lower than average sherd weights (5.63g and 6.32g respectively) suggesting that this material is also re-deposited midden material.

9.2.3 Despite the fragmented state of the assemblage a range of common medieval vessel forms were identifiable. Jars predominated, many showing signs of sooting as evidence of their use as cooking pots, and jugs (including highly decorated vessels produced in Scarborough with their lustrous copper-enriched glaze), and a few examples of bowls. It should always be borne in mind when considering the relatively restricted range of commonly excavated medieval vessel forms that many vessels would have been made of materials which do not survive in the archaeological record. Only later, in the post-medieval period, do ceramic plates, bowls and individual drinking vessels become more common.



- 9.2.4 Whilst the relatively limited range of vessel forms is typical of a rural medieval assemblage the range of fabric types present shows that the population of Lindisfarne were using pottery from a wider range of sources than would be typical for a site in rural Northumberland. Much of this can be attributed to its coastal location allowing easy access for pottery, not only from sites along the North East coast such as Tyneside and Scarborough, but also from further afield. The presence of several vessels from the Low Countries evidences these wider contacts.

9.3 Conclusions

- 9.3.1 The assemblage is of broadly 13th to early 14th century date with evidence of later medieval, post-medieval and modern activity in the area. It would appear likely that most of the pottery is derived from re-deposited midden material. The highly fragmented and largely mixed nature of the excavated pottery means that the assemblage is of limited value in contributing to our understanding of the development of medieval pottery in north Northumberland or the wider borders area. The assemblage will provide broad information in terms of dating the development of medieval activity in the immediate locality and the nature of activity undertaken in the excavated area.

10 THE HUMAN BONE

Sophie Newman

10.1 Introduction

- 10.1.1 Excavations yielded a large quantity of disarticulated human bone from Trenches 2 and 3, representing a minimum of five individuals. The recovery and analysis of human bone provides an opportunity to examine the past lives of individuals linked to the site, and an important strand of evidence to understand more about the conditions around the site when it was in use (see Aim 3, Section 3.2 above). In total, 524 fragments of human bone were recovered from eight contexts (see Table 2, Appendix 2). The majority of the human bone was found within Trench 2, with only one small possible fragment of human bone identified within Trench 3.

- 10.1.2 The disarticulated remains were analysed in detail, assessing the condition and preservation of the bones, calculating the minimum number of individuals present, and determining the age, sex and stature of the individuals where possible (according to the appropriate standards for osteological analysis). All pathological lesions were recorded and described. A summary of the osteological and palaeopathological data for the disarticulated skeletal material is provided in Table 11, Appendix 3.

10.2 Skeletal preservation

- 10.2.1 Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition (Henderson 1987, Garland and Janaway 1989, Janaway 1996, Spriggs 1989).

10.2.2 Surface preservation, concerning the condition of the bone cortex, was assessed using the seven-category grading system defined by McKinley (2004), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no bone surface erosion and a clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. Finally, the completeness of the bone was assessed and expressed as a percentage: the higher the percentage, the more complete the skeletal element.

10.2.3 The fragmentation of the disarticulated material was moderate, with the majority of fragments being identifiable, but the potential for further osteological analysis limited. Only a small percentage of the bones present were more than 50% complete (9%; 46/524 fragments). Surface preservation ranged from grade 1 (very good) to grade 5 (poor), with the majority of fragments being classed as either grade 2 (good) or grade 3 (moderate) in Trench 2 and Trench 3. Particularly poorly preserved bones tended to be long bone fragments, and teeth tended to have the best preservation.

10.3 Minimum number of individuals

10.3.1 A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones. The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons that would have been interred on the site, but represents the minimum number of individuals that can be scientifically proven to be present.

10.3.2 Within Trench 2 there was an MNI of four individuals. This included one foetal/perinatal individual, based on the presence of one foetal/perinatal right femur, and a left zygomatic (cheek) bone. One young juvenile (1-6 years of age) was also identified based on the presence of a lower right deciduous 2nd molar. At least two adults were present based on the identification of two left temporal bones, two left glenoid fossae (shoulder joints), two right distal humeri (elbow joints), two left calcanei (heel bones), and two left 4th metacarpals (hand bones located in the palm). The MNI for Trench 3 was one young juvenile (1-6 years), as the sole fragment of human bone recovered from this context was a fragment of mandible containing two deciduous molars (1st and 2nd right deciduous molars). Therefore, the overall MNI for the site is five, being representative of one foetus/perinate, two young juveniles, and two adults.

10.4 Assessment of age

10.4.1 Age was determined where possible using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). For non-adults age was estimated using the stage of dental development (Moorrees *et al.* 1963a; 1963b), dental eruption (Ubelaker 1989), measurements of long bones and other appropriate elements, and the development and fusion of bones (Scheuer and Black 2000b). In adults, age was estimated from stages of bone development and degeneration in the pelvis (Brooks and Suchey 1990, Lovejoy *et al.* 1985) and ribs (modified version of methods developed by İşcan *et al.* 1984; 1985 and İşcan and Loth 1986 provided in Ubelaker 1989), or examination of patterns of dental wear (Brothwell 1981).



- 10.4.2 When assessment of age was possible, individuals were divided into a number of age categories. Non-adults were subdivided into 'foetuses' (f: where the age estimate clearly fell below 38-40 weeks *in utero*), 'perinates' (p: where the age estimates converged around birth, approximately 36 weeks *in utero* to 4 weeks' post-partum), 'infant' (i; 1-12 months), juvenile (j; 1-12 years), and adolescent (ad; 13-17 years). Adults were divided into 'young adult' (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years), and mature adult (46+ years).
- 10.4.3 However, it is important to note that several studies (for example Molleson and Cox 1993, Molleson 1995, Miles *et al.* 2008) have highlighted the difficulty of accurately determining the age-at-death of adults from their skeletal remains, with age-at-death frequently being underestimated for older individuals. The categories defined here should be taken as a general guide to the relative physiological age of the adult, rather than being an accurate portrayal of the real chronological age.
- 10.4.4 In addition, due to the fragmentary and incomplete nature of disarticulated remains, age assessment of individuals within such assemblages is rarely achievable, and it is often only possible to determine whether a bone was likely from an adult (18+ years), or a non-adult (less than 17 years). As previously stated, a very small left zygomatic bone and a right femur were recovered from Trench 2. The size of these skeletal elements indicates that they likely belonged to one or more foetal/perinatal individuals (dying shortly before, during, or after birth). Unfortunately, due to the fragmentation of the right femur, measurements could not be taken that would allow for a more accurate age estimation. The presence of a lower right deciduous 2nd molar in Trench 2, and lower right 1st and 2nd deciduous molars in Trench 3, suggested that at least two young juveniles were present within the disarticulated assemblage. These teeth typically erupt at approximately 1-2 years of age, and are lost around 10-11 years of age (Van Beek, 1983; Ubelaker, 1989). Based on the completeness of the roots, and the lack of root resorption, these individuals were likely aged between 1-6 years.
- 10.4.5 Within Trench 2, a small fragment of a left rib head revealed that the individual was still undergoing the late stages of skeletal fusion. Epiphyses for the rib heads typically appear and undergo fusion between 17-25 years of age (Scheuer and Black, 200b). There was therefore at least one young adult (18-25 years of age) present within the disarticulated sample in Trench 2.

10.5 Sex determination

- 10.5.1 Sex determination was carried out where possible using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex involves examination of the shape of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. Evidence from the pelvis is favoured as its shape is directly linked to biological sex (due to the requirements of childbirth in females) whereas the shape of the skull can be influenced by factors such as age (Walker 1995).
- 10.5.2 As seen with age estimation, due to the fragmentary and incomplete nature of disarticulated samples, sex estimations of adults can rarely be made. However, a large mastoid process and robust muscle attachments seen on a left temporal bone suggests that there was at least one possible male individual within Trench 2.

10.6 Pathological analysis

- 10.6.1 Pathological conditions (disease) can manifest on the skeleton, especially when these are chronic conditions or the result of trauma to the bone. All bones were examined macroscopically for evidence of pathological changes. Detailed descriptions of the pathological lesions observed can be found in Appendix 2. Few overt signs of pathology were observed on the human bone fragments from Lindisfarne, with the exception of spinal degeneration noted amongst some of the vertebral fragments. Factors influencing joint disease include physical activity, occupation, workload and advancing age, which manifest as degenerative joint changes (DJC) and osteoarthritis (OA). The most common type of joint disease observed tends to be degenerative joint changes (DJC). Degenerative joint changes are characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can cause great discomfort and disability (Rogers 2001). Two thoracic articular facets (joints between the vertebrae) demonstrated mild degenerative joint changes.
- 10.6.2 One cervical (neck) vertebra, two thoracic (torso) vertebrae, and one lumbar (lower back) vertebra also had mild to moderate marginal osteophyte formation and porosity on the vertebral bodies, indicative of degenerative disc disease. The intervertebral discs are the 'shock absorbers' of the spine, but these can degenerate as a result of gradual desiccation (age-related drying), which then causes transmission of the stress from the vertebral discs to the articular facets and ligaments (Hirsh 1983, 123). Spinal osteophytes form to compensate for the constant stress that is placed on the spine as a result of human posture (Roberts and Manchester 2005, 106). Increasing stress or activity can therefore lead to increased size and prevalence of osteophytes (*ibid*).
- 10.6.3 Schmorl's nodes are another condition that can affect the spine, and were seen in one thoracic vertebral body and one lumbar vertebral body. They manifest as indentations in the upper and lower surfaces of the vertebral bodies, and are caused by pressure from herniated vertebral discs (Aufderheide and Rodríguez-Martín 1998). Discs may rupture due to trauma, but vertebrae weakened by infection, osteoporosis or neoplastic disease may also be more vulnerable to herniation (Roberts and Manchester 2005). Schmorl's nodes are often associated with degenerative changes to the vertebral bodies (Aufderheide and Rodríguez-Martín 1998, Hilton et al. 1976), and are most commonly seen in the lower thoracic vertebrae (Hilton et al. 1976).

10.7 Dental health

- 10.7.1 Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005). Eight adult teeth were present within the disarticulated sample from Trench 2, and were all likely to have come from adult dentitions. One tooth (an upper left canine) had a linear defect across the crown, known as dental enamel hypoplasia. Dental enamel hypoplasia (DEH) is the presence of lines, grooves or pits on the surface of the tooth crown, and occurs as a result of defective formation of tooth enamel during growth (Hillson 1996). They may form during periods of severe stress, such as episodes of malnutrition or disease, within the first seven years of childhood when the tooth crowns are still developing. However, dental trauma can also cause DEH formation, usually in single teeth. Therefore, as only

one tooth in isolation was identified within this assemblage as having DEH, it cannot be determined whether this was caused by childhood stress.

- 10.7.2 Two teeth had flecks of calculus (an upper right 2nd molar and a lower right incisor). If plaque is not removed from the teeth effectively (or on a regular basis) then it can mineralise and form concretions of calculus on the tooth crowns or roots (if these are exposed), along the line of the gums (Hillson 1996, 255-257). Mineralisation of plaque can also occur when the diet is high in protein (Roberts and Manchester 2005, 71). Calculus is commonly observed in archaeological populations of all periods, although poor preservation or damage caused during cleaning can result in the loss of these deposits from the teeth (*ibid*, 64). One right deciduous 2nd molar was also recovered from Trench 2, and two right deciduous molars from Trench 3. These likely belonged to two young juveniles (see above 'Assessment of Age' section), and did not demonstrate any evidence of dental pathology.

10.8 Discussion

- 10.8.1 While the fragmented and incomplete nature of disarticulated skeletal material often limits the level of osteological analysis possible at a site, some valuable information was obtained regarding the disarticulated assemblage from Lindisfarne. A minimum number of five individuals were retrieved from the two trenches containing human remains. These were representative of one foetus/perinate, two young juveniles, and two adults. One of the adults recovered from Trench 2 was likely a young adult (between 18-25 years of age), and there was also at least one possible male individual.
- 10.8.2 Although evidence for pathology was minimal, degenerative changes seen in a small number of vertebral body and articular facet fragments was suggestive of mild spinal joint disease and vertebral disc degeneration amongst one or more individuals within the sample. As such changes are frequently associated with advancing age, this may also indicate the presence of older adult individuals within the disarticulated sample, although this cannot be reliably determined in the absence of skeletal elements required for age estimation (e.g. the pelvis and/or sternal rib ends). Two teeth had very slight calculus deposits, indicative of poor oral hygiene of at least one adult recovered from this site.
- 10.8.3 The majority of the human bone fragments recovered were within Trench 2, alongside additional funerary archaeological evidence such as the inscribed name stone, and the discovery of two grave mounds or cist-lined burials (left in situ). This suggests that this trench may sit within or nearby an early Christian burial ground that was deconstructed ahead of later construction phases.

11 ANIMAL BONE

11.1 Summary

- 11.1.1 Work on the faunal assemblage from the excavations is being carried out by Ellis Mallett (Department of Archaeology, Durham University) for his MSc dissertation supervised by Professor Peter Rowley-Conwy. This will include traditional analysis of the bones, as well as focused work exploring the bone chemistry of selected samples from the assemblage. An assemblage summary can be found in Appendix 4.



- 11.1.2 Initial assessment of the material from the trenches has shown that there the assemblage is predominantly composed of domesticates (sheep; pig; cow) with a high number of juveniles. There is one very unusual cattle maxilla with a large bone abscess. There are also a high number of horse teeth, the mandible of a kitten and probably dog remains. There is a high number of rabbit bones, although it is not clear at this stage whether these are from wild animals or farmed rabbits – a coney warren is recorded at the west end of the island in the medieval period. In addition, there is also a significant presence of fish (some very large) and birds. The presence of a porpoise vertebra combined with the sawn plaque of whale bone recorded as small find testifies to the exploitation of cetacean.

12 PALAEOENVIRONMENTAL RESULTS

Rosalind McKenna

All digital records relating to palaeoenvironmental samples from the Site can be reviewed on the Digital Dig Team system here: <https://goo.gl/2zDlf4>

12.1 Introduction

- 12.1.1 A programme of soil sampling was implemented during the excavation, which included the collection of soil samples from sealed contexts. A list of samples can be found in Appendix 5, along with the methodology used in processing and analysis. The aim of the sampling was to understand the palaeoenvironmental conditions at the site (Aim 3), assessing the current state of the survival (Q4), economy (Q5) and environment (Q6).

12.2 Results

- 12.2.1 Charred plant macrofossils were present within four of the eight samples assessed. Indeterminate cereal grains were recorded in all of these samples, and these were identified based on their overall size and morphological characteristics, which may suggest a high degree of surface abrasion on the grains, indicative of mechanical disturbances that are common in features such as pits and ditches, where rubbish and waste are frequently discarded. Identified cereal grains were recovered in the form of wheat (*Tritium* sp.), barley (*Hordeum* sp.) and oat (*Avena* sp.) grains. These were probable identifications based on overall size and morphological characteristics.
- 12.2.2 Another, more indirect, indicator of cereals being used on site is a small amount of remains of arable weeds that were recorded. These weeds are generally only found in arable fields, and are doubtless incorporated into domestic occupation samples with crop remains. Along with grasses (POACEAE), remains of goosefoot/orache (*Chenopodium/Triplex*) and docks (*Rumex*), also fall in this group. All these species would almost certainly have been brought to the site together with harvested cereals.
- 12.2.3 If cereal processing were occurring at the site, it would be expected that some remains (most probably in high numbers) of cereal chaff – a by-product of the crop processing sequence as stated in Hillman (1981; 1984) would be found. There was chaff present but only in small amounts (see Appendix 5). The samples produced very small suites



of plant macrofossils, both in terms of quantity and diversity. Due to this fact, other than to state their presence in the samples, nothing of further interpretable value can be gained.

12.3 Discussion

- 12.3.1 Previous excavations on Lindisfarne Holy Island have produced a small amount of archaeobotanical data, which is very similar to the remains recorded in this study. The most similar data originated at Lindisfarne Midden 84 (van der Veen 1985) where a small number of grains of bread wheat, wheat, barley and oats, alongside chaff, peas, grasses and weeds including sedges were recorded. Excavations at Marygate (Cotton 2002) produced small amounts of charred grain in the form of oats, wheat, barley and possible bread wheat, alongside remains of oat floret bases, grass and weed seeds and hazel nut shell fragments. Excavations at the Heugh (Huntley 1992) produced a single sample radiocarbon dated 800-1000AD which contained many well-preserved rye grains, which were thought to represent a clean, processed crop. Samples dating to the late Saxon / early Medieval period were recorded at Holy Island Village 77 (Donaldson & Rackham 1985) where oats, barley and bread wheat were present. Excavations produced samples that were unphased at the Winery (Rackham & Snelling 2001) also produced small amounts of barley, wheat and oats. The similarity of the results from this site to others in close proximity, seems to show a consistent use of plant remains, alongside the recovery of small assemblages in both quantity and diversity. The findings from this report increase the small dataset for the island, and provide comparable data for any future excavations that may occur (see Table 15).
- 12.3.2 The presence of root/rootlet fragments within most of the samples indicates disturbance of the archaeological features, and it may be due to the nature of some features being relatively close to the surface, as well as deep root action from vegetation that covered the site. The presence of earthworm egg capsules, together with the remains of insect fragments within some of the samples, further confirms this.
- 12.3.3 Charcoal fragments were present within the majority of the samples, scoring between a '1' and '3' on the semi quantitative scale (see Table 16). The preservation of the charcoal fragments was fair to poor. The majority of the fragments were too small to enable successful fracturing that reveals identifying morphological characteristics. Where fragments were large enough, the fragments were very brittle, and the material crumbled or broke in uneven patterns making the identifying characteristics difficult to distinguish and interpret, and so only a limited amount of environmental data can be gained from the samples. Identifiable remains were however present in five of the samples, and the results of this analysis can be seen in Appendix 5 below.
- 12.3.4 The total range of taxa comprises oak (*Quercus*), willow / poplar (*Salix* / *Populus*), hazel (*Corylus avellana*) and pine (*Pinus*). These taxa belong to the groups of species represented in the native British flora. As seen in Appendix 5, oak was present in four of the samples in small numbers, hazel and willow/poplar were present in three of the samples and pine was present in a single sample. The most recorded species was willow / poplar. It is possible that this was the preferred fuel wood obtained from a local environment containing a broader choice of species. The compositions of the samples are all very similar, it is probable therefore that the assemblages of charcoal remains, reflect the deposition or build-up of domestic waste.

- 12.3.5 Generally, there are various, largely unquantifiable, factors that affect the representation of species in charcoal samples including bias in contemporary collection, inclusive of social and economic factors, and various factors of taphonomy and conservation (Thiery-Parisot 2002). On account of these considerations, the identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment in a definitive sense, and are possibly reflective of particular choice of fire making fuel from these resources.
- 12.3.6 The samples produced some environmental material of interpretable value, with the charred plant macrofossils from four of the samples, and the charcoal remains from five of the samples. The deposits from which the samples derive, probably represent the deposition or build-up of domestic waste associated with fires. The charred remains recovered are small in numbers and tend to be of average to poor quality - charred material that was within the samples appears to have been subjected to high temperatures of combustion, as the grains were severely puffed and distorted. It also tended to be abraded and fragmented, possibly as a result of post depositional disturbance and taphonomic processes.
- 12.3.7 The remains of plant macrofossils recovered from the samples showed the utilisation of indeterminate cereal grains, wheat, barley and oat grains. There is no evidence of cereal processing occurring at the site, or of any plant remains that may indicate some industrial use. The fact that the samples have produced broadly similar results suggests that these secondary deposits do not result from deposition of debris from accidental charring events, but instead represent a consistent pattern of charring cereal grain, chaff and crop weeds which are then incorporated into the waste of the site over the period of occupation.
- 12.3.8 The charcoal remains showed the exploitation of a several species native to Britain, with the prevalence of oak being selected and used as fire wood. Oak has good burning properties and would have made a fire suitable for most purposes (Edlin 1949). Oak is a particularly useful fire fuel as well as being a commonly used structural/artefactual wood that may have had subsequent use as a fire fuel (Rossen and Olsen 1985). Willow/Poplar are species that are ideal to use for kindling. They are anatomically less dense than for example, oak and ash and burn quickly at relatively high temperatures (Gale & Cutler 2000, 34, 236, Grogan *et al.* 2007, 29-31). This property makes them good to use as kindling, as the high temperatures produced would encourage the oak to ignite and start to burn. Hazel is recorded as a good fuel wood and was widely available within oak woodlands, particularly on the fringes of cleared areas (Grogan *et al.* 2007, 30).
- 12.3.9 Dryland wood species indicates the presence of an oak-ash woodland close to the site. This would have consisted of oak, which would be the dominant large tree species (Gale & Cutler 2000, 120, 205). The evidence of carr fen woodland indicates a damp environment close to the site. This type of woodland would have consisted of willow and poplar which are all trees that thrive in waterlogged and damp soils, particularly in areas close to streams or with a high-water table (Stuijts 2005, 143 and Gale & Cutler 2000).
- 12.3.10 As asserted by Scholtz (1986) cited in Prins and Shackleton (1992:632), the "Principle of Least Effort" suggests that communities of the past collected firewood from the closest possible available wooded area, and in particular the collection of

economically less important kindling fuel wood (which was most likely obtained from the area close to the site), the charcoal assemblage does suggest that the local vegetation would have consisted of an oak woodland close to the site.

12.3.11 It is thought to be problematic using charcoal and plant macrofossil records from archaeological sites, as they do not accurately reflect the surrounding environment. Wood was gathered before burning or was used for building which introduces an element of bias. Plant remains were also gathered foods, and were generally only burnt by accident. Despite this, plant and charcoal remains can provide good information about the landscapes surrounding the sites presuming that people did not travel too far to gather food and fuel.

12.3.12 No further work is recommended on the samples examined, and all interpretable data has been retrieved. It is suggested that for future excavations, the sampling strategy should continue to focus on the retrieval of samples from all types of deposit relevant to the aims articulated in the projects design. The best way of obtaining a representative sample of the material within a context is to take the sample from several different areas within the context (scatter sampling).

13 RADIOCARBON DATES

13.1 Summary

13.1.1 Three sample of human bone were submitted to SUERC for radiocarbon dating in April 2017. Samples included fragments recovered from Trench 2, from demolition and rubble layers (2004) and (2006). The results for each of the three samples are consistent, dating the human bone analysed to between the late 8th to late 10th century AD. See Appendix 6 for the full results.

Table 2: Summary of radiocarbon dating results

Context	Material	14C Age BP	68.2% probability	95.4% probability	Code
2004	Human bone	1126±31	890 – 969 calAD	777 – 990 calAD	SUERC-72688 (GU43502)
2004	Human bone	1150±31	778 – 967 calAD	776 – 972 calAD	SUERC-72689 (GU43503)
2006	Human bone	1170±31	777 – 893 calAD	771 – 967 calAD	SUERC-72690 (GU43504)

14 DISCUSSION

14.1 Introduction

- 14.1.1 The 2016 excavations on Holy Island revealed important information about the plan of the early medieval monastic site known to have stood on the island, as well as helping to improve our understanding of the later medieval development of the village. The excavation of three evaluation trenches targeting key features identified in the 2012 geophysical survey was a successful exercise and will allow future fieldwork to be focused on areas most likely to reveal early medieval material.

14.2 Trench 1

- 14.2.1 Trench 1 was located on the same axis as the parish church and the Priory Church. The 2012 geophysical survey suggested that there was a further possible structure on the same alignment lying in Sanctuary Close. However, the excavation failed to reveal any such structure. Nonetheless, there was clear, if limited evidence for activity, probably early medieval in date, in this area.
- 14.2.2 The extent to which the remains uncovered represent a coherent set of structural features is debateable. There was certainly a layer of flat stones [1013-1011] – it is possible that these might be part of a wall foundation, although they work equally well as an area of flooring and are reminiscent of the early flagged/paved areas of probably early medieval date uncovered as part of O’Sullivan’s excavations on the site of the Visitor Centre. The linear feature (probably a drain) [1014] may be related to a structure, but could equally be a drain or external ditch – more excavation is needed to resolve this. Nonetheless, although ephemeral and only seen in a small area there does seem to be an area of activity here. Compared with Trench 3 the amount of medieval pottery is limited and the area seems to have been sealed beneath the ridge and furrow that can still be traced in this field. Given this and the presence of the 8th century coin, an early medieval date for this activity seems most likely.
- 14.2.3 It is difficult to be certain about what activity is taking place here. However, the presence of slag and a polishing/hone stone might imply some kind of metalworking in the vicinity. The presence of human bone might imply the presence of earlier burials beneath this activity area – the alternation of industrial activity and burial within the same area is known from Fey Field, Whithorn (McOmish and Petts 2008). However, the more certain presence of graves to the south-west close to Trench 2 may mean that the human bone in Trench 1 was derived from was spread here through plough damage and other post-depositional processes.

14.3 Trench 2

- 14.3.1 Trench 2 was also located to explore potential structural features that could be identified on the magnetometer survey. The earliest deposits are probably long-cist burials, although these still require excavation to confirm this; although large fragments of cranium were visible in situ at the west end of the settings. The extent to which any other burials survive in the area is unclear, as much of the later rubble layer was not removed this season. Nonetheless, the presence of large fragments of human bone, early sculpture and quartz pebbles (commonly associated with early medieval burials) within the later rubble layer are clearly indicative of the phase of scraping or destruction of earlier cemetery deposits in the immediate vicinity. The presence of

stone-lined graves fits into the wider pattern of stone-lined graves found across north Northumberland and south-east Scotland, with the centre of gravity in Lothian (Maldonado 2013). Close to Lindisfarne, such cist graves were found mixed with dug graves at Bowl Hole, Bamburgh (Groves 2011), and examples of uncertain, but probable early medieval date have been identified to the north at Coldingham (Stronach 2005). Stone-lined graves have been found at Aidan's other key northern foundation at Hartlepool (Daniels 2007, 95) and were also used on the Isle of May (James and Yeoman 2008). Given Lindisfarne's Columban connections it is important also to note the use of long-cists on Iona (e.g. Chalmers 1923: 114). The use of quartz pebbles is also commonly found in the north associated with burials (Maldonado 2013, 18). The rite is found at Whithorn (P Hill 1997: 73, 143), the Isle of May (James and Yeoman 2008: 33) whilst there is circumstantial evidence for its use at Coldingham (Stronach 2005, 399).

- 14.3.2 As well as stone-lined cists, there are hints of other stone settings starting to emerge from within the rubble layer towards the centre of the trench may also be related to cemetery activity. These may turn out not to be directly related to the cemetery, but given the parallels between one of the sculptural fragments and the crosses used on *leachta* on Inishmurray, the possibility of the presence of *leachta* or similar platforms should not be dismissed.
- 14.3.3 A final topic worth commenting in relation to the burial evidence is the demography of the human bone recovered. Whilst this was disarticulated charnel, so it is not clear how representative it is of the wider burial community and the ascription of biological sex is particular problematic, it is noticeable that of the five individuals it was possible to identify, two were adults, two were young juveniles (1-6 years) and one was a foetus/perinate. Even though male children could certainly enter monastic communities at a young age (Bede came to Monkwearmouth at the age of seven *HE* 5.24), the presence of a foetus and children aged six or younger are perhaps more likely to represent members of a lay community being buried at the site; the main monastic cemetery may be elsewhere. Three samples of human bone were submitted for radiocarbon dating, the results date the human bone analysed to between the late 8th to late 10th century AD (see Section 13, above).
- 14.3.4 A key questions that need further clarification are the date and function of the broad band of rubble that runs roughly north-west – south-east across the trench overlying the probable cemetery horizon. It could potentially be related to the potential structure shown on the geophysical survey, but only a small section is visible. Crude rubble stone bases are known from early medieval structures on Northern monastic sites, such as Hartlepool, Hoddom, Whitby and Whithorn (Daniels 2007, 68; Rahtz 1976; Hill 1997; Lowe 2006, 39-99), where they represent a later constructional type, replacing earlier post-hole and plank-in-gully constructional techniques. The presence of 7th / 8th century funerary sculpture within the rubble deposit would suggest a similar *terminus post quem*, but the Lindisfarne feature appears to be more poorly defined than the examples from other sites, although this may be due to subsequent plough damage.
- 14.3.5 A noticeable feature of both sculptural fragments (LDF_17 and LDF_22) and the stone lamp (LDF_23) is that they have been badly damaged and survive only in a fragmentary state (see Section 8). This provides an interesting contrast to the human bone that is not in such a bad condition, although also fragmentary. The stone sculpture would

appear to have been partly deliberately damaged – possibly as a deliberate act of iconoclasm or alternatively simply to reduce it to the right size to use as ‘hard core’. Other examples of the deliberate destruction of sculpture and deposition in this way are rare. Stone from the 8th century shrine chest of St Chad found in a broken condition within Lichfield example although damaged are still located within the area of the probably shrine inside the Cathedral (Cramp et al. 2008). A better parallel is with the assemblage of damaged 8th century Pictish sculpture recovered dumped over an area of burnt-out workshops in the Glebe Field (Sector 2) at Portmahomack (Highlands) (Carver et al. 2016, 256-9). Based on the modelling of the radiocarbon dates taken from this deposit, it is likely to have been deposited between AD 780 and 810. This sculpture had been heavily broken up with most fragments fist sized (Ibid, 130). Initial onsite interpretation led the excavator to speculate that the deposition of the sculpture was part of a phase of clearing up and levelling activity after a destructive raid, possibly by Vikings. However, unlike at Portmahomack, in Trench 2 there is no evidence for burning or other destructive activity in the immediate vicinity. It cannot be emphasised too strongly though, that until this trench is expanded, any interpretation of this feature is going to be very provisional.

14.4 Trench 3

- 14.4.1 Trench 3, sited to the west of Holy Island village was placed to intercept a possible extension of Prior’s Lane that was visible on the geophysical survey. The survey also showed an area of intense activity to the south of this line with enclosures to the north. A key hypothesis that was tested was whether this line represented a postulated monastic vallum related to the early medieval monastery.
- 14.4.2 Excavation revealed extensive evidence for medieval occupation of 13th century date and later, which appears to confirm that Prior’s Lane had continued into this area and that on the south side it had been flanked by medieval domestic activity. The lack of ‘Course Grey Gritty’ ware in the ceramics assemblage suggests that the identified structures primarily date to the mid-13th century and later. However, the presence of a fragment of an Ashby Type 6b bone comb may suggest that there was some earlier activity in the area.
- 14.4.3 Combined with the information that can be derived from Hope-Taylor’s excavations in Rectory Field to the west of the parish church, it is increasingly clear that the medieval core of Holy Island village to the south of Prior’s Lane extended westwards towards the edge of the Island Hope-Taylor’s work identified structures of probable 13th and 14th century date (although this dating is derived from his field observations – there was no formal analysis of the pottery assemblage and the finds are now missing). However, a 13th century horizon for medieval occupation on the western flank of the village is also reflected in the material found in the substantial midden at Jenny Bell’s Well, where the earliest material was also 13th century in date (Beavitt et al 1985, 26-32).
- 14.4.4 The confirmation of an early date for Prior’s Lane is important – excavation at The Winery had found no structures fronting onto the course of the road, and it was suggested that it may not have been laid out until a relatively late (late medieval or post-medieval date), and it was suggested that the acute angle described by the junction of Prior’s Lane and Fiddler’s Green may even have reflected the alignment of a post-medieval artillery bastion associated with the reworking of the Priory compound

as a defended enclosure in the 16th century. However, by pushing the date of Prior's Lane earlier, this hypothesis can be rejected. Overall, the evidence does seem to suggest a significant expansion of the village westwards in the 13th century. A key question for further research is the relationship between the village and the Priory. The 13th century also saw major work on the parish church and there is a need to refine the extent to which these shifts were stimulated or directly by the Priory and the significance of external factors, particularly the impact of Anglo-Scottish warfare. A second important question is the date of the subsequent contraction of these areas of the village to the line of Fiddler's Green/Lewin's Lane, the ceramic assemblage would suggest a broadly sixteenth century for this change.

14.4.5 An important aspect of the artefactual and faunal assemblage recovered from the excavations in Trench 3 was the presence of a range of material relating to the maritime economy of the village. The faunal assemblage contained significant quantities of fishbone, as well as a fragment of worked whale bone. Iron fish-hooks and clench nails, probably derived from reused ships timbers, were also found, alongside substantial deposits of limpet shells. These are most likely to have been used for baiting long-lines used for catching gadids and other fish species, rather than direct human consumption. Significant assemblages of fish bones are known from other excavations on the village, particularly O'Sullivan's excavations at the site of the Visitor Centre (O'Sullivan 1981). The Priory Account roles from the early 14th century record that the monks were building cobbles and purchasing fishing nets (Raine 1852, 80-134). Combined, this evidence is an important source of evidence for medieval fishing in the north-east of England, particularly in a rural context – beyond Holy Island the most significant assemblages of fishing material are from urban contexts, such as Newcastle and Hartlepool (O'Brien 1988; Daniels 2010, 144-67).

14.5 General conclusions

14.5.1 Overall, the material identified in Sanctuary Close (Trenches 1 and 2) points clearly towards the presence of early medieval activity which given the proximity to the two churches must be related to the early monastic site. The limited amount of later, medieval pottery is consistent with manuring rather than being derived from a primary deposit, whilst all the dateable small finds (two sculptural fragments and coin) are consistent with a broad 7th / 8th century date. The redicarbene date of the human bone provides a range of between the late 8th to late 10th century AD. Given the small size of the evaluation trenches it is difficult to draw broad conclusions about the nature and scale of the activity going on here. Nonetheless, there is excellent circumstantial evidence for a cemetery in the immediate vicinity with some of the stone lined features revealed in Trench 2 likely to be long-cists. Whilst there was limited evidence for phasing in Trench 1, the creation of the rubble bank incorporating earlier sculpture in Trench 2 indicates a clear horizon, with a major change in activity, reworking and destruction of cemetery deposits. The date of this is uncertain, but the limited quantity of medieval pottery from this area might suggest an early rather than high medieval date, and such changes in function are consistent with our understanding of the complex and evolving use of spaces found at other early medieval monastic sites from the north, such as Whithorn. Whilst Trench 3 did produce a potentially earlier object (bone comb), perhaps hinting at the presence of earlier activity in the area, the bulk of artefactual evidence suggests that the features were 12th century or later.

- 14.5.2 Future seasons of excavation will need to move on from evaluation. Having established the presence of early medieval activity in Sanctuary Close, there is a need to move from confirming the presence of early features to better characterising them spatially.

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Figure 1 - Lindisfarne, The Holy Island Archaeology Project: Site location.

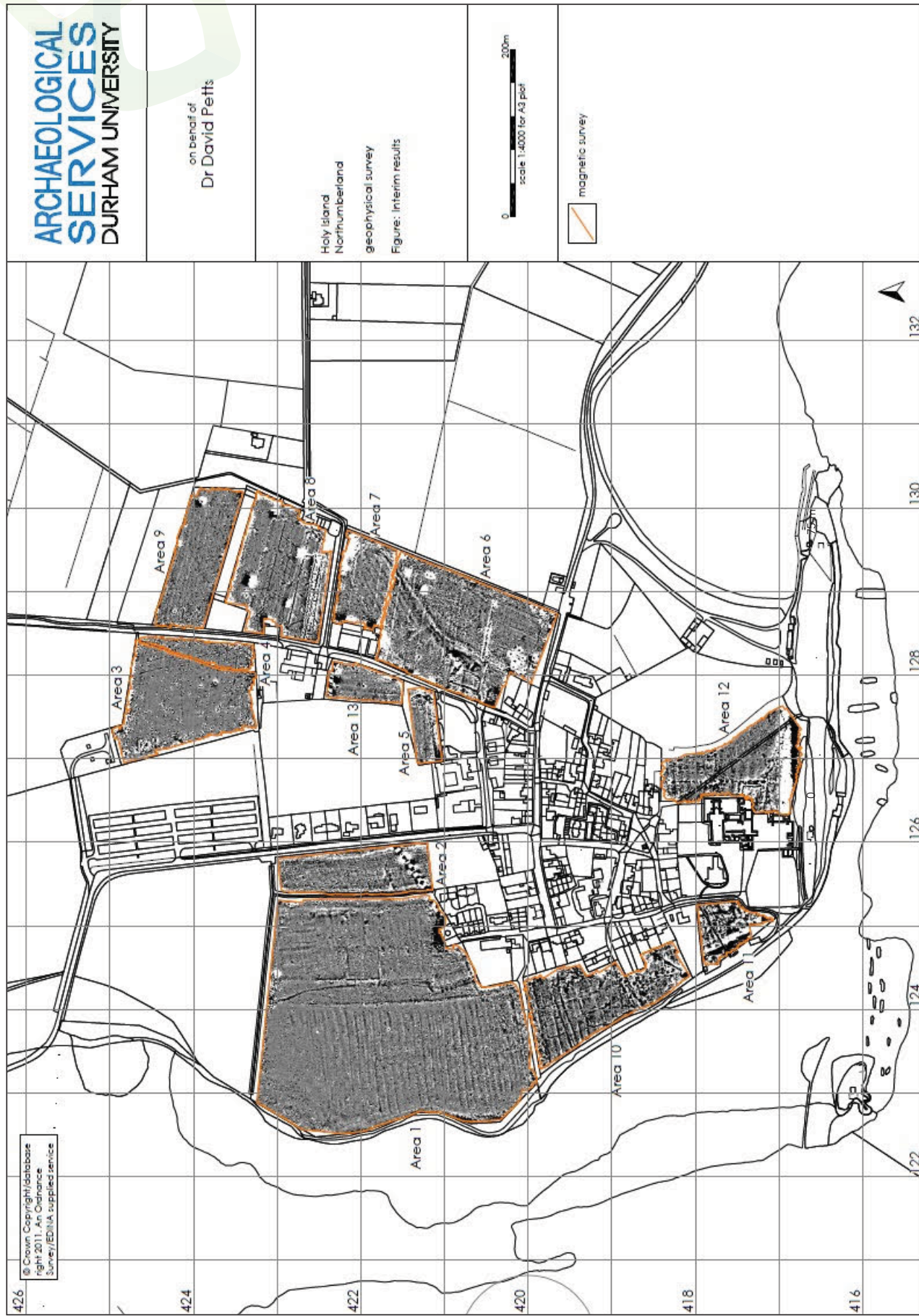


Figure 2 - Lindisfarne, The Holy Island Archaeology Project: Location of remote sensing.

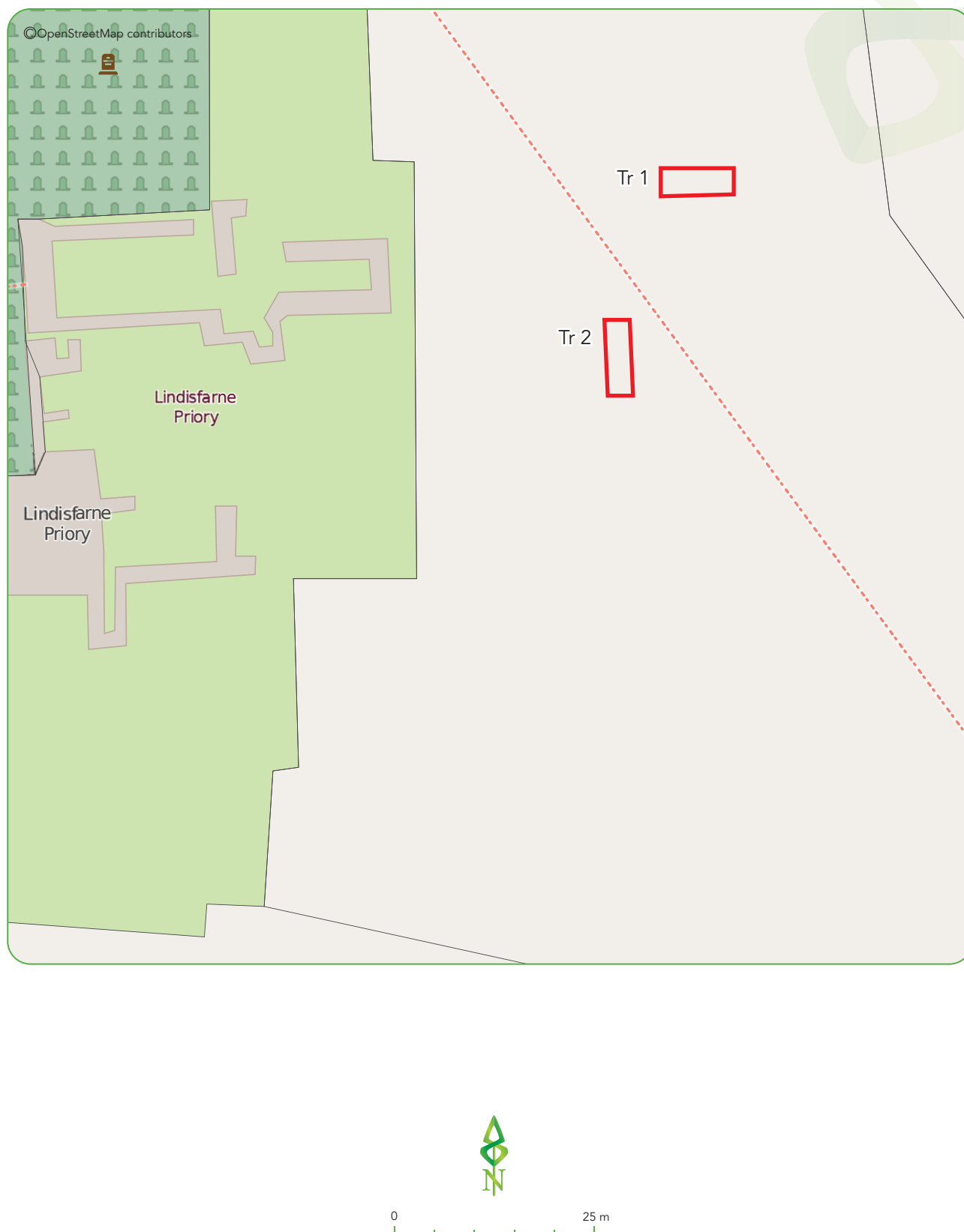


Figure 3 - Lindisfarne, The Holy Island Archaeology Project:
Trench location plan, Sanctuary Close.

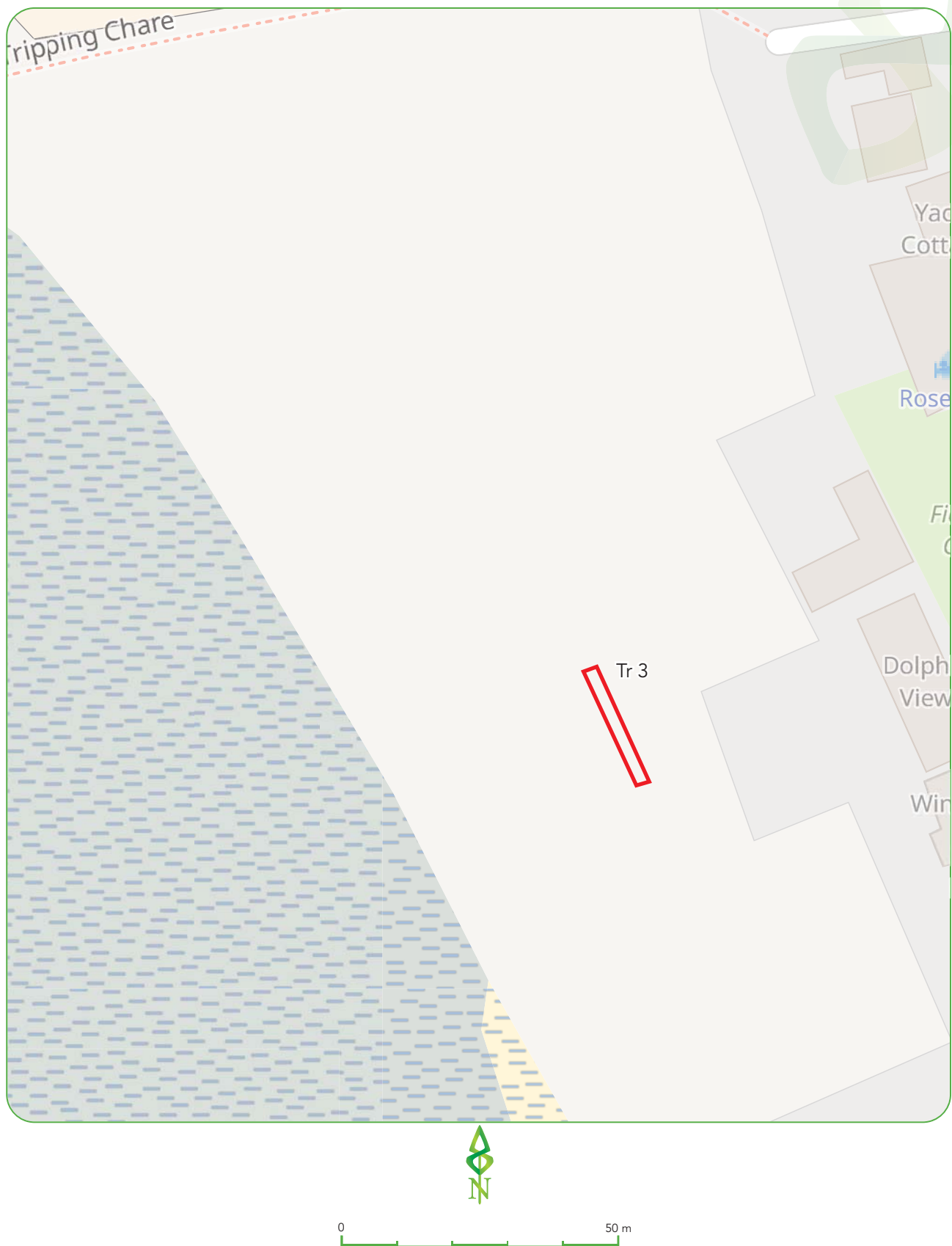


Figure 4 - Lindisfarne, The Holy Island Archaeology Project:
Trench location lan, Glebe Field.

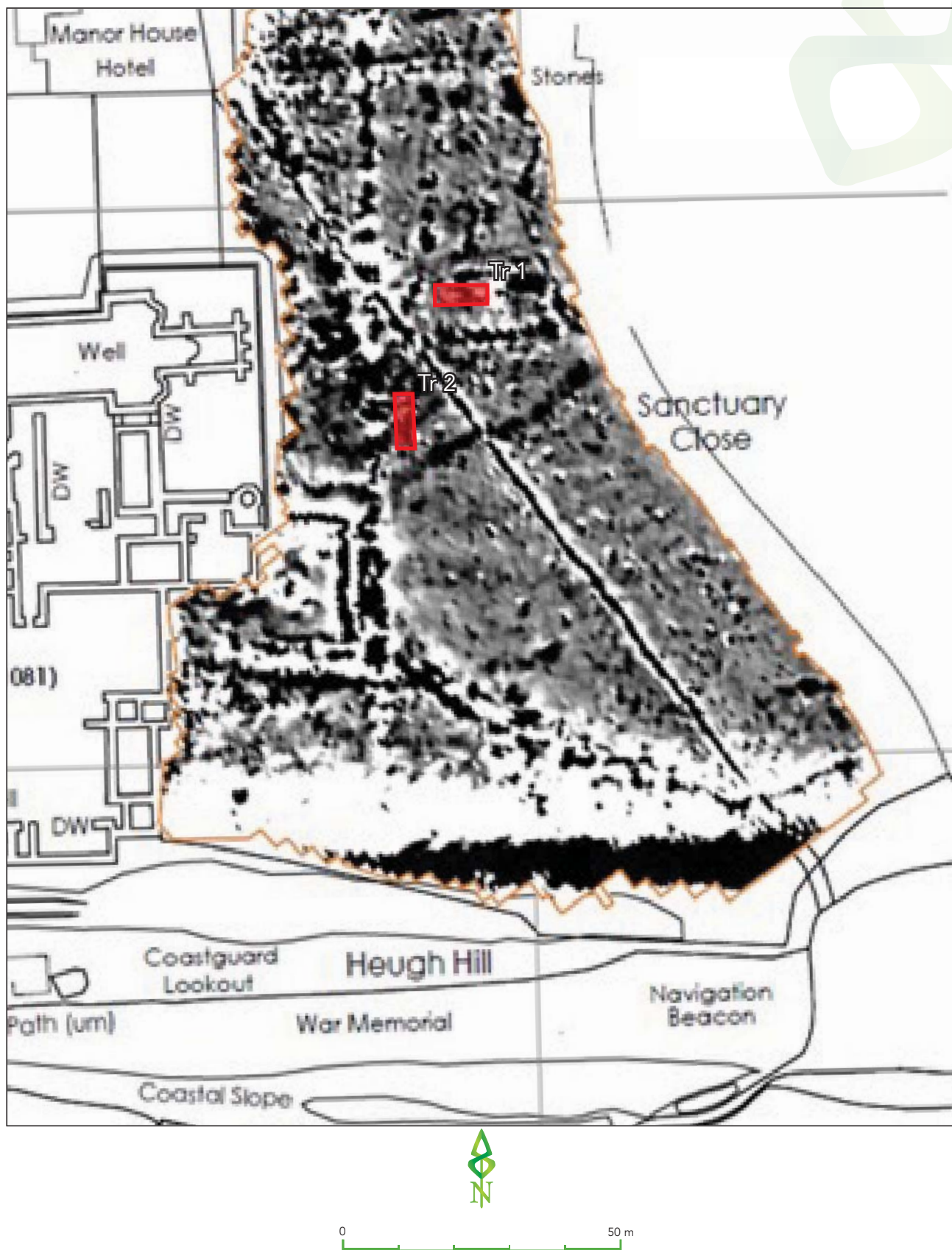


Figure 5 - Lindisfarne, The Holy Island Archaeology Project:
Processed greyscale geophysical data: Sanctuary Close.

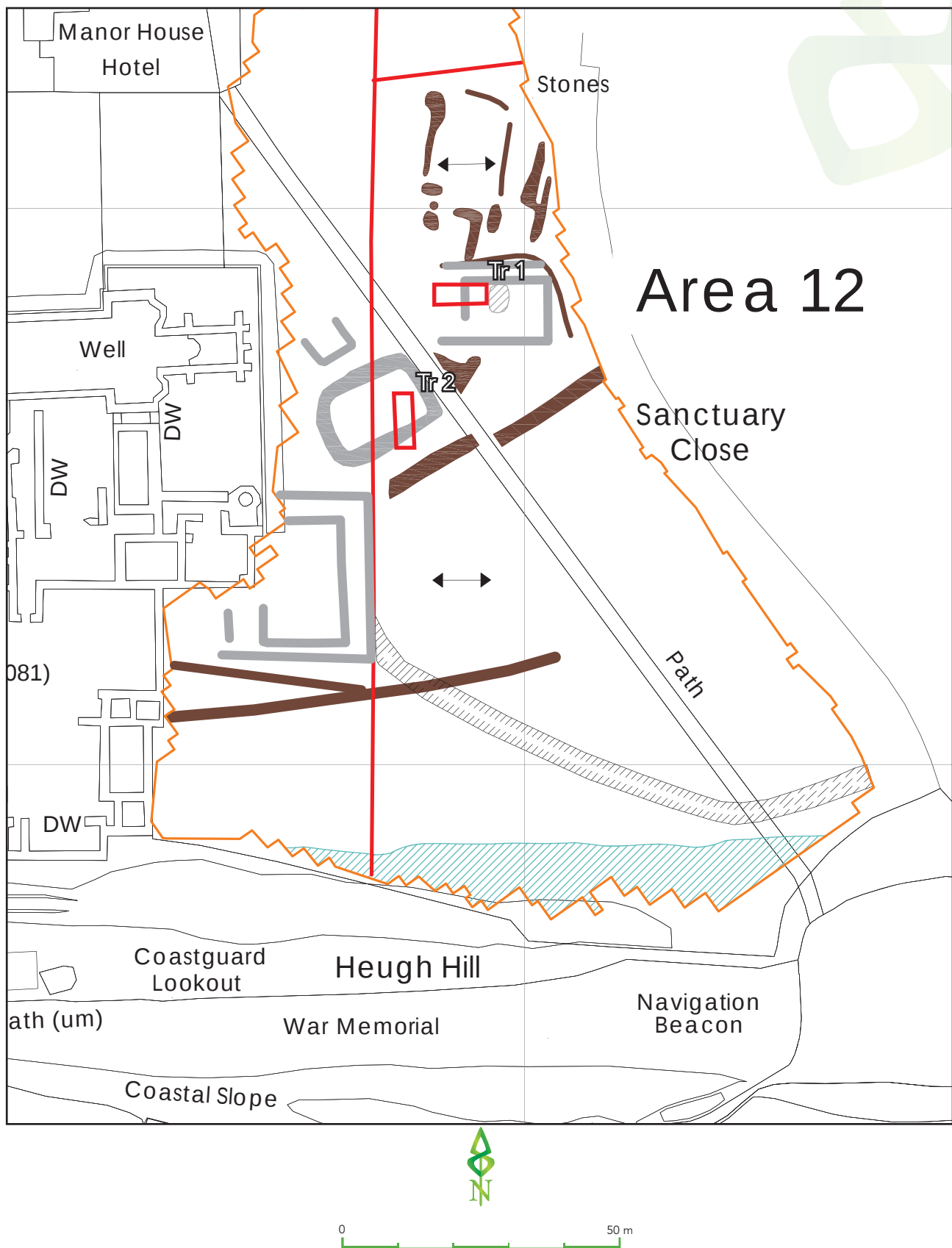


Figure 6 - Lindisfarne, The Holy Island Archaeology Project: Interpretation of greyscale geophysical data: Sanctuary Close.



Figure 7 - Lindisfarne, The Holy Island Archaeology Project:
Processed greyscale geophysical data: Glebe Field.

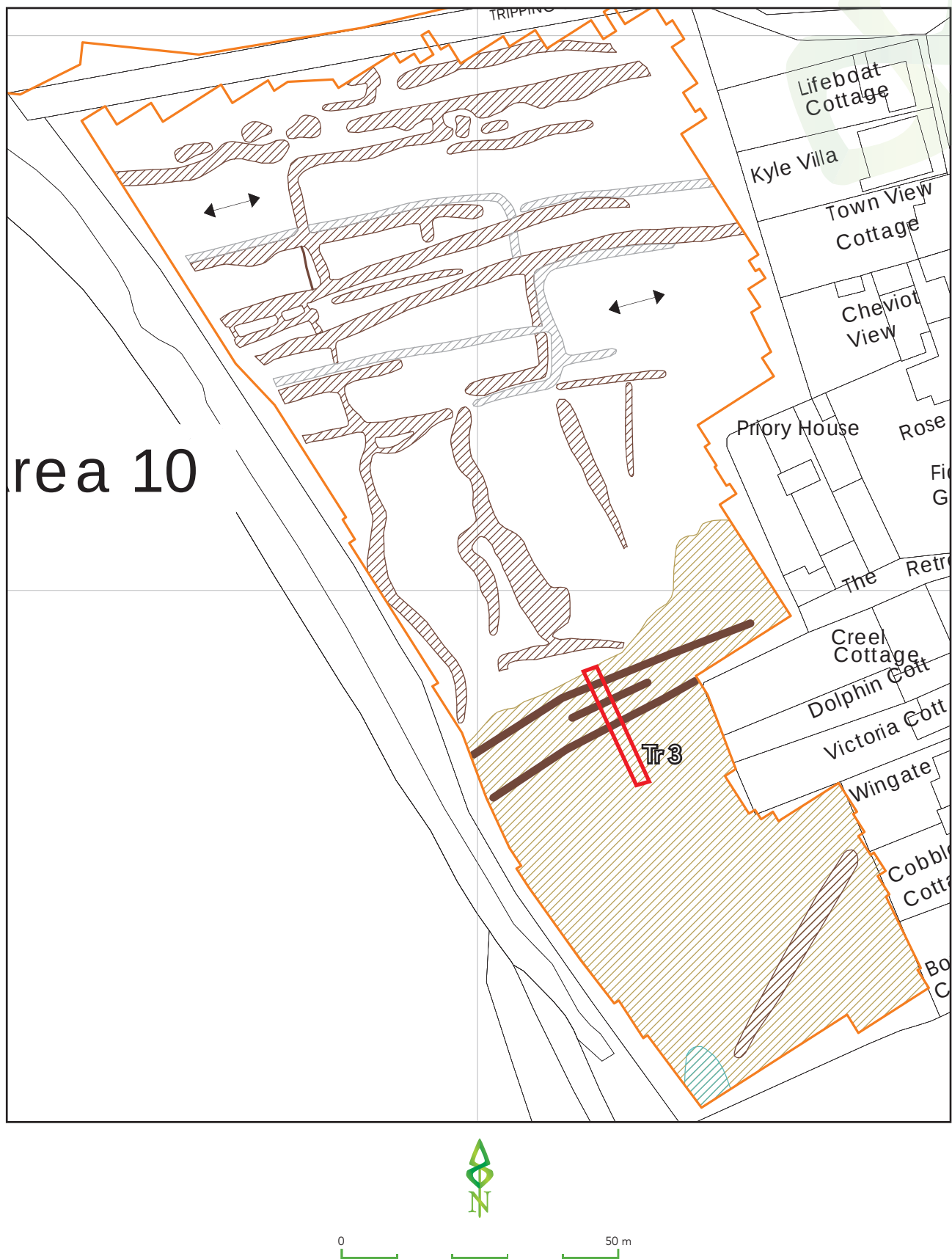
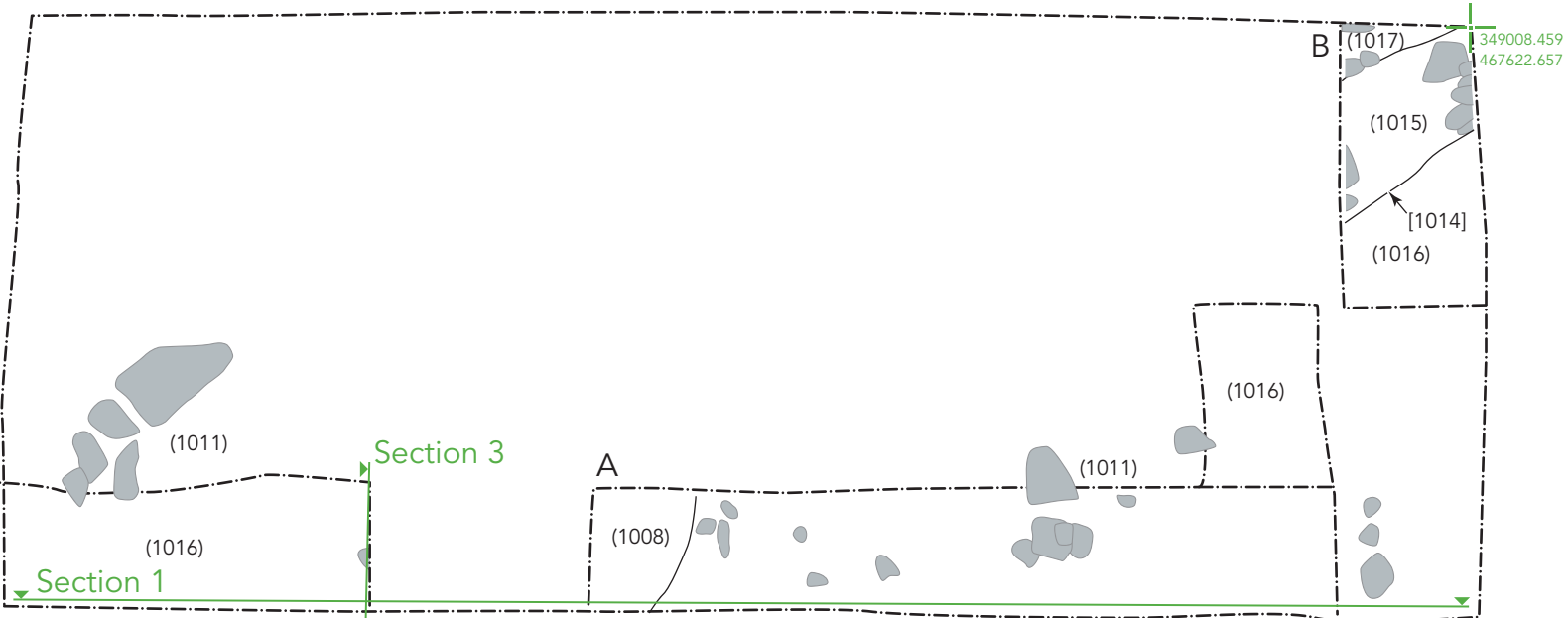


Figure 8 - Lindisfarne, The Holy Island Archaeology Project:
Interpretation of greyscale geophysical data: Glebe Field.



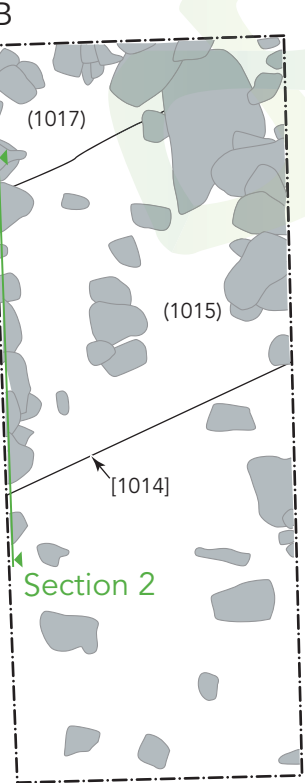
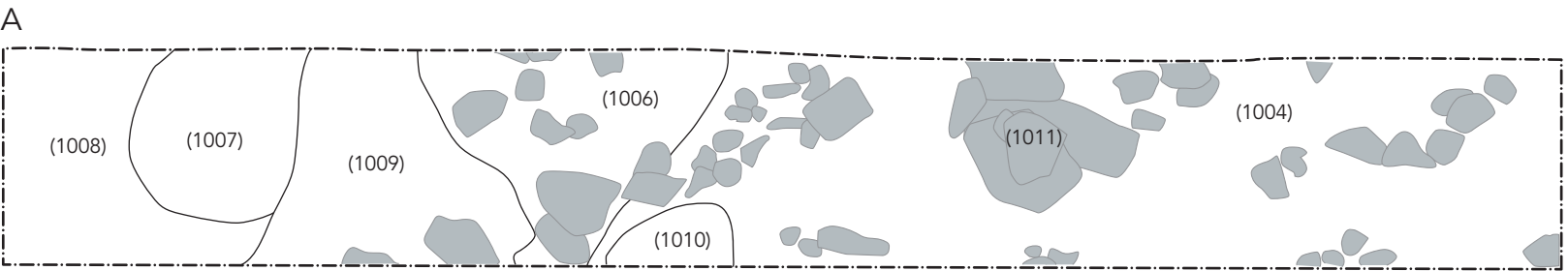
Trench 1 mid-excavation results



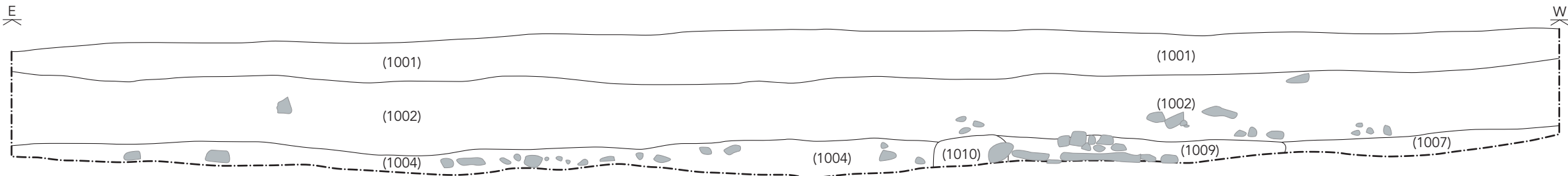
Trench 1 post-excavation results



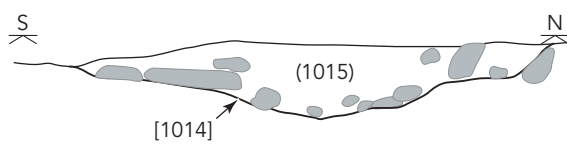
Trench 1 post-excavation orthophoto results



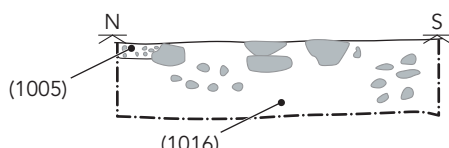
Section 1



Section 2



Section 3



Trench 1 plates

Section 1



Plate 9.1 - Trench 1 pre-excavation facing W, indicating deposit (1001).



Plate 9.2 - Trench 1 Mid-excavation facing E, indicating deposits (1001) and (1002).



Plate 9.3 - Slot excavated in Trench1 facing W, highlighting deposits (1006), (1007), (1008), (1009), (1010) and (1011).



Plate 9.4 - Slot excavated in Trench 1 facing W, highlighting internal floor surface (1004) and make-up deposit (1006).



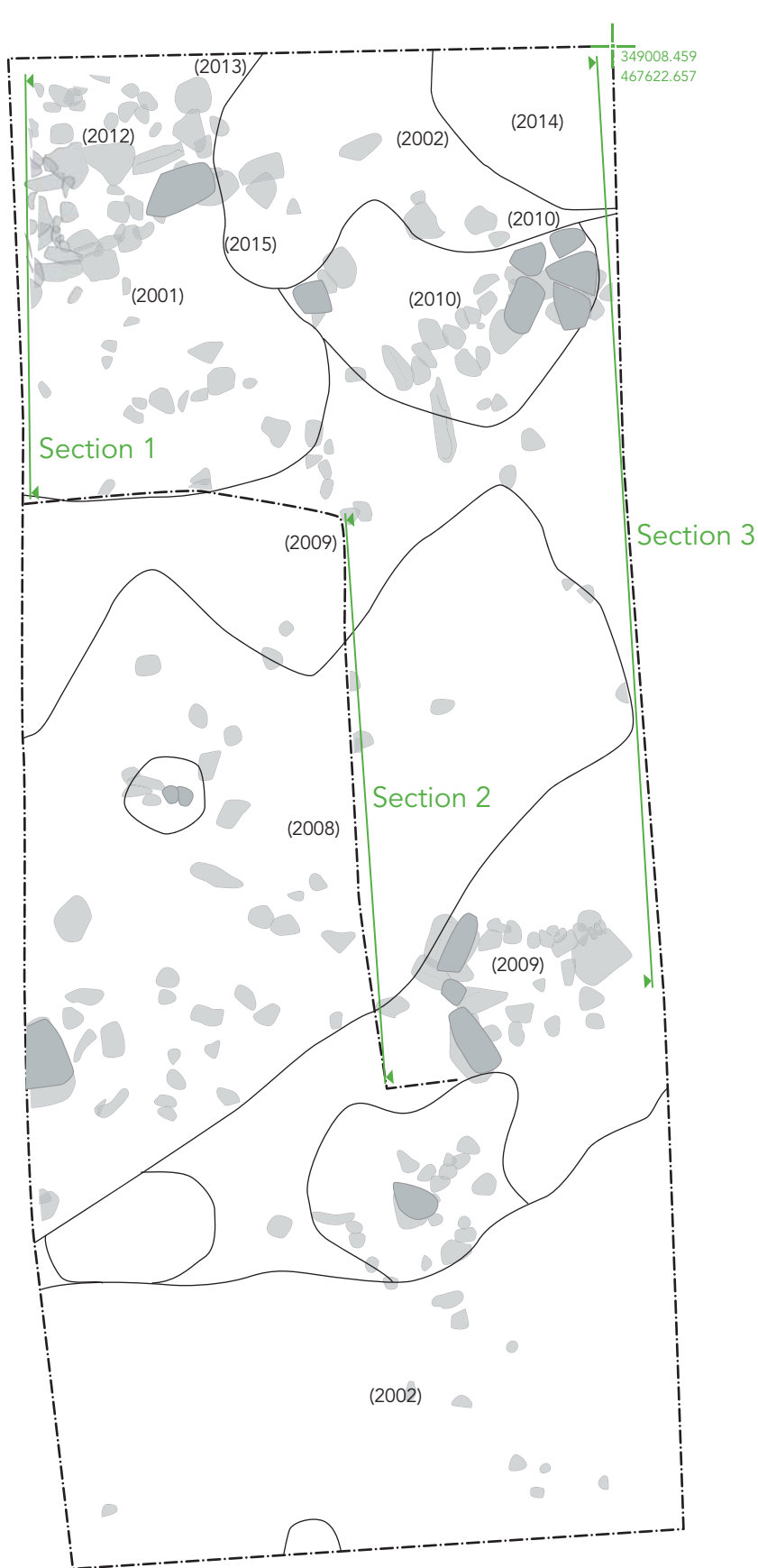
Plate 9.5 - Pre-excavation of drain feature [1014], facing E.

Figure 9 - Lindisfarne, The Holy Island Archaeology Project: Trench 1 excavation results (best viewed at paper-size A2).

Trench 2 Post-ex Plan and Orthophoto



Trench 2 Pre-ex Plan



Trench 2 plates



Plate 10.1 - Trench 2 Pre-excavation facing S, indicating deposit (2001).



Plate 10.2 - Trench 2 Mid-excavation facing S, indicating deposit (2001).



Plate 10.3 - Trench 2 Mid-excavation facing N E, indicating deposit (2002).

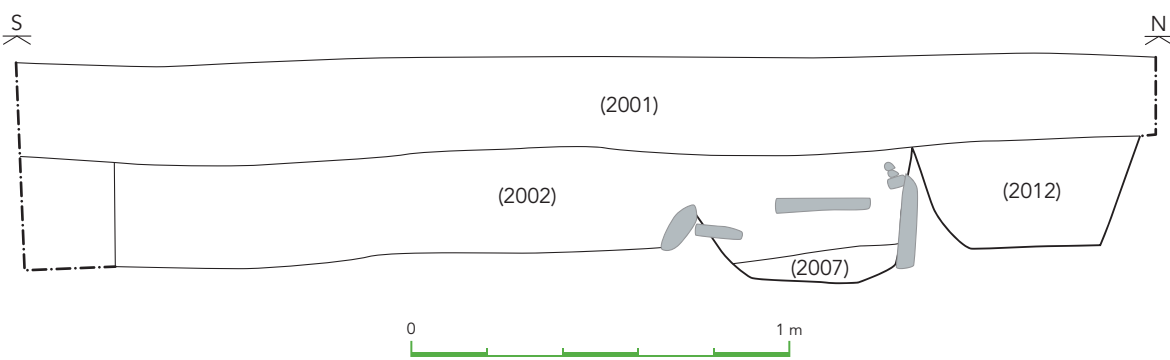


Plate 10.4 - Masonry [2013] facing S, associated with possible cist-lined burial.

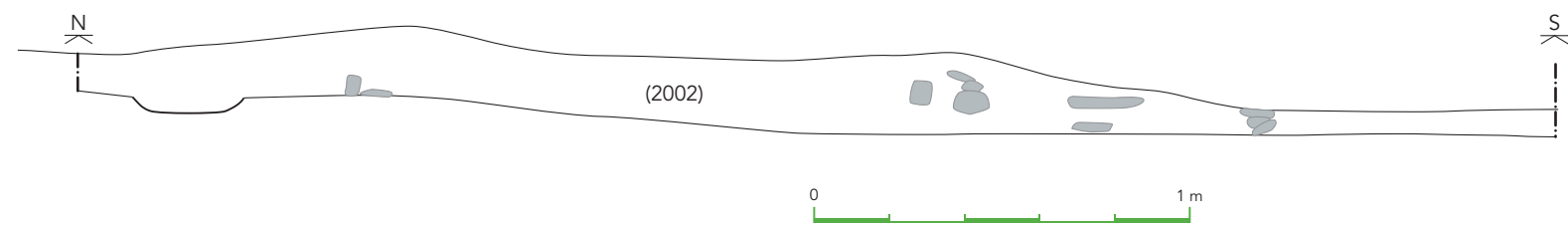


Plate 10.5 - Stone assemblage facing S W, associated with possible stone constructed grave mound, highlighting deposits (2007) (2010) and (2011).

Section 1



Section 2



Section 3

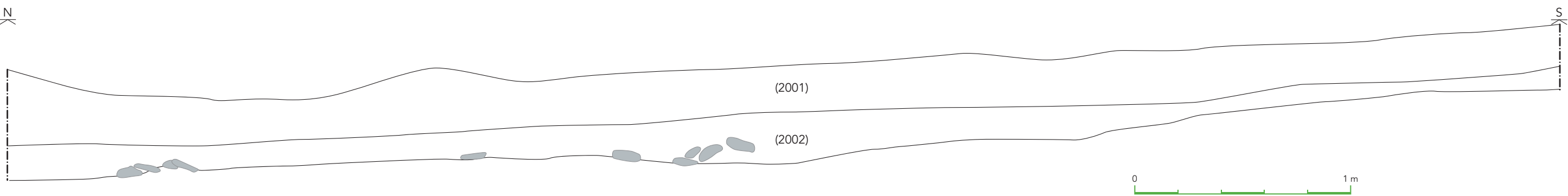
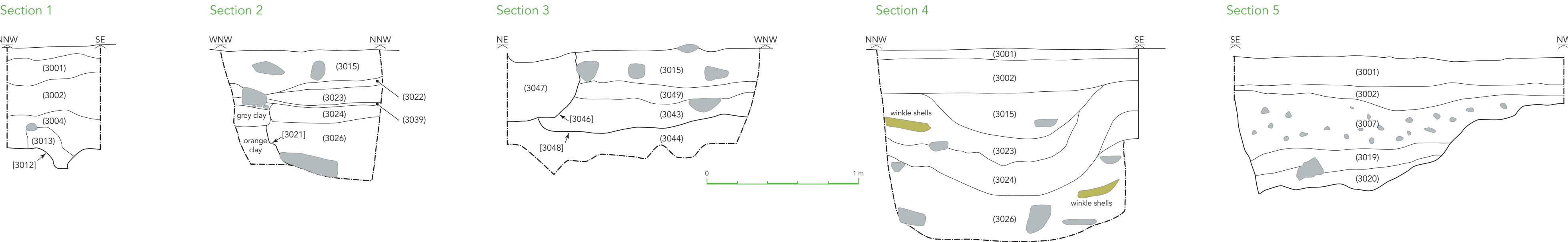
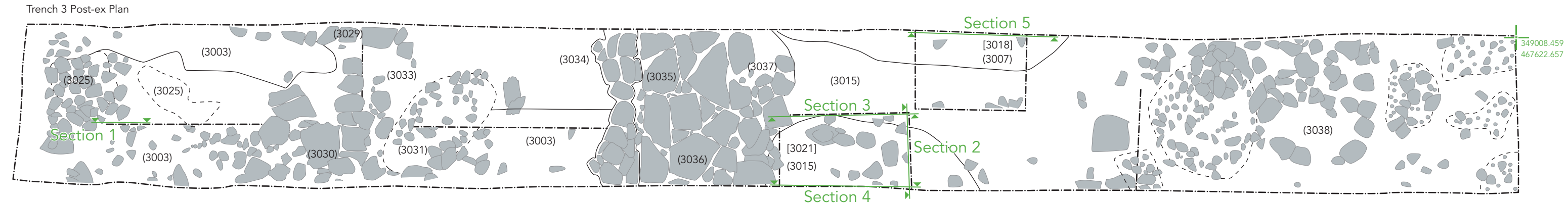


Figure 10 - Lindisfarne, The Holy Island Archaeology Project: Trench 2 excavation results.



Trench 3 plates



Plate 11.1 - Trench 3 pre-excavation southern end, facing North West, indicating deposit (3001).



Plate 11.2 - Trench 3 pre-excavation northern end facing N W, indicating deposit (3001).



Plate 11.3 - Trench 3 Mid-excavation southern end facing NW.



Plate 11.4 - Trench 3 Mid-excavation southern end facing NW.



Plate 11.5 - Flagged paved area [3036], facing SW.



Plate 11.6 - Post-excavation of pit cut [3021], facing NE and associated deposits, (3015), (3021), (3023), (3024) and (3039).



Plate 11.7 - Post-excavation of pit cut [3018], facing NE and associated deposits, (3017), (3019), (3020), (3028).

Figure 11 - Lindisfarne, The Holy Island Archaeology Project: Trench 3 excavation results.



12.1 - LDF_3 Bone Comb



12.2 - LDF_13 Coin



12.3 - LDF_17 Sculptured Stone fragment



12.4 - LDF_22 Name stone



Plate 13.1 Visitors to the site, looking towards Trenches 1 and 2



Plate 13.2 Discussing the archaeology in Trench 3



Plate 13.3 Excavating features in Trench 2



Plate 13.4 Discovering finds in Trench 1



Plate 13.5 Excavating in Trench 3



Plate 13.6 Finding a beach pebble honestone (LDF_15) in Trench 1



Plate 13.7 Sydney finds some bone in Trench 2



Plate 13.8 Rosie getting ready to plan



Plate 14.1 The Abbey, facing west, with Trenches 1 and 2 in the foreground, and Trench 3 visible at the top of the image.



Plate 14.2 Lindisfarne: Trench 2, aerial view



Plate 14.3 Lindisfarne: Trench 3, facing south

Appendices

17 APPENDIX 1 – TRENCH AND CONTEXT DESCRIPTIONS

Trench 1	Dimensions: 4m x 20m			
	Orientation: Glebe Field			
	Reason for Trench: One of two additional evaluation trenches (2m x 10m) positioned in Sanctuary Close due east of the Priory church to investigate possible structural remains predating the current monastic complex.			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1001 https://g.co.gl/RQ_N6uT	Dark brown soft silty clay with moderate to small sub-rounded pebble inclusions.	Deposit – topsoil	Length – 10.00m Width – 4.00m Depth – Ranges from 0-0.20m	-
1002 https://g.co.gl/lly_ekC	Light brown soft sandy silt with occasional charcoal and flint pebbles.	Deposit – subsoil	Length – 10.00m Width – 4.00m Depth – 0.20m -0.50m	-
1003 https://g.co.gl/m3_CUiz	Mid Greyish-brown soft sandy-silt with 10% small rounded gravel.	Deposit – Unmodified subsoil	Length – 0.15m Width – 0.3m Depth – 0.30m	-
1004 https://g.co.gl/36_Kf6b	Orange-brown firm sandy silt with occasional to moderate charcoal.	Layer – Internal floor make-up layer	Length – 2.20m Width – 2.10m Depth – 0.08m	-
1005 https://g.co.gl/O_MLeBC	Dull orangey-brown compacted sandy silt with 50% rounded to sub- angular pebbles.	Deposit – Possible gravel levelling layer	Length – 4.00m Width – 2.10m Depth – 0.40m	F103
1006 https://g.co.gl/q5_fkpP	Light greyish brown hard sandy-silt with 60% Sub angular-rounded inclusions of gravel/large stones ranging from 0.05m to 0.3m long	Layer – Possible Floor make-up layer	Length – 1.70m Width – 4.00m Depth – up to 0.20m feature not fully excavated	F101



1007 https://goo.gl/8lBZQJ	Mid orange hard to firm burnt clay deposit with inclusions of 10 % angular pebbles.	Layer – Burnt clay layer	Length - 0.50m Width - 0.70m Depth – 0.06m	-
1008 https://goo.gl/Gpz4Ez	Mid orangey-brown loose sandy silt with 50% sub angular-rounded inclusions of gravel and occasional larger stones	Deposit – floor make-up layer	Length – 0.25m Width – 0.22m Depth – 0.06m	F101
1009 https://goo.gl/GV1xqz	Mid greyish-brown hard sandy silt with 30% sub angular inclusions of gravel. Occasional large stones up to 0.25m long.	Deposit –floor makeup layer	Length – 0.75m Width – 0.60m Depth – 0.10m	F101
1010 https://goo.gl/NjiN3x	Mid orangey-brown sandy clay with 10% sub angular gravel/small pebbles.	Deposit – Possible consolidation for floor makeup layer (1005)	Length – 0.30m Width – 0.70m Depth – 0.10m	F101
1011 https://goo.gl/uOXld9	Roughly hewn sandstone blocks bonded by mid brown sandy silt. Range in size of material is 450mm – 300mm.	Masonry – possible truncated stub-end of wall	Length – 0.80m Width – 0.60m Depth – 0.20m	-
1012 https://goo.gl/27bXbB	Roughly hewn sandstone blocks bonded by mid brown sandy silt. Range of size of material is unknown.	Masonry – Linear rubble core foundation of wall running N-S	Length – 0.75m Width – 0.30m Depth – Unknown not fully excavated	F101
1013 https://goo.gl/wf0Sb8	Roughly hewn sandstone and slate flags placed into mid brown sandy silt. Size of material ranges from 500mm – 400mm.	Masonry – Possible flagged floor	Length – 1.25m Width – 1.00m Depth – 0.08m	F103
1014 https://goo.gl/mASrET	Linear cut with a gradual break of slope at the top and bottom with a horizontal base. The	Cut – Possible drain	Length -0.75m Width -0.80m Depth-0.17m	F102

	feature is shallow and has an East-West orientation.			
1015 https://qoo.gl/SGvYJz	Greyish brown firm clay-silt with inclusions of 20% charcoal and Small to medium sub-rounded and sub angular cobbles and stones.	Fill – of cut [1014]	Length -0.75m Width -0.70m Depth-0.20m	F102
1016 https://qoo.gl/dpYKwH	Mid orangey-brown compact sandy clay with 20% sub angular small fragments of sandstone, degraded sandstone and occasional charcoal flecks.	Deposit – possible levelling layer	Length – 2.50m Width -3.10m Depth-0.10m	-
1017 https://qoo.gl/B5K2m4	Mid orangey-brown compact sandy clay with 5% sub angular pebbles.	Deposit – possibly associated with backfill of drain [1014] during disuse	Length -0.43m Width -0.33m Depth- 0.10m	-

Trench 2	Dimensions: 4m x 10m			
	Orientation: Sanctuary Close			
	Reason for Trench: One of two additional evaluation trenches (2m x 10m) positioned in Sanctuary Close due east of the Priory church to investigate possible structural remains predating the current monastic complex.			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
2001 https://qoo.gl/rmsd5U	Dark brown soft silty-clay with occasional small rounded pebbles.	Deposit – topsoil	Length – 10.00m Width – 4.00m Depth – 0.15m Ranges from 0 – 0.15m	-
2002 https://qoo.gl/X8jitE	Mid brown orange firm sandy silt with Moderate charcoal fragments, moderate cobbles and small angular pebbles.	Deposit – subsoil	Length – 10.00m Width – 4.00m Depth – 0.15m – 0.27m	-
2003 https://qoo.gl/Z5Hq1t	Orange-brown, soft silty sand with small sub-	Deposit – Subsoil cleaning level	Length – 10.00m Width – 4:00m Depth – 0.03m	-



	angular stones and larger cobbles			
2004 https://goo.gl/KSi6Yp	Dark brown firm sandy silt with medium angular to sub-rounded stones and pebbles.	Deposit – demolition and cemetery clearance rubble	Length – 2.25m Width – 1.50m Depth – 0.20m	F201
2005 https://goo.gl/e7s1L6	Dark brown firm sandy silt with medium angular to sub-rounded stones and pebbles.	Deposit – demolition and cemetery clearance rubble. Probably same as (2004)	Length – 1.10m Width – 1.03m Depth – 0.20m	F201
2006 https://goo.gl/j7saho	Light grey- brown hard sandy silt, sandstone cobbles and pebbles.	Layer – Rubble deposit. Probably same as (2004)	Length – 2.20m Width – 2.80m Depth – 0.50m	F201
2007 https://goo.gl/TZX1Ra	Light grey-brown loose sandy silt with 10% sub-angular pebbles.	Deposit – Rubble deposit. Probably same as (2004)	Length – 1.14m Width – 0.50m Depth – 0.10m	F201
2008 https://goo.gl/iD6v7Q	Mid greyish brown hard sandy silt with medium to large sub-angular to rounded cobbles and pebbles.	Deposit – Rubble deposit. Probably same as (2004)	Length – 3.30m Width – 4.00m Depth – Unknown not fully excavated	F201-
2009 https://goo.gl/nJPD6V	Light greyish brown sandy silt with angular to sub-angular pebbles and gravel.	Deposit – Possible levelling layer	Length – 4.00m Width – 3.50m Depth – 0.10m	
2010 https://goo.gl/IXVpfh	Mid grey brown hard sandy clay with large angular and sub-angular sandstone cobbles and stones.	Layer – Possible clay and stone capping of a burial mound	Length – 1.65m Width – 0.35m Depth – 0.20m	F202
2011 https://goo.gl/5Q95nR	Mid grey-brown loose sandy silt with inclusions of 10% sub-angular rounded gravel.	Deposit – levelling layer	Length – 0.50m Width – 0.54m Depth – 0.20m	-

2012 https://qoo.gl/DPbvsW	Light orange brown sandy clay with 30% inclusions of flecks charcoal, small sandstone pieces.	Deposit – levelling layer	Length – 1.00m Width – 0.40m Depth – 0.30m	-
2013 https://qoo.gl/ApdWaq	Sandstone block and cobbles roughly hewn with random coursing and no bonding.	Masonry – Relating to possible cist lined burial	Length – 1.00m Width – 0.25m Depth – 0.20m	F202
2014 https://qoo.gl/CDX0U0	Mid-orange brown compact silty clay with 40% inclusions of sub-angular to rounded gravel and sandstone pebbles.	Deposit – Levelling layer	Length -1.20m Width -0.80m Depth- Unknown not fully excavated	-
2015 https://qoo.gl/YzRRK	Mid-orange brown compact sandy clay 50% sub-angular inclusions sandstone pieces, charcoal flecks and gravel.	Deposit – clay surface	Length -4.00m Width -2.80m Depth- Unknown not fully excavated	-

Trench 3	Dimensions: 2m x 10m			
	Orientation: Sanctuary Close			
	Reason for Trench: Located over the possible continuation of Prior's Lane in Glebe Field, as well investigating some of the putative industrial features			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
3001 https://qoo.gl/N4YWDq	Dark grey-brown fine silty sand with humic inclusions.	Deposit – topsoil	Length – 20.00m Width – 2.00m Depth – 0.20m Ranges from 0 – 0.20m	-
3002 https://qoo.gl/c2v1X0	Dark grey-brown firm sandy silt with animal bone charcoal flecks and shell inclusions.	Deposit – subsoil	Length – 20.00m Width – 2.00m Depth – 0.20m – 0.32m depth varies up to 0.38m	-

3003 https://go.o.gl/1ypyl y	Mid brown orange firm silty sand with inclusions of charcoal small pebble and shell fragments.	Deposit – Subsoil cleaning layer	Length – 7.20m Width – 1.20m Depth – 0.26m	-
3004 https://go.o.gl/2qTp k7	Mid orange brown firm sandy silt with inclusions of small pebbles shell and charcoal.	Deposit – Subsoil cleaning layer	Length – 3.17m Width – 0.80m Depth – 0.20m	
3005 https://go.o.gl/0DYw Qa	Mid orange brown firm silty sand with inclusions of charcoal flecks, small pebbles and shell fragments.	Deposit – Subsoil cleaning layer	Length – 3.17m Width – 1.20m Depth – 0.10m	
3006 https://go.o.gl/rmXg T4	Dark grey brown soft silty clay with moderate angular pebbles.	Deposit – Subsoil cleaning layer North end of trench 3	Length – 3.94m Width – 2.00m Depth – Unknown not fully excavated	
3007 https://go.o.gl/m2ec Zq	Mid grey brown soft sandy silt with moderate shell fragments dispersed amongst small rounded pebbles.	Layer/Fill [?] – sits directly on top of pit	Length – 1.60m Width – 0.55m Depth – 0.27m	
3008 https://go.o.gl/7Jpn 7P	Sub-circular rounded shape in plan with gradual slope at slope-top, concave sides and a rounded base.	Cut – of posthole filled with (3009)	Length – 0.33m Width – 0.32m Depth – 0.06m	F301
3009 https://go.o.gl/ug5e nn	Mid grey-brown loose sandy silt with inclusions of 50% sub-angular pebbles.	Fill – of cut [3008]	Length – 0.33m Width – 0.32m Depth – 0.06m	F301
3010 https://go.o.gl/sMH QIT	Sub-circular rounded shape in plan with gradual slope at slope-top, concave sides and a rounded base.	Cut – of posthole filled with (3011)	Length – 0.25m Width – 0.29m Depth – 0.16m	F301
3011	Mid grey-brown loose sandy silt with	Fill – of posthole [3010]	Length – 0.25m Width – 0.29m	F301

https://go.o.gl/1qepWH	inclusions of 50% sub-angular pebbles.		Depth – 0.16m	
3012 https://go.o.gl/CAot8r	Sub-Circular rounded shape in plan with gradual slope at slope-top, concave sides and flat at the base.	Cut – of posthole filled with (3013)	Length – 0.31m Width – 0.24m Depth – 0.80m	F301
3013 https://go.o.gl/mb86rm	Mid- dark brown black medium sandy silt with inclusions of small pebbles and whelk shells.	Fill – of posthole [3012]	Length – 0.31m Width – 0.24m Depth – 0.80m	F301
3014 https://go.o.gl/vEHx4l	Mid Grey-brown firm clay- silt with inclusions of charcoal shell and small rounded pebbles.	Deposit – Sub soil cleaning layer	Length -0.75m Width -1.50m Depth- 0.08m	-
3015 https://go.o.gl/kxzwAK	Light grey brown loose sand with 70% shell content within deposit.	Deposit – shell midden waste	Length -1.50m Width -0.86m Depth- 0.36m	-
3016 https://go.o.gl/WaLQxF	Light orange brown compacted clay with no inclusions.	Deposit – clay deposit possible levelling layer	Length – 1.17m Width - 0.50m Depth – 0.07m	-
3017 https://go.o.gl/YrGR3K	Mid Grey-brown sandy silt with inclusions of 10% shell fragments.	Layer – overlying cobbled surface (3038)	Length – 4.80m Width – 0.75m Depth -0.05m	-
3018 https://go.o.gl/4Us2TW	Sub-circular shape in plan with rounded corners with sharp break at slope-top, vertical sides and flat at the base.	Cut – of pit filled with (3019), (3020) and (3028)	Length – 1.40m Width – 0.52m Depth –0.47m	F307

3019 https://go.o.gl/shv8Gy	Mid grey-brown soft sandy silt with inclusions of frequent limpet shells.	Fill – of cut [3018]	Length-1.45m Width – 0.44m Depth 0.15m	F307
3020 https://go.o.gl/T0a13G	Dark grey-brown loose silt with inclusions of moderate shell and charcoal fragments.	Fill - of cut [3018]	Length – 1.30m Width – 0.38m Depth - 0.25m	F307
3021 https://go.o.gl/R5I7OF	Sub-circular shape in plane with a gradual break of slope-top, concave sides and a flat base.	Cut - of pit filled with (3039), (3040)	Length –1.75m Width – 1.00m Depth – 1.20m	F309
3022 https://go.o.gl/BWQVhm	Dark red-brown loose sandy silt with inclusions of frequent 70% shell and occasional small and medium) sub-angular stones.	Fill – tertiary fill of pit [3021]	Length –1.60m Width – 1.00m Depth – 0.05m	F309
3023 https://go.o.gl/cKHWPn	Dark red-brown loose sandy silt with inclusions of occasional shell.	Fill- secondary fill of pit [3021]	Length – 1.60m Width – 1.00m Depth – 0.10m	F309
3024 https://go.o.gl/HT3IWB	Dark red-brown loose sandy silt with inclusions of frequent 70% shell and occasional small and medium) sub-angular stones.	Fill – Primary fill of pit [3021]	Length – 1.50m Width – 0.63m Depth –0.18m	F309
3025 https://go.o.gl/WJXBL6	Light grey-brown firm sandy silt with large cobbles and pebbles sub-rounded to sub-angular in shape.	Layer - cobbled surface/demolition rubble layer	Length – 1.25m Width – 1.30m Depth – excavated to a depth of 0.20m, not fully excavated	F303

3026 https://go.o.gl/VKbmld	Dark grey-brown sandy silt with inclusions of 20% shell and small sub-angular to rounded pebbles.	Fill – of pit [3021]	Length – 1.50m Width – 0.65m Depth – 0.13m	F309
3027 https://go.o.gl/6MZlrz	Dark grey-brown sandy silt with 70% angular large sandstone cobbles.	Fill – of pit [3021] a lens within and same as (3026)	Length – 1.50m Width – 0.20m Depth – 0.10m	F309
3028 https://go.o.gl/AoupY	Light orange red compact silty-clay with inclusions of 10% rounded pebbles.	Fill – of pit [3018]	Length – 0.40m Width – Unknown Depth – 0.39m	F307
3029 https://go.o.gl/kJJTy_n	Sandstone blocks roughly hewn, 300mm-200mm in size with random coursing in the form of a wall.	Masonry – wall running EW	Length – 2.00m Width – 0.40m Depth – Extent Unknown Not fully excavated	F306
3030 https://go.o.gl/KFrDov	Mid Grey-brown compacted sandy silt with 75% large sub-angular cobbles and pebbles.	Layer – rubble spread due to wall collapse	Length – 1.30m Width – 1.30m Depth – Excavated to a depth of 0.30m, not fully excavated	-
3031 https://go.o.gl/PcG32P	Mid Grey-brown compacted sandy silt with 60% large sub-angular cobbles and pebbles.	Layer - Rubble spread, internal collapse of wall [3029]	Length – 2.10m Width – 1.50m Depth – Extent Unknown Not fully excavated	F303
3032 https://go.o.gl/BMuR9B	Mid orange-brown compacted clay with occasional inclusions of sub-angular pebbles.	Layer - Floor of the building between walls [3031] and [3034]	Length – 1.80m Width – 2.00m Depth – Extent Unknown Not fully excavated	F305
3033 https://go.o.gl/IWSMWY	Mid grey-brown loose sandy silt with inclusions of occasional charcoal fragments and sub-angular pebbles.	Layer – east of wall [3029] unknown whether Internal or external	Length – 0.95m Width – 1.10m Depth – Extent Unknown Not fully excavated	-

3034 https://go.o.gl/PY5Zrm	Sandstone blocks roughly hewn, 300mm-200mm in size with random coursing in the form of a wall	Masonry – wall running on an EW alignment	Length – 2.00m Width – 0.52m Depth – Extent Unknown Not fully excavated	F306
3035 https://go.o.gl/xUKEwg	Mid grey-brown firm sandy-silt with inclusions of occasional small sub-angular pebbles, shells and evidence of bio-turbation by root activity.	Layer - Deposition build-up and silting between Masonry [3034] and [3037].	Length – 1.36m Width – 2.11m Depth – Extent Unknown Not fully excavated	F303
3036 https://go.o.gl/PYBMTZ	Sandstone paving roughly hewn and split flags, 950mm-550mm in size with random coursing in the form of a floor.	Masonry – Laid floor layer of flagstones contemporary with wall alignments [3034] and [3037]	Length – 2.11m Width – 1.36m Depth – 0.15m	F304
3037 https://go.o.gl/OERP RN	Sandstone blocks roughly hewn, 300mm-200mm in size with random coursing in the form of a wall	Masonry – wall running on an EW alignment	Length – 0.95m Width – 0.55m Depth – 0.40m	F306
3038 https://go.o.gl/ROpFjl	Mid grey brown loose sandy silt with sandstone block, small pebbles and gravel.	Layer – Stone rubble spread	Length – 1.00m Width – 0.46m Depth – 0.24m	F303
3039 https://go.o.gl/fszOyM	Mid red brown sandy silt with occasional small rounded pebbles.	Fill – of pit cut [3021]	Length – 1.50 Width – 0.65m Depth – 0.10m	F309
3040 https://go.o.gl/13Fke2	Dark grey-brown sandy –silt with inclusions of moderate large cobbles.	Fill – primary fill of pit [3021]	Length – 1.50m Width – 0.90m Depth – 0.12m	
3041 https://go.o.gl/1n1z3X	Mid grey brown loose sandy silt with inclusions of occasional sandstone gravel and pebbles.	Deposit – silt levelling layer	Length – Unknown Width – Unknown Depth – 0.20m	

3042 https://go.o.gl/xPPW8J	Mid grey brown compact sandy silt with inclusions of frequent sandstone gravel and pebbles.	Layer – gravel make-up layer	Length – 1.50m Width – 0.33m Depth – 0.08m	
3043 https://go.o.gl/jXUrp0	Mid grey-brown firm silty clay with inclusions of occasional oyster shell.	Fill – of pit cut [3048]	Length – 1.50m Width – 0.33m Depth – 0.16m	F302
3044 https://go.o.gl/6Rno5s	Mid red orange firm silty clay.	Fill – of pit cut [3048]	Length – 1.50m Width – 0.33m Depth – Unknown not fully excavated	F302
3045 https://go.o.gl/Wccr0Q	Sandstone paving roughly hewn consisting of flags and cobbles, 600mm-450mm in size with random coursing in the form of a floor.	Masonry – flag and cobble surface	Length – Unknown Width – Unknown Depth – Unknown not fully excavated	-
3046 https://go.o.gl/Gx2szw	Sub-circular shape in plan with rounded corners, sharp break of slope top with sharp sides to a flat base.	Cut – of pit filled with (3047)	Length – 0.45m Width – 0.45m Depth – 0.75m	F308
3047 https://go.o.gl/jgwvl_c	Mid-grey firm clay silt with inclusions of frequent angular cobbles.	Fill – of pit cut [3046]	Length – 0.45m Width – 0.45m Depth – 0.75m	F308
3048 https://go.o.gl/Ysb0D0	Sub-circular shape in plan with rounded corners, sharp break of slope top with concave side to a flat base.	Cut – of pit or linear trackway filled with (3049)	Length – 1.50m Width – 0.90m Depth – 0.30m	F302
3049 https://go.o.gl/OX2abW	Mid brown-yellow firm clay silt with frequent angular cobbles.	Fill – of cut [3048]	Length – 1.50m Width – 0.90m Depth – 0.30m	F302

18 APPENDIX 2 – CATALOGUE OF FINDS

Appendix 2.1 The metal finds

Table 3: Iron objects

SF	Context	Material	Type	Description	Quantity
LDF_1	3003	Iron	Hook	Including one fishing hook, medieval, partial. No barb surviving. D. of shank 4.5mm Length 34mm, Ctxt 3017 (layer over cobbled surface)	1
LDF_8	1004	Iron	Nail	Thick iron nail. Length. 37mm. Width 37mm.	1
LDF_10	3014	Iron	Clench Bolt	Length 53mm. Plank thickness 30.6mm. Rove d. 28.5mm. Shank width 11.50mm.	1
LDF_11	3015	Iron	Clench bolt	Rove missing. Length 60.5mm. Shank width 15.5mm.	1
LDF_14	3019	Iron	Hook	Fishing hook; medieval, partial. No barb surviving. D. of shank 3.9mm. Length 49mm	1
LDF_16	3015	Iron	Hook	Fishing hook; medieval, partial. Possible hook. D. of shank 3mm. Length 20mm.	1
LDF_19	3017	Iron	Hook	Fishing hook; Including one fishing hook, medieval, partial. No barb surviving. D. of shank 4.5mm Length 34mm	1
LDF_21	3015	Iron	Clench Bolt	Assemblage of nine clenched bolts, mostly with attached roves. Length (overall) 56mm. Plank thickness 30.1mm. Rove d. 30mm Shank width 14.5mm Length (overall) 62mm. Plank thickness 33.3mm. Rove d.30mm Shank width 15mm Shank only. Length 69mm, Shank width 19mm Length (overall) 63mm. Plank thickness 35mm. Rove d. 31mm. Shank width 11mm Length (overall) 49.2mm. Plank thickness 32mm. Rove d.28mm Shank width 13mm Length (overall) 44.6mm. Plank thickness 30mm. Rove d.30mm. Shank width 15.6mm Shank only. Length 28mm. Shank width 13.5mm Length (overall) 50mm. Plank thickness 28mm Rove diam. c.26mm Shank width 12mm Length (overall) 59mm. Plank thickness 36mm. Rove diam. c25mm Shank 14.9mm	9
	3014	Iron	Object		2
	3007	Iron	Object		5
	3015	Iron	Object		6
	3003	Iron	Object		6
	3014	Iron	Object		1

	2005	Iron	Object		1
	3020	Iron	Object		1
	3029	Iron	Object		1
	2004	Iron	Object		6
	1002	Iron	Object		3
	3019	Iron	Object		1
	3017	Iron	Object		5
	2003	Iron	Object		2
	3001	Iron	Object		1
	3006	Iron	Object		17
	3001	Iron	Object	1 fork, several large nails	20
	Unstrat	Iron	Object	Trench 1	1
	Unstrat	Iron	Object	Trench 2	10
				<i>Total</i>	<i>105</i>

Table 4: Silver, cu alloy and lead finds

SF	Context	Material	Type	Description	Quantity
LDF_13	1004	Silver	Coin	Silver sceatta of Eadberht (737-c.758)	1
LDF_18	3031	Lead	Sheet	Medieval. Rectangular lead sheet, partially folded at some edges. Two piercings at one end. Unfolded dimensions c.100mm x c.60mm. Th.2.9mm.	1
LDF_20	3017	Copper alloy	Plate/sheet	Medieval; Irregular fragment of thin copper alloy sheet showing. Possibly from vessel or mount. No piercings or holes. 43mm x 24mm. Thickness 0.5mm.	1
	1002	Lead	Object		1
	3015	Lead	Object		1
	3003	Lead	Object		1
	2002	Lead	Object		1
	3014	Lead	Object		1
	3001	Lead	Object		1
	3003	Copper alloy	Object		1
	3015	Copper alloy	Object		2
				<i>Total</i>	<i>12</i>

Table 5: Metal working debris

SF	Context	Material	Type	Quantity	Weight (g)
LDF_7	1004	Slag	Early medieval	1	5
LDF_9	1004	Slag	Early medieval	1	12
LDF_12	1004	Slag	Non ferrous	2	
	3014	Slag		1	18

	3023	Slag		1	6
	3024	Slag		1	22
	3004	Slag		2	45
	3017	Slag		1	21
	1004	Slag		2	26
	2002	Slag		1	13
	3005	Slag		1	18
	3026	Slag		8	130
	3007	Slag		2	57
	3015	Slag		3	126
	3016	Slag		2	179
			<i>Total</i>	29	661

Appendix 2.2 Worked stone

Table 6: Stone finds

SF	Context	Material	Type	Description	Quantity	Weight (g)	Dimensions
LDF_15	1004	Stone	Hone stone	Probably beach cobble. Sandstone(?) Heavily burnished on one long face.	1		250 x 90 x 6mm
LDF_17	2004	Stone	Sculpture	Fragment of cross incised carved stone. Incised image of shaft (of cross?) runs down centre of main face defined by parallel incised lines c.20mm apart.	1		170 x 90 x 70mm
LDF_22	2004	Stone	Name stone	Red sandstone. The inscribed stone consists of the top portion of a round-headed sandstone cross-slab. The back of the stone is plain as are the remaining original edges. On the face are parts of the top and right-hand arms of an incised cross.	1		
LDF_23	2004	Stone	Lamp	Fragment of stone lamp. Only around 20% of the lamp surviving (based on circumference). Carbon deposits	1		130mm (height), internal depth 80mm

				surviving on interior surface. Good parallels known from the Anglo-Saxon monastery at Hartlepool (Daniels 2007, 130; McGarry 1991).			
LDF_24	3024	Stone	Hone stone	Fragment of red sandstone honestone, well-worn with use-wear visible on both sides	1	67	15 x 76 x 35mm
	1006	Stone	Unworked	Spherical cobble, burnt, possible pot boiler	1	283	77 x 62 x 52mm
	2002	Stone	Unworked	Sandstone, not visibly worked	1	105	48 x 22 x 66mm
	2004	Stone	Unworked	Includes two fragments red sandstone with possible toolmarks.	5	315	Various
	2004	Stone	Unworked	Sandstone fragment will possible tool marking	1	372	110 x 85 x 32mm
	2005	Stone	Red sandstone	Unworked fragment, red sandstone	1	559	175 x 46 x 38mm
	2009	Stone	Unworked		1	1135	
	3005	Stone	Unworked	Spherical cobble, very smooth, possible pot boiler	1	206	60 x 60 x 35mm
	3019	Stone	Unworked	Very burnt stone	1	41	46 x 44 x 36mm
				<i>Total</i>	<i>17</i>	<i>3083</i>	

Appendix 2.3 Fossils

Table 7: Fossils

SF	Context	Material	Description	Quantity	Weight (g)
LDF_2	3003	Fossil	Carboniferous crinoid. Known colloquially as "St Cuthbert's Beads" found commonly on the coast of the Holy Island.	1	
LDF_4	3006	Fossil		1	
	3003	Fossil		1	3
	3014	Fossil		1	4
	3006	Fossil		1	2
	3017	Fossil		1	4
	1002	Fossil		3	21
			<i>Total</i>	<i>9</i>	<i>34</i>

Appendix 2.4 Worked bone

Table 8: Worked bone

SF	Context	Material	Type	Description	Quantity	Dimensions
LDF_3	3006	Bone	Comb plate	Fragment of comb plate. Two parallel central lines with paired ring-and-dot motifs either side enclosed with further parallel lines on edge of plate. Indications of rivet holds at each end suggesting the bone has snapped off at these weak points. Notching caused by sawing of comb teeth visible on one side (6-7 teeth/cm). Probably an Ashby Type 8b (10th-12th century AD).	1	Length 30mm. Width 9mm.
LDF_5	3006	Bone	Whale bone	Plaque of cetacean bone (species unknown). Sawed at both ends	1	L. 100mm W. 55mm. Th. 5-8mm
LDF_6	3015	Bone	Worked horn	Fragment of horn(?) plate or mount. Three incised parallel lines at c.10mm space running along length crossed by 3 incised lines at right angles. Function unknown.	1	L. 31mm, W. 23mm Th. 4.5mm
					3	

Appendix 2.5 Ceramics: pottery

Table 9: Pottery types present

Code	Fabric/Ware Name	Start (approx)	End (approx)	Notes
GR C	Coarse gritted ware	1100?	1300	Type identified on several sites in north Northumberland including Bamburgh and Ingram. Dense fine matrix with sparse very coarse quartzose inclusions. Dating of this type is poor but in terms of forms produced and its absence from later 13th century deposits is thought to be 12th to early- 13th century.
BUGR	Buff gritty ware	1150	1250	
ECSW	Early coarse sandy ware	1150	1250	Shotton type/SCW/ECW/Staxton types
Unid grey	Unidentified coarse grey ware	1150?	1250?	
EGW	Early glazed ware	1150	1300	Equivalent to Early Glazed ware type 3 at Newcastle and early glazed Scottish White Gritty types from lower Tweed valley.
OXGR	Oxidised gritty ware	1150	1300	Iron-rich oxidised gritty ware.

Code	Fabric/Ware Name	Start (approx)	End (approx)	Notes
WHS	White sandy ware	1150	1300	Type identified from Alnwick area but dating of this type is poor.
COARSIR	Iron-rich coarse sandy ware	1200	1250	
PGGR	Pink-grey gritty ware	1200	1300	Newcastle type
TWV	Tweed Valley -type ware	1200	1350	Main type present - about 80% of medieval contexts. Closely dated sequences from the lower Tweed Valley are lacking. Here the material conforms to that from earlier excavations on Holy Island and Berwick-upon-Tweed. In terms of form, technology and chronological development the type shares many characteristics with Tyneside Buff-White ware. A range of chronological and fabric sub-divisions have been identified in Berwick.
SCARB	Scarborough-type ware	1250	1350	
TBW	Tyneside Buff-White ware	1250	1350	
BUFFS	Buff sandy ware	1250	1400	Types here hard fired akin to Shotton fabric 1c/d.
SAIN	Saintonge ware	1250	1650	
OB	Orange-buff type ware	1300	1400	Tyneside type
OXIR	Oxidised iron-rich -type ware	1300	1400	
DUTR	Dutch red earthenware	1300	1650	
LRG	Late-reduced greenware	1300	1700	Various fabrics but most common is distinct from that seen at Berwick (LRG1).
LCGR	Low countries greyware	1350	1500	
RG4	Newcastle Reduced Greenware type 4	1350	1550	
LMRW	Late medieval redware	1350	1550	Production of late medieval forms in a coarse redware has recently been identified at Lucker Hall, Northumberland.
CSTN	Cistercian ware	1480	1600	
FREC	Frechen stoneware	1550	1700	
NHSL	North Holland slipware	1570	1750	
TGW	Tin-glazed earthenware	1570	1850	
ER	English red earthenware	1580	1750	
ERBER	English red earthenware (Berwick-type)	1630	1700	Un-recorded finds from building works in Tweedmouth indicate a production site of this type producing wares with Metropolitan type decoration.
ERSL	English slip decorated red earthenware (Metropolitan-type)	1630	1700	
LGRE	Late glazed red earthenware	1700	1900	
LGRESL	Slip-coated late glazed red earthenware	1700	1900	
TPW	Transfer-printed ware	1780	1900	
REFW	Refined white earthenware	1805	1900	
unid slip	Unidentified slip decorated ware.	?	?	TWV fabric but red slip dec.

Table 10: Details of pottery by context

Cont ext	No of frags	Wt (g)	Ware types	Description	Date range	TPQ
1001	1	5	CSTN	Handle	1480 - 1600	1480
1002	4	17	OB sandy/TGW/ERBER/LGRE		1300 - 1900	1700
1004	2	4	COARSIR		1200 - 1300	1200
1006	1	4				
2002	18	117	EGW/TWV/RG/RAER/TGW/ER/TPW/LGW		1150 - 1900	1805
2003	1	29	ERBER			1630
2004	1	11				
2005	1	2	ERSL		1630 - 1700	1630
3001	31	469	EGW-SWGR/TWV/RG/SCARB/DUTR/LRG/RAER/LGRE/LGRESL/REFW/TPW	Very mixed	1150 - 1900	1805
3003	164	1048	TWV/SCARB/BUFFS/OB/GR C/BUGR/EGW/TBW/FREC/LGRE/REFW	While small quantity of post-med in this assemblage there is no lrg type. The medieval element would appear to be late- 13th to mid- 14th c. Mixed and some elements highly fragmented.	1150 - 1900	1805
3003/5	5		TWV		1200 - 1350	1200
3004	15	109	BUGR/TWV/LRG type/NHSL/REFW		1150 - 1900	1805
3005	16	125	EGW type/TWV/SCARB/LRG/ER/ERSL		1100 - 1700	1630
3006	220	1239	TWV/SCARB/BUFFS type/RG/LRG/GR/EGW/unid slip	80% TWV. A few sherds of lrg types.	1200 - 1550	1350
3007	81	443	GR C/EGW type/TWV/RG/LRG/OB type/ER	Single sherd of p/m redware - possibly intrusive. 95% of the assemblage is 13/14c. Very mixed and fragmented	1150 - 1900	1500
3009	1	5		Not seen		
3013	2	2	TWV		1200 - 1350	1200
3014	35	223		Not seen		
3015	115	970	LRG/LCR/TWV/RG	Links to 3023. TWV and other earlier types highly fragmented but some linking sherds. 7 NOT PoT - stone/bone.	1150 - 1650	1350
3016	2	7	TWV		1200 - 1350	1200

Cont ext	No of frags	Wt (g)	Ware types	Description	Date range	TPQ
3017	167	1055	TWV/SCARB/RG/OXIR/WHs/ESW	80%+ TWV. Variation of type - TWVC/TWV/TWVS/TWVO. No finer LRG types. Lid seated TWV bowl. 11 NOT POT.	1150 - 1400	1300
3019	25	133	TWV/LRG/NBS/DUTR/GR C	Range of Tweed Valley types inc coarse gr wares. Early types very mixed. LRG/DUTR more homogenous.	1150 - 1700	1350
3020	26	198	TWV/SCARB/BUGR/EGW-SWGR/OXGR/RG4/unid grey	3 NOT POT (stone). Mixed and highly fragmented.	1150 - 1550	1350
3023	11	124	TWV/LRG/SCARB/DUTR	Links to 3015	1250 - 1650	1350
3024	5	113	EGW/LRG/LMRW	Large fragments	1200 - 1600	1400
3026	8	78	TWV/SAIN/SCARB/LCG/RG/OXIR/PGGR		1200 - 1350	1250
3028	4	39	TWV (late)/EGW/SCARB		1150 - 1350	1250
3030	2	102	TWV (late)		1250 - 1350	1250
3031	1	4	LRG	Oxidised	1350 - 1600	1350
3035	5	28	TWV (late)/BUGR	Some very small fragments	1150 - 1350	1250
3040	12	85	LRG/SCARB/TWV late/OXIR		1200 - 1550	1300
<i>Total</i>	982	5082				

Appendix 2.6 Ceramics: Clay pipe

Context	Material	Type	Description	Quantity
1001	Ceramic	Clay pipe	Pipe bowl, fragment, with foot	1
1002	Ceramic	Clay pipe	Stem fragments	8
2002	Ceramic	Clay pipe	Stem fragments, with one partial bowl	15
2003	Ceramic	Clay pipe	Two bowls, and four stem fragments	6
3001	Ceramic	Clay pipe	Four stem fragments	4
			<i>Total</i>	34

Appendix 2.7 Glass

Context	Material	Description	Quantity	Weight
2002	Glass	Modern glass	2	20
3003	Glass	Modern glass	1	3
3001	Glass	Modern glass	1	18
		<i>Total</i>	4	41



19 APPENDIX 3 – HUMAN REMAINS

Table 11: Contexts containing disarticulated human bone

Context number	Location on Site	Number of fragments	Notes
2002	Subsoil layer within Trench 2	191	Intermixed with a large quantity of animal bone (approximately 106 fragments), possible name stone fragment also recovered from this context.
2004	Rubble deposit in Trench 2	239	Intermixed with animal bone (approximately 44 fragments), inscribed name stone also recovered, likely redeposited cemetery clearance material
2006	Stone rubble deposit in Trench 2	16	Intermixed with a small quantity of animal bone (approximately 10 fragments)
2007	Fill of stone assemblage (rubble deposit) in Trench 2	1	-
2008	Stone layer (rubble deposit) in Trench 2	30	-
2009	Deposit layer in Trench 2	18	-
2011	Levelling layer in Trench 2	28	Intermixed with a small quantity of animal bone (approximately six fragments)
3004	Subsoil cleaning layer in Trench 3	1	Intermixed with a small quantity of animal bone (approximately two fragments), shell, charcoal, and pottery also recovered
Total		524	

Table 12: Catalogue of disarticulated human bone

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
1	2002	Tibia	Proximal half of shaft, missing proximal articulation	L	30	4	1	A	-	No pathology
2	2002	Long bone	Long bone shaft fragments	-	-	-	27	A	-	-
3	2002	Clavicle	Missing medial end	L	80	3	2	A	-	No pathology
4	2002	Scapula	Acromion (missing tip), root of spine, and superior half of lateral border. Glenoid fossa missing	L	35	4	4	A	-	No pathology
5	2002	Clavicle?	Possible mid-shaft	?	10	4	1	A?	-	-
6	2002	Ribs	Right rib shaft fragments	R	-	3	2	A	-	No pathology
7	2002	Rib	Left rib shaft fragment	L	-	3	1	A	-	No pathology
8	2002	Ribs	Unidentified rib fragments	-	-	-	6	A	-	-
9	2002	Occipital bone	Sagittal sulcus and cruciform eminence	-	20	2	2	A	-	No pathology
10	2002	Frontal bone	Small fragment of right half of glabella	-	<5	2	1	A	?	No pathology
11	2002	Cranium	Cranial vault fragments	-	-	-	25	A	-	-
12	2002	Cranium	Cranial vault fragments	-	-	-	2	I/YJ	-	-
13	2002	Mandible	Right gonial angle, inferior quarter of right ramus, and posterior quarter of right body	-	20	3	1	A	?	2 tooth positions, 1 lost post-mortem, 1 NP/U
14	2002	Maxillary 2nd molar	Whole	R	100	1	1	A	-	Wear=2, fleck of calculus on the buccal surface
15	2002	Deciduous mandibular 2nd molar	Whole, root tips slightly damaged, with small portion of alveolar bone still surrounding the roots	R	100	1	2	YJ	-	Wear=3, no dental pathology, roots complete, dM1 missing post-mortem
16	2002	Femur	Distal epiphysis, anterior surface damaged	L	15	3	1	A	-	Slight porosity of joint surface, but also very damaged

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
17	2002	MC4	Whole	L	100	2	1	A	-	No DJC
18	2002	MC4	Missing distal end (head)	L	80	3	1	A	-	No DJC
19	2002	MC5	Proximal half only	L	45	2	1	A	-	No DJC
20	2002	Metacarpals	Metacarpal fragments	-	-	-	2	A	-	-
21	2002	Proximal hand phalanx	Likely 1st, proximal half	R?	55	2	1	A	-	No DJC
22	2002	Cervical vertebra	Mid-cervical, body only	-	50	2	1	A	-	Slight osteophyte formation on superior and inferior surfaces, slight porosity on superior surface
23	2002	Thoracic vertebra	Mid-thoracic, body only	-	50	2	1	A	-	No osteophytes or porosity, but small Schmorl's node on the superior surface, and moderate Schmorl's node on the inferior surface
24	2002	Thoracic vertebrae	Thoracic vertebral fragments	-	-	-	18	A	-	9 articular facets present, no DJC
25	2002	Lumbar vertebrae	Lumbar vertebral fragments	-	-	-	8	A	-	7 articular facets present, no DJC
26	2002	Sacrum	Body and right alar wing of S1, with right superior articular facet	-	20	4	1	A	M?	No DJC on articular facet, superior body surface pitted, but may be taphonomic damage, mediolateral indentation across body surface, may also be taphonomic
27	2002	Sacrum	Bodies of S4 and S5	-	10	4	1	A	-	Likely belongs to ID26
28	2002	Fragments	Unidentified human bone fragments	-	-	-	76	-	-	-
30	2004 (Bag 1)	Occipital bone	Fragment of right transverse sulcus and internal occipital crest	-	20	2	1	A	M?	No pathology
31	2004 (Bag 1)	Occipital bone	Fragment of cruciform eminence	-	10	3	1	A	I	No pathology
32	2004 (Bag 1)	Cranium	Cranial vault fragments	-	-	-	30	A	-	-

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
33	2004 (Bag 1)	Temporal bone	Petrous portion, mastoid process, external auditory meatus and posterior squama	L	60	2	1	A	M?	No pathology
34	2004 (Bag 1)	Ribs	Rib shaft fragments	-	-	-	14	A	-	-
35	2004 (Bag 1)	Radius	Proximal half, missing proximal epiphysis and tubercle	L	40	3	1	A	-	No pathology
36	2004 (Bag 1)	Humerus	Proximal joint surface fragments	?	<5	1	2	A	-	Porosity of joint surface, large pore/subchondral cyst formation has occurred
37	2004 (Bag 1)	Humerus	Lateral half of trochlea	R	<5	1	1	A	-	No DJC
38	2004 (Bag 1)	Tibia	Mid-shaft fragment	L?	15	4	1	A?	-	Possible lamellar bone striations on shaft, but poor cortical preservation makes it difficult to determine
39	2004 (Bag 1)	Tibia	Shaft fragment	?	10	4	1	A?	-	Poor cortical preservation
40	2004 (Bag 1)	Tibia	Small fragment of proximal epiphysis, possibly lateral condyle?	L?	<5	3	1	A	-	No DJC
41	2004 (Bag 1)	Long bone	Long bone shaft fragments	-	-	-	37	A	-	-
42	2004 (Bag 1)	Maxillary canine	Whole	L	100	1	1	A	-	Wear=2, linear DEH
43	2004 (Bag 1)	Mandibular canine	Whole	R	100	2	1	A	-	Crown slightly damaged so cannot assess dental pathology
44	2004 (Bag 1)	Hamate	Dorsal surface damaged	R	90	2	1	A	-	No DJC
45	2004 (Bag 1)	MT1	Medial surface slightly damaged	R	95	2	1	A	-	No DJC
46	2004 (Bag 1)	MT1	Distal half only, medial and lateral surfaces of head damaged	L?	45	3	1	A	-	No DJC

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
47	2004 (Bag 1)	Proximal foot phalanx	Whole	R?	100	3	1	A	-	No DJC
48	2004 (Bag 1)	Metacarpal	Distal half of metacarpal (possibly 3rd)	?	50	3	1	A	-	No DJC
49	2004 (Bag 1)	Proximal hand phalanges	x3 proximal hand phalanx shafts	-	-	-	3	A	-	-
50	2004 (Bag 1)	C1	Anterior arch of C1	-	20	2	1	A	-	No DJC
51	2004 (Bag 1)	Cervical vertebra	Right superior and inferior facets of a cervical vertebra	-	10	2	1	A	-	No DJC
52	2004 (Bag 1)	Thoracic vertebra	Mid-thoracic. Body present but damaged, neural arch missing spinous process and right transverse process	-	75	3	1	A	-	No DJC
53	2004 (Bag 1)	Thoracic vertebrae	Thoracic vertebral fragments	-	-	-	5	A	-	1 articular facet present, moderate porosity and marginal osteophyte formation (DJC)
54	2004 (Bag 1)	Lumbar vertebra	Inferior surface of lumbar body	-	20	2	1	A	-	Osteophyte formation around body margins, and porosity of the inferior surface, possible slight Schmorl's node formation
55	2004 (Bag 1)	Lumbar vertebrae	Lumbar vertebral fragments	-	-	-	3	A	-	-
57	2004 (Bag 2)	Temporal bone	Mastoid process, external auditory meatus, and small part of petrous process	L	15	3	1	A	?	No pathology
58	2004 (Bag 2)	Cranium	Cranial vault fragments	-	-	-	9	A?	-	-
59	2004 (Bag 2)	Cranium	Cranial vault fragments	-	-	-	4	F/P/I	-	-

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
60	2004 (Bag 2)	Femur	Femoral head and neck	L	10	3	1	A	-	No DJC
61	2004 (Bag 2)	Humerus	Trochlea and medial epicondyle	R	5	2	1	A	-	No DJC
62	2004 (Bag 2)	Radius	Distal epiphysis and distal quarter of shaft	L	20	2	1	A	-	No DJC
63	2004 (Bag 2)	Long bone	Long bone shaft fragments	-	-	-	6	A	-	-
64	2004 (Bag 2)	Ribs	Rib shaft fragments	-	-	-	5	-	-	-
65	2004 (Bag 2)	Patella	Inferior apex damaged	R	95	2	1	A	-	No DJC
66	2004 (Bag 2)	Maxillary central incisor	Whole	L	100	1	1	A	-	Wear=4, no dental pathology
67	2004 (Bag 2)	MC1	Missing distal end (head)	R	90	3	1	A	-	No DJC
68	2004 (Bag 2)	Proximal hand phalanx	Missing proximal and distal ends	?	80	3	1	A?	-	-
69	2004 (Bag 2)	Intermediate hand phalanx	Whole	?	100	2	1	A	-	No DJC
70	2004 (Bag 2)	Intermediate cuneiform	Whole	R	100	3	1	A	-	No DJC
71	2004 (Bag 2)	Scapula	Glenoid fossa (missing inferior joint margin), and coracoid (missing tip)	L	10	2	1	A	-	No DJC
72	2004 (Bag 2)	Scapula	Coracoid process (missing tip)	R	5	2	1	A	-	No pathology
73	2004 (Bag 2)	Cervical vertebra	C2, dens, body, and left and right superior facets	-	60	1	1	A	-	No pathology, no DJC
74	2004 (Bag 2)	Thoracic vertebra	Mid-thoracic, missing tip of spinous process and left transverse process	-	95	2	1	A	-	4 facets present, 1 with DJC. Marginal osteophyte formation and porosity of the

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
										superior and inferior body surfaces, more severe on the inferior surface
75	2004 (Bag 2)	Thoracic vertebra	Mid-lower thoracic, missing spinous process and left and right transverse processes, right side of body damaged on margins of superior and inferior surfaces	-	80	3	1	A	-	4 facets present, none with DJC, but small circular cortical defects on the inferior facets. Marginal osteophytes and porosity on superior body surface, marginal osteophytes on inferior surface.
76	2004 (Bag 2)	Thoracic vertebrae	Thoracic vertebral fragments	-	-	-	2	A	-	3 facets present, no DJC
77	2004 (Bag 2)	Sacrum	Superior body surface of S1 (only right third of surface intact), right superior facet, and part of alar wing present	-	10	3	1	A	?	No DJC, possible border shift as part of the right alar wing looks like a transverse process of a lumbar vertebra, but rest of spine not present to confirm
78	2004 (Bag 2)	Sacrum	Bodies and posterior wall of S3 and S4	-	40	3	1	A	-	No pathology
80	2004 (Bag 3)	Occipital bone	Sagittal sulcus and part of lambda	-	10	2	1	A	-	No pathology
81	2004 (Bag 3)	Parietal bone	Part of coronal suture, missing anterosuperior and anteroinferior corners	R	20	3	1	A	-	No pathology
82	2004 (Bag 3)	Frontal and parietal bone	Section of left coronal suture	L	20	3	1	A	-	No pathology
83	2004 (Bag 3)	Parietal bone	Anterosuperior quarter	L	30	3	1	NA?	-	No pathology
84	2004 (Bag 3)	Cranium	Cranial vault fragment	-	-	-	1	A	-	Likely occipital or posterior parietal (lambdoid suture)
85	2006	Calcaneus	Lateral surface damaged	R	75	2	1	A	-	No pathology, no DJC
86	2006	Talus	Medial half missing, fibular surface also damaged	L	70	2	2	A	-	No pathology, no DJC
87	2006	Medial cuneiform	Dorsal surface damaged	R	90	2	1	A	-	No pathology, no DJC

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
88	2006	Tibia	Small fragment of proximal articular surface, possibly medial condyle?	R?	<5	1	1	A	-	No DJC
89	2006	Metatarsal	Metatarsal shaft fragment	?	75	2	1	A	-	No pathology
90	2006	Lumbar vertebra	Left half of inferior surface of body, likely lower lumbar	-	25	2	1	A	-	Too damaged to assess pathology
91	2006	Ribs	Rib shaft fragments	-	-	-	2	A	-	-
92	2006	Long bone	Long bone shaft fragments	-	-	-	3	A?	-	-
93	2006	Fragments	Unidentified human bone fragments	-	-	-	4	-	-	-
95	2007	Calcaneus	Anterior and posterior facets for the talus	L	10	2	1	A	-	No pathology, no DJC
96	2008	Ribs	Right rib shaft fragments	R	-	-	2	A	-	No pathology, no DJC
97	2008	Cervical vertebrae	Cervical vertebral fragments	-	-	-	2	A	-	-
98	2008	Cranium	Cranial vault fragments	-	-	-	4	A?	-	-
99	2008	Maxillary canine	Missing half of root	R	60	0	1	A?	-	Wear=2, no dental pathology, ID99-101 likely same dentition
100	2008	Maxillary canine	Missing half of root	L	60	0	1	A?	-	Wear=3, no dental pathology, ID99-101 likely same dentition
101	2008	Maxillary 1st premolar	Missing third of root	L	70	0	1	A?	-	Wear=2, no dental pathology, ID99-101 likely same dentition
102	2008	Fragments	Unidentified human bone fragments	-	-	-	19	-	-	-
103	2011	Parietal bone	Anterosuperior corner	R	15	3	1	A	-	No pathology
104	2011	Cranium	Cranial vault fragments	-	-	-	3	-	-	-
105	2011	Humerus	Whole	L	100	3	1	A	-	No pathology, no DJC
106	2011	Scapula	Spine (missing tip of acromion), glenoid fossa, and superior two-thirds of the lateral border. Superior border damaged	L	50	3	1	A	-	No pathology, no DJC
107	2011	Rib	Tubercle, angle, and shaft. Missing the head and sternal end	R	80	2	3	A	-	No pathology

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
108	2011	Rib	Head and tubercle	L	15	2	1	YA	-	Head epiphysis still fusing, no pathology
109	2011	Ribs	Rib shaft fragments	-	-	-	4	A	-	-
110	2011	Lumbar vertebra	Lower lumbar, left superior facet and small portion of pedicle and body	-	10	2	1	A	-	No pathology, no DJC
111	2011	Medial cuneiform	Missing plantar surface	L	90	3	1	A	-	No pathology, no DJC
112	2011	Proximal hand phalanx	Possibly 3rd? Whole	?	100	1	1	A	-	No pathology, no DJC
113	2011	Intermediate hand phalanx	Whole	?	100	2	1	A	-	No pathology, no DJC
114	2011	Mandibular incisor	Likely lateral. Root tip and crown damaged	R	80	2	1	A	-	Crown too damaged to determine wear and dental pathology, but possible flecks of calculus on the lingual and mesial surface of the CEJ
115	2011	Zygomatic bone	Temporal process missing	L	90	1	1	F/P/I	-	No pathology
116	2011	Fragments	Unidentified human bone fragments	-	-	-	8	-	-	-
118	3004	Mandible	Fragment of right side of body with 1st and 2nd deciduous molars in situ	-	20	3	1	YJ	-	3 tooth positions present, 2 deciduous teeth present, 1 deciduous tooth lost post-mortem. Right dM2 - Wear=2, no dental pathology, roots complete. Right dM1 - Wear=2, no dental pathology, root tips damaged but appear complete. Developing crowns of the right permanent premolars visible.
120	2009	Tibia	Small fragments of tibial shaft	-	-	-	3	-	-	-
121	2009	Ribs	Rib shaft fragments	-	-	-	2	-	-	-
122	2009	Humerus?	Humerus shaft fragment, likely proximal third	?	20	4	1	A?	-	-
123	2009	Patella	Small fragment of patella	?	20	3	1	A?	-	-

ID	Context	Bone Element	Detailed Description	Side	%	SP	No. Frags	Age	Sex	Other
124	2009	Lumbar vertebra	Right inferior articular facet	-	15	2	1	A	-	Marginal osteophyte formation on the posterior border of the facet
125	2009	Long bone	Long bone shaft fragments	-	-	-	10	-	-	-
126	2004 (Bag 1)	Ribs	Sternal ends of two rib shafts	-	-	-	2	OM A/M A??	-	Irregular projections on rim and bony nodules in U-shaped cup at sternal end, likely older individual(s)??
127	2004 (Bag 1)	Ulna	Proximal third, missing proximal end	R	20	2	1	A	-	No pathology
128	2004 (Bag 1)	Metacarpals	x2 metacarpal shafts	-	-	-	2	A	-	-
129	2004 (Bag 1)	Hand phalanx	Shaft fragment, may be intermediate or proximal	-	-	-	1	A?	-	-
130	2004 (Bag 1)	Proximal foot phalanx	Likely 1st, proximal articulation	?	15	5	1	A?	-	-
131	2004 (Bag 1)	Fragments	Unidentified human bone fragments	-	-	-	38	-	-	-
132	2004 (Bag 2)	Radius	Proximal third, missing proximal end	L	20	1	1	A?	-	-
133	2004 (Bag 2)	Cervical vertebra	Possibly C2, right side of neural arch, with small portion of left lamina, only part of right inferior facet present	-	30	2	1	A	-	No pathology, no DJC
134	2004 (Bag 2)	Fragments	Unidentified human bone fragments	-	-	-	28	-	-	-
135	2004 (Bag 2)	Clavicle?	Portion of lateral shaft of clavicle?	L	40	5	1	A?	-	Poor cortical preservation
136	2004 (Bag 2)	Calcaneus	Anterior portion of posterior talar facet	L	5	3	1	A	-	No DJC
137	2004 (Bag 2)	Femur	Anterior and medial surface of distal half damaged	R	75	2	1	F/P/ I	-	Mid-shaft very thin for the length, approx. 4.4mm in diameter (proximal and distal ends damaged so cannot measure length). Could be normal growth.

20 APPENDIX 4 - UNWORKED ANIMAL BONE AND SHELL

Excavations recovered a moderate assemblage of animal bone, distributed across the site but with the vast majority recovered from Trench 3 (n=2855, 13kg). Smaller quantities were recovered from Trench 1 (n=51, 219g) and Trench 2 (n=418, 1.5kg). Shell was recorded mainly in Trench 3, where 365 fragments were recovered compared to only 36 from Trench 1 and none from Trench 2. Both shell and bone assemblages are currently under assessment.

Table 13: *Unworked animal bone*

Context	Quantity	Weight (g)
1001	2	11
1002	25	31
1004	20	109
1005	1	2
1007	2	18
1010	1	48
2002	153	274
2003	26	-
2004	153	848
2005	1	11
2006	26	264
2006	44	29
2007	14	93
2008	1	4
3001	30	475
3003	309	1247
3004	198	1156
3005	131	580
3006	91	185
3007	274	747
3009	6	5
3013	16	12
3014	152	414
3015	356	1290
3016	78	56
3017	230	555
3019	101	383
3020	147	226
3023	76	142
3024	51	174
3026	137	785
3028	13	16
3030	11	20
3031	75	1064

Context	Quantity	Weight (g)
3033	11	207
3035	85	309
3038	7	73
3039	7	40
3040	17	417
3041	22	178
3031	75	1064
3033	11	207
3035	85	309
3038	7	73
3039	7	40
3040	17	417
3041	22	178
<i>Total</i>	<i>3324</i>	<i>14293</i>

Table 14: *Unworked shell*

Context	Quantity	Weight (g)
1002	36	81
3001	32	332
3003	212	782
3004	71	192
3005	36	85
3007	2	8
3015	12	62
<i>Total</i>	<i>401</i>	<i>1542</i>

Methodology

- 22.1.1 Following selection, subsamples of raw sediment from the selected samples were processed. The samples were examined in the laboratory, where they were described using a pro forma. The subsamples were processed by staff at DigVentures using their standard water flotation methods. The flot (the sum of the material from each sample that floats) was sieved to 0.5mm and air dried. The heavy residue (the material which does not float) was not examined, and therefore the results presented here are based entirely on the material from the flot. The flot was examined under a low-power binocular microscope at magnifications between x12 and x40.
- 22.1.2 A four-point semi quantitative scale was used, from '1' – one or a few specimens (less than an estimated six per kg of raw sediment) to '4' – abundant remains (many specimens per kg or a major component of the matrix). Data were recorded on paper and subsequently on a personal computer using a Microsoft Access database. The results of this can be seen in Table 3 at the end of this report.
- 22.1.3 Identification was carried out using published keys (Jacomet 2006; Biejerinkc 1976; Jones, unpublished; and Zohary & Hoof 2000), online resources <http://www.plantatlas.eu/za.php>, and the authors own reference collection. Taxonomy and nomenclature follow Stace (1997). The full species list appears at Appendix 2 at the end of this report.
- 22.1.4 The flot was then sieved into convenient fractions (4, 2, 1 and 0.3mm) for sorting and identification of charcoal fragments. Identifiable material was only present within the 4 and 2mm fractions. A random selection of ideally 100 fragments of charcoal of varying sizes was made, which were then identified. Where samples did not contain 100 identifiable fragments, all fragments were studied and recorded. Identification was made using the wood identification guides of Schweingruber (1978) and Hather (2000). The full species list appears in Appendix 2 at the end of this report. Taxa identified only to genus cannot be identified more closely due to a lack of defining characteristics in charcoal material.

Table 15: Plant macrofossils; complete list of taxa recovered.

Taxonomy and nomenclature follow Stace (1997).

Sample number	4	5	11	17	
Context number	3019	3015	3020	3033	
Feature number	3018		3018		
Feature type	Pit fill	Shell midden deposit	Pit fill	Layer	
Latin Binomial					Vernacular
<i>Chenopodium</i> / <i>Atriplex</i>	5	2		32	Goodefoot / Orache
<i>Rumex</i> spp.	1				Dock
BRASSICACEAE	4		16	3	Cabbage family
<i>Crataegus monogyna</i> Jacq.				3	Hawthorn
FABACEAE				2	Pea family

<i>Melilotus / Medicago / Trifolium</i>		5	3		Melilots / Medicks / Clovers
POACEAE	8	3	3	21	Grass family
<i>Avena</i> spp.				6	Oat
<i>Hordeum</i> spp.			2	7	Barley
<i>Triticum</i> spp.			19		Wheat
Indeterminate Cereal	31	22	65	75	Indeterminate Cereal
Indeterminate Cereal spikelet fork			2		Indeterminate Cereal spikelet fork
Indeterminate Cereal glume base			1		Indeterminate Cereal glume base
Indeterminate Cereal culm node				2	Indeterminate Cereal culm node
Unidentified			1		Unidentified

Table 16: Charcoal - Complete list of taxa recovered from excavations.

Taxonomy and nomenclature follow Schweingruber (1978). Numbers are identified charcoal fragment for each sample.

Sample number		4	5	11	17	24
Context number		3019	3015	3020	3033	1004
Feature number		3018		3018		
Feature type		Pit fill	Deposit	Pit fill	Layer	Layer
No. fgts.		300+	200+	500+	600+	100+
Max. size (mm)		24	11	15	21	20
Latin	Vernacular					
<i>Pinus</i>	Pine				11	
<i>Salix / Populus</i>	Willow / Poplar	14	5		38	
<i>Corylus avellana</i>	Hazel	5	3		15	
<i>Quercus</i>	Oak	4	9	5		9
Indeterminate	Indeterminate	77	83	95	36	91

RADIOCARBON DATING CERTIFICATE

24 April 2017

Laboratory Code SUERC-72688 (GU43502)

Submitter David Petts
Department of Archaeology
Durham University
Durham
DH1 3LE

Site Reference LDF16

Context Reference 2004

Sample Reference 1

Material Bone : Human

$\delta^{13}\text{C}$ relative to VPDB -21.2 ‰

$\delta^{15}\text{N}$ relative to air 10.4 ‰

C/N ratio (Molar) 3.3

Radiocarbon Age BP 1126 $\pm$ 31

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

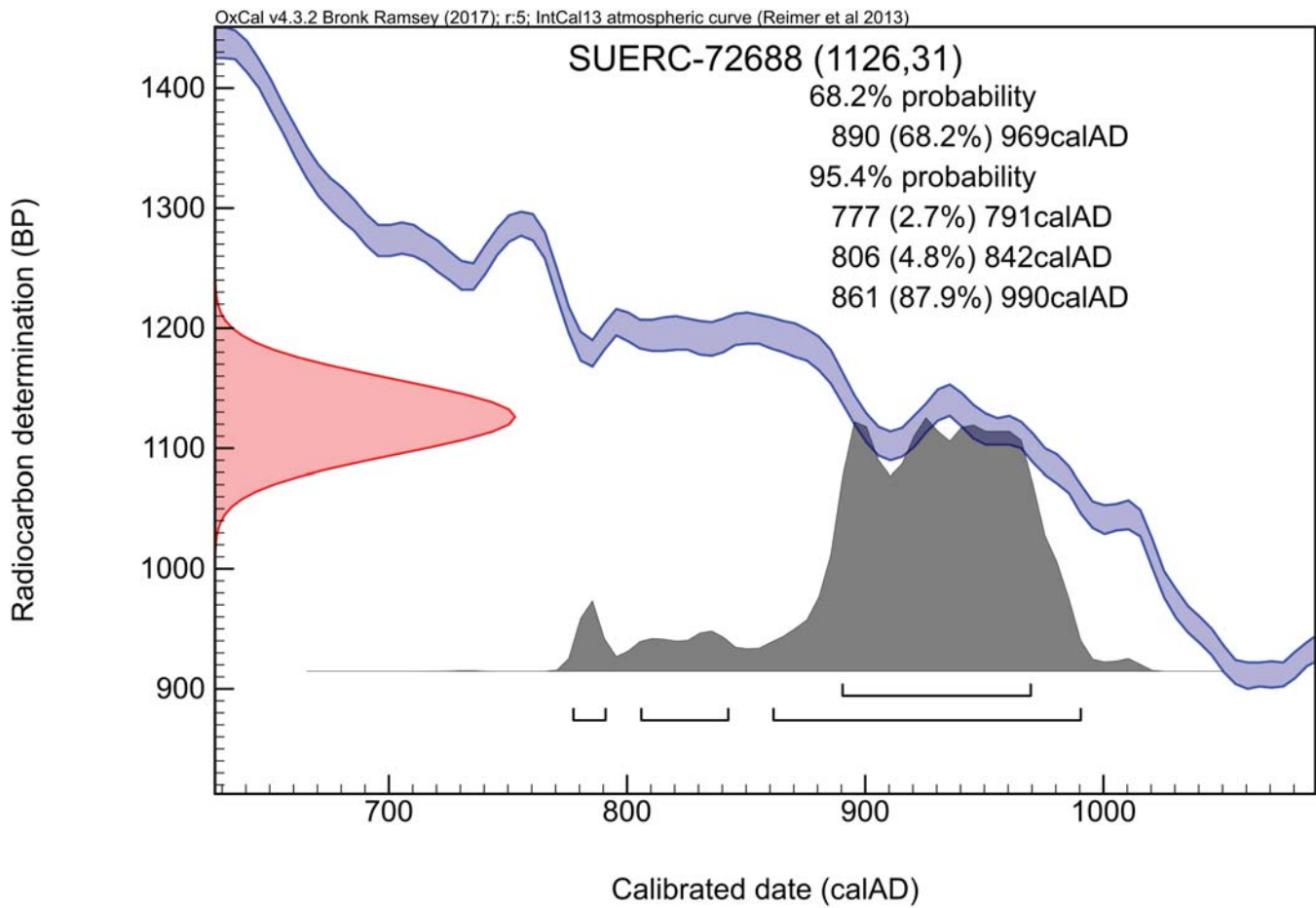
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email Gordon.Cook@glasgow.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-  Date :- 24/04/2017

Checked and signed off by :-  Date :- 24/04/2017

Calibration Plot



RADIOCARBON DATING CERTIFICATE

24 April 2017

Laboratory Code SUERC-72689 (GU43503)

Submitter David Petts
Department of Archaeology
Durham University
Durham
DH1 3LE

Site Reference LDF16

Context Reference 2004

Sample Reference 2

Material Bone : Human

$\delta^{13}\text{C}$ relative to VPDB -20.2 ‰

$\delta^{15}\text{N}$ relative to air 10.8 ‰

C/N ratio (Molar) 3.1

Radiocarbon Age BP 1150 $\pm$ 31

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email Gordon.Cook@glasgow.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-



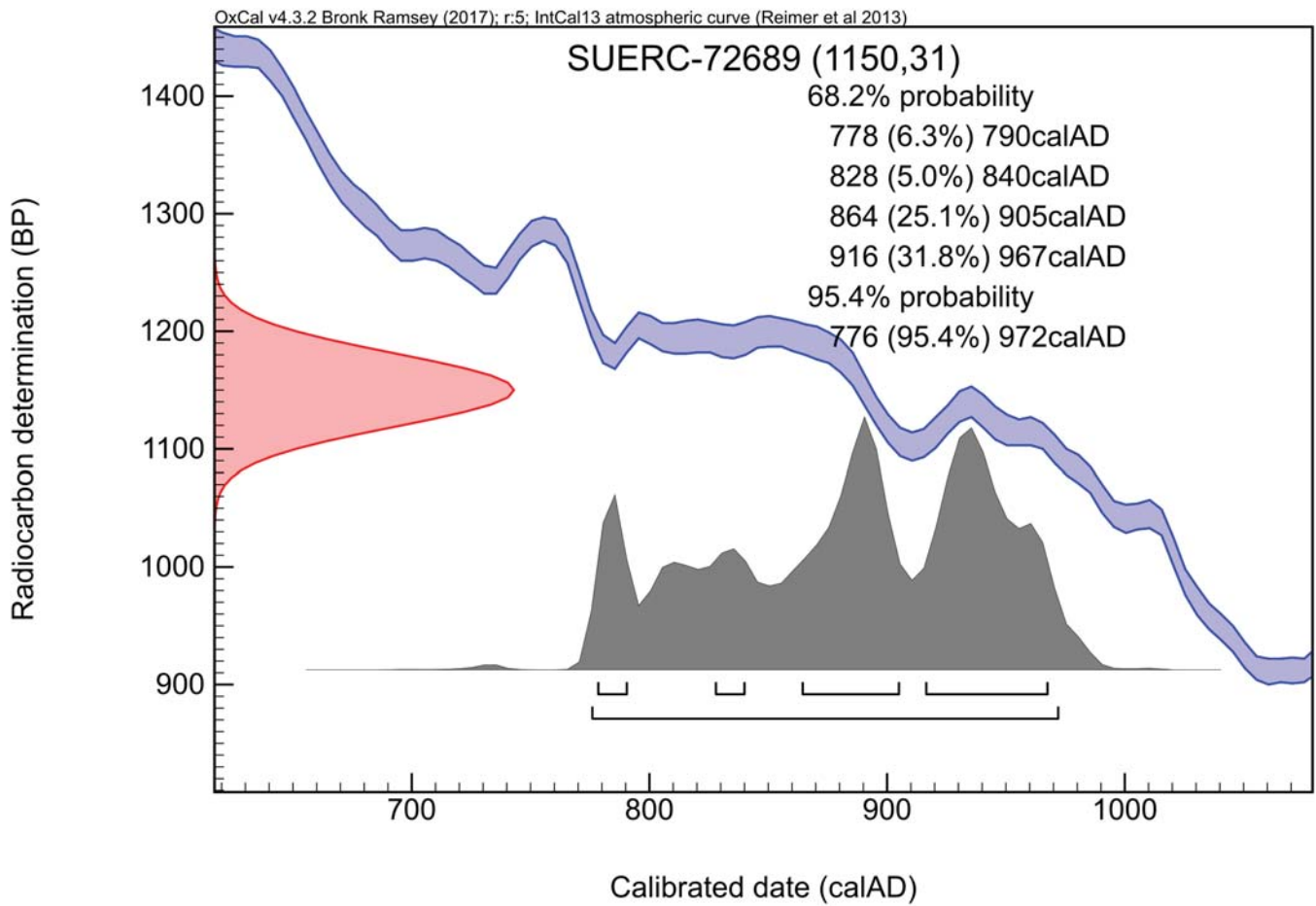
Date :- 24/04/2017

Checked and signed off by :-



Date :- 24/04/2017

Calibration Plot



RADIOCARBON DATING CERTIFICATE

24 April 2017

Laboratory Code SUERC-72690 (GU43504)

Submitter David Petts
Department of Archaeology
Durham University
Durham
DH1 3LE

Site Reference LDF16

Context Reference 2006

Sample Reference 3

Material Bone : Human

$\delta^{13}\text{C}$ relative to VPDB -20.7 ‰

$\delta^{15}\text{N}$ relative to air 11.0 ‰

C/N ratio (Molar) 3.1

Radiocarbon Age BP 1170 $\pm$ 31

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email Gordon.Cook@glasgow.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-



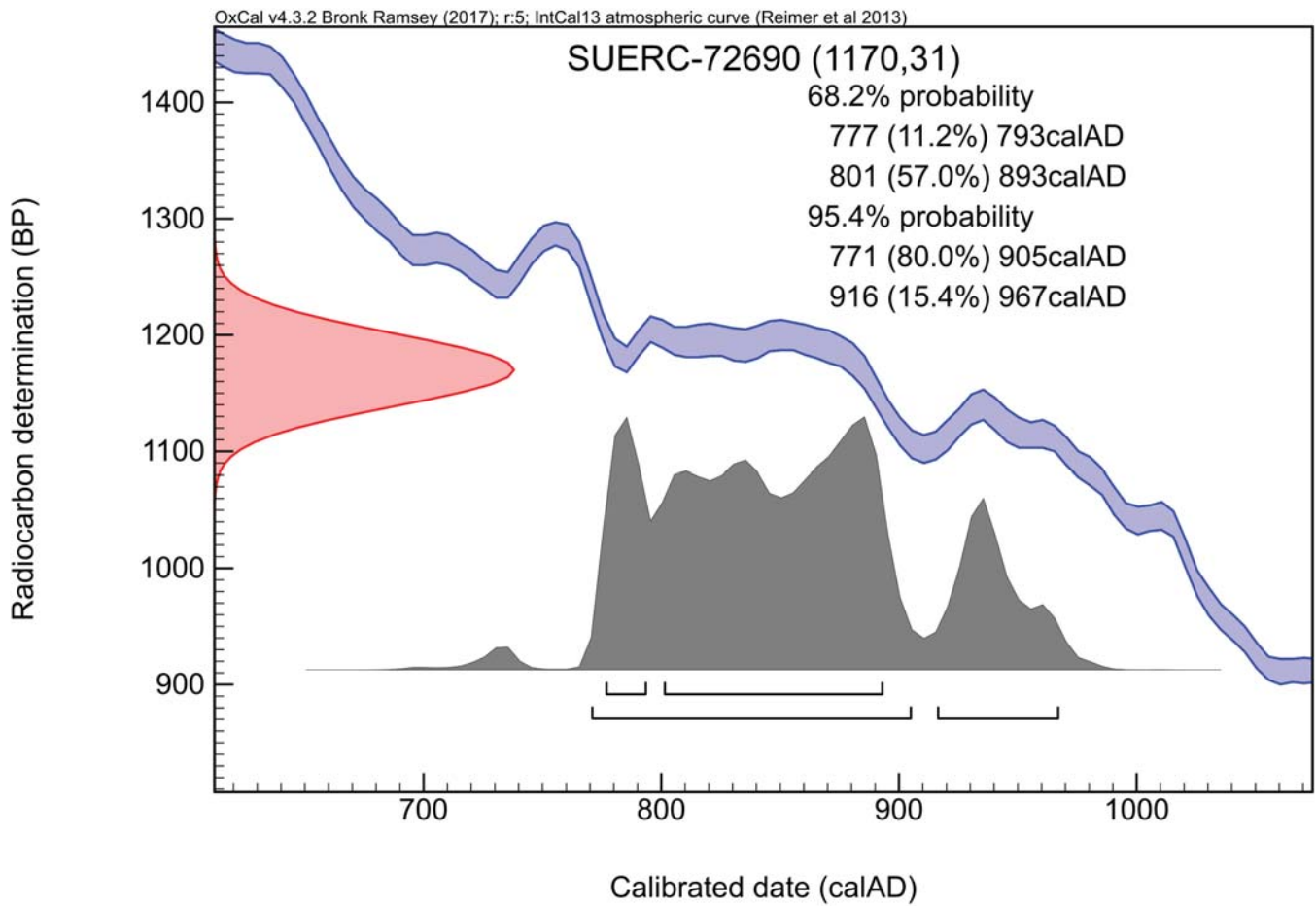
Date :- 24/04/2017

Checked and signed off by :-



Date :- 24/04/2017

Calibration Plot





Lindisfarne-16

Processing Report

28 June 2016



Survey Data

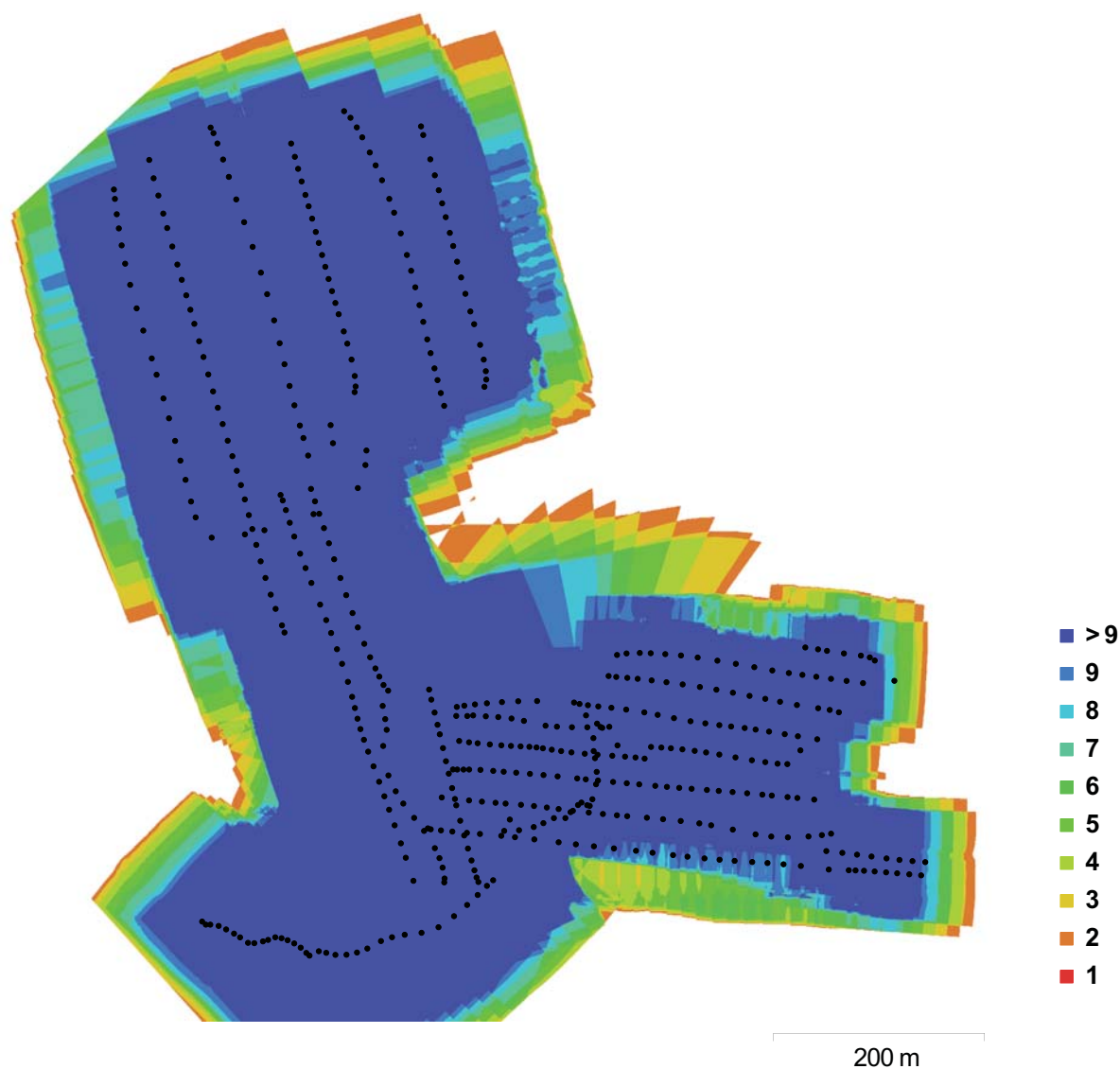


Fig. 1. Camera locations and image overlap.

Number of images:	479	Camera stations:	479
Flying altitude:	96.9 m	Tie points:	143,879
Ground resolution:	3.62 cm/pix	Projections:	1,053,762
Coverage area:	5.08e+05 sq m	Reprojection error:	1.28 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC350 (3.61 mm)	3992 x 2992	3.61 mm	1.57 x 1.57 um	No

Table 1. Cameras.

Camera Calibration

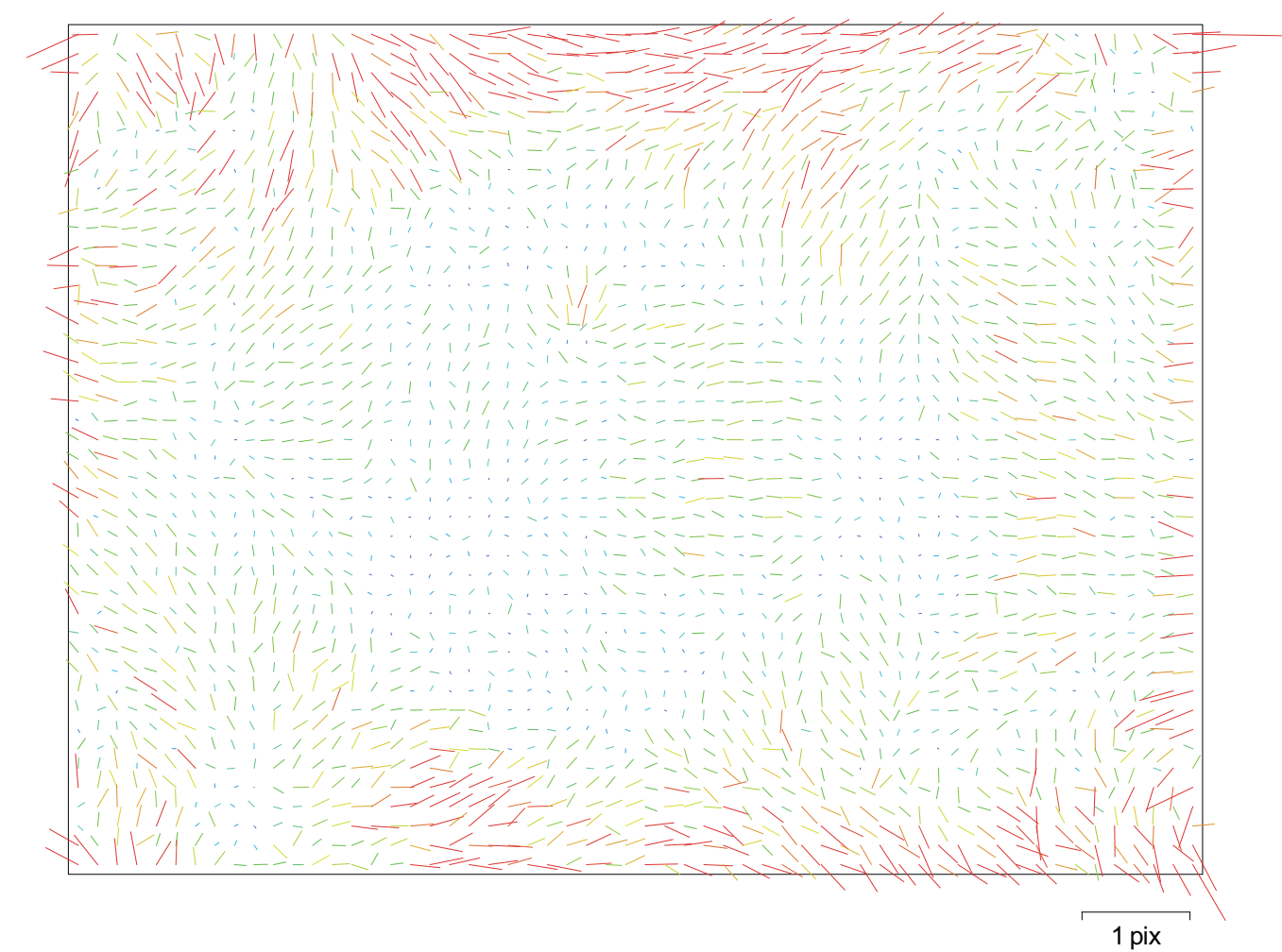


Fig. 2. Image residuals for FC350 (3.61 mm).

FC350 (3.61 mm)

479 images

Resolution	Focal Length	Pixel Size	Precalibrated
3992 x 2992	3.61 mm	1.57 x 1.57 um	No
Type:	Frame	F:	2332.77
Cx:	-14.1552	B1:	1.3968
Cy:	-16.0258	B2:	-0.304919
K1:	-0.13805	P1:	-0.000229619
K2:	0.133904	P2:	-1.15453e-05
K3:	-0.0483998	P3:	0
K4:	0.0140806	P4:	0

Camera Locations

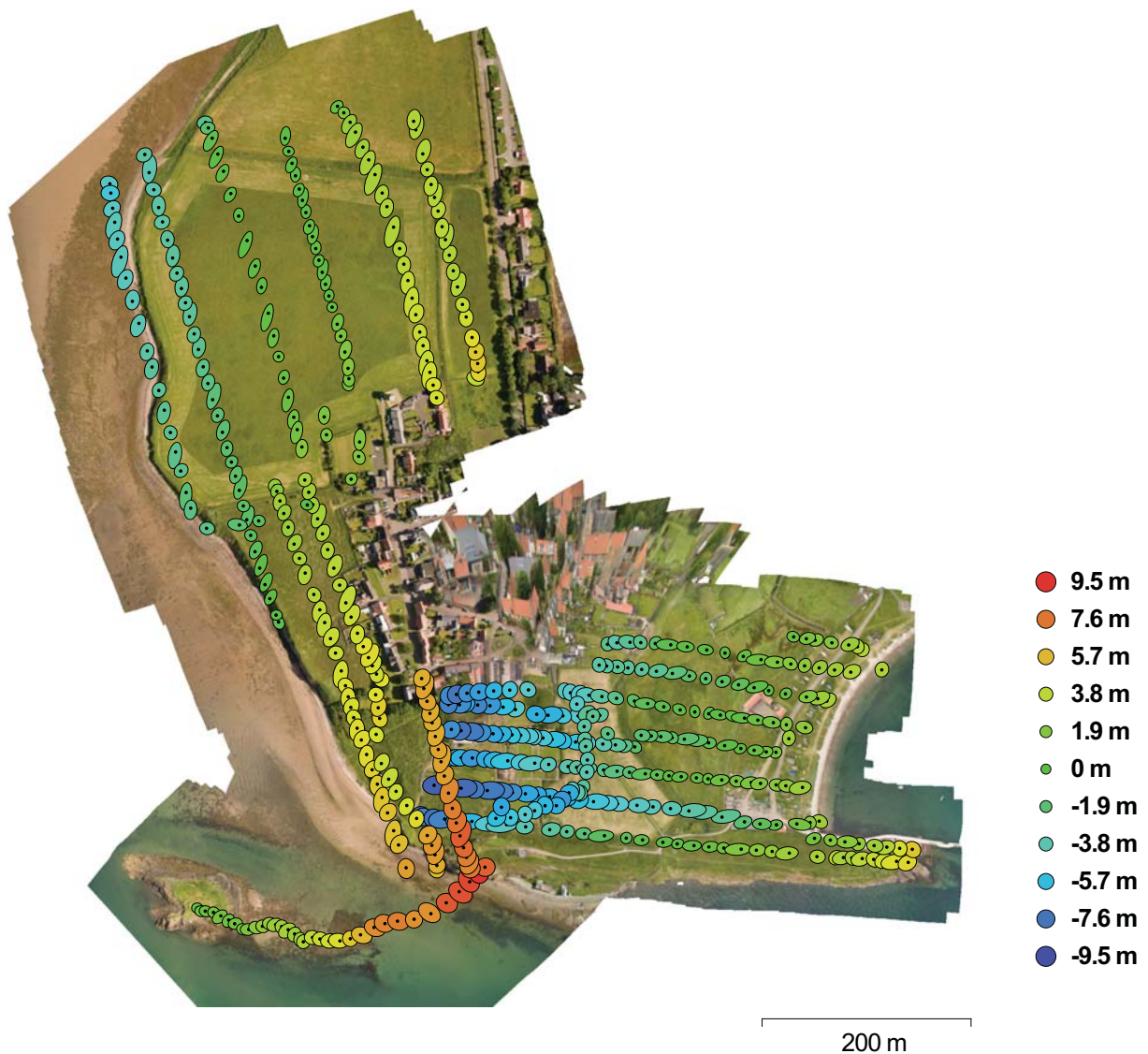


Fig. 3. Camera locations and error estimates.

Z error is represented by ellipse color. X,Y errors are represented by ellipse shape.

Estimated camera locations are marked with a black dot.

X error (m)	Y error (m)	XY error (m)	Z error (m)	Total error (m)
2.05813	2.2614	3.05775	4.05462	5.07837

Table 2. Average camera location error.

Digital Elevation Model

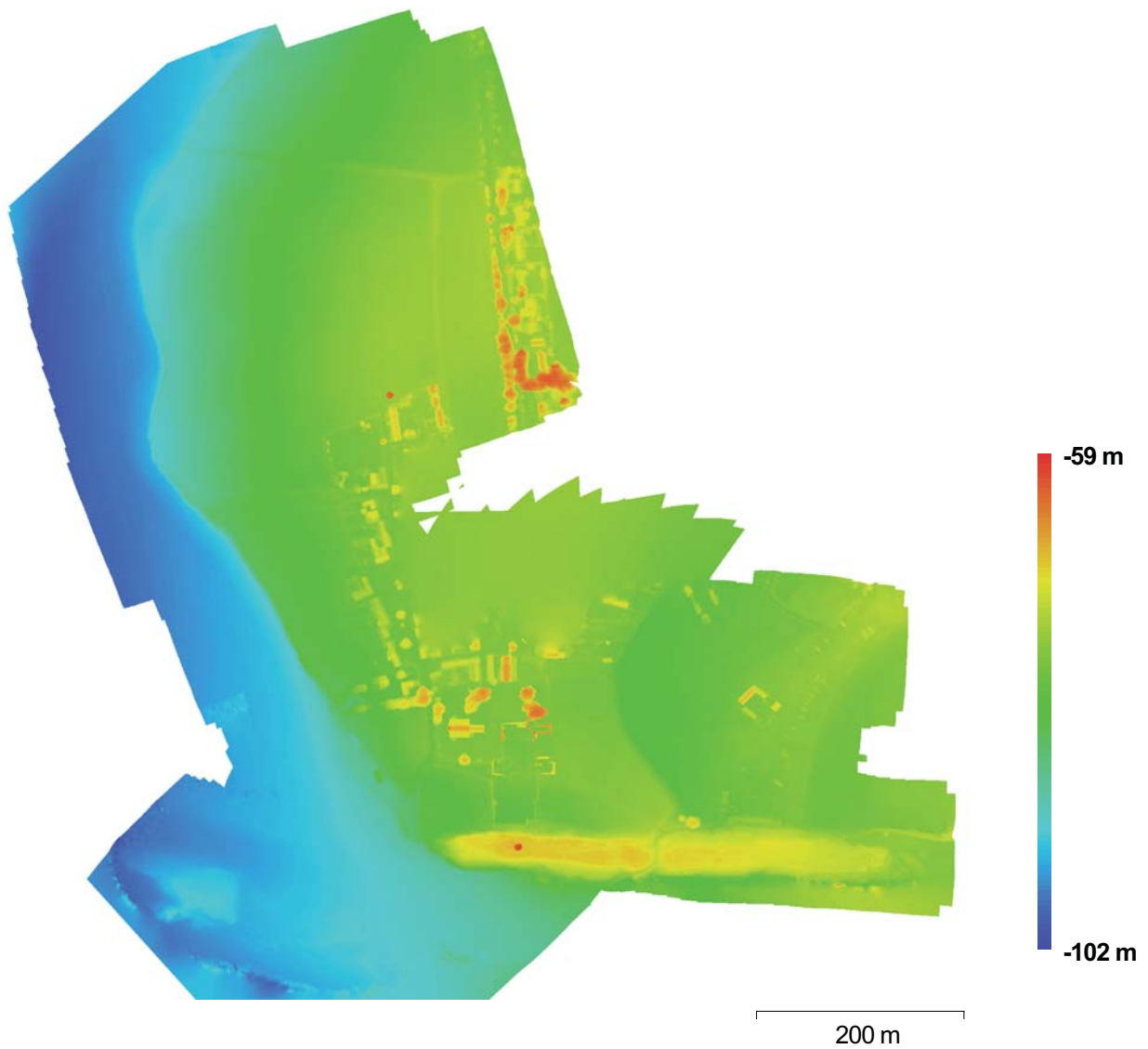


Fig. 4. Reconstructed digital elevation model.

Resolution: 14.5 cm/pix
Point density: 47.577 points per sq m

Processing Parameters

General

Cameras	479
Aligned cameras	479
Coordinate system	OSGB 1936 (EPSG:4277)

Point Cloud

Points	143,879 of 222,116
RMS reprojection error	0.409058 (1.2817 pix)
Max reprojection error	1.74709 (41.1744 pix)
Mean key point size	3.04475 pix
Effective overlap	9.79385

Alignment parameters

Accuracy	High
Pair preselection	Disabled
Key point limit	40,000
Tie point limit	4,000
Constrain features by mask	No
Matching time	5 hours 50 minutes
Alignment time	3 minutes 57 seconds

Optimization parameters

Parameters	f, b1, b2, cx, cy, k1-k4, p1, p2
Optimization time	5 seconds

Depth Maps

Count	479
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Reconstruction parameters

Quality	Medium
Filtering mode	Aggressive
Processing time	41 minutes 15 seconds

Dense Point Cloud

Points	25,194,509
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Reconstruction parameters

Quality	Medium
Depth filtering	Aggressive
Processing time	22 minutes 54 seconds

Model

Faces	5,038,899
Vertices	2,523,220
Texture	16,384 x 16,384, uint8

Reconstruction parameters

Surface type	Arbitrary
Source data	Dense
Interpolation	Enabled
Quality	Medium
Depth filtering	Aggressive
Face count	5,038,899
Processing time	21 minutes 36 seconds

Texturing parameters

Mapping mode	Generic
Blending mode	Mosaic
Texture size	16,384 x 16,384
UV mapping time	5 minutes 40 seconds
Blending time	24 minutes 44 seconds

DEM

Size	9,455 x 9,589
Coordinate system	OSGB 1936 (EPSG:4277)

Reconstruction parameters

Source data	Dense cloud
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Interpolation	Enabled
Orthomosaic	
Size	7,441 x 8,192
Coordinate system	OSGB 1936 (EPSG::4277)
Channels	3, uint8
Blending mode	Mosaic
Reconstruction parameters	
Surface	DEM
Enable color correction	Yes