

Leiston Abbey

2013 & 2014 Field Season

Archaeological Evaluation

Interim Assessment Report and Updated Project Design

Brendon Wilkins, Lisa Westcott Wilkins and Kezia Evans

With contributions by Jimmy Adcock, Sara Brown, Raksha Dave, James Earley, Kerry Ely, Matt Juddery, Richard Madgwick, Stuart Noon, Maiya Pina-Dacier, Rebekah Pressler, Adam Stanford and Emma Wood.



Leiston Abbey
Archaeological Evaluation
Assessment Report
And
Updated Project Design

Prepared on behalf of:

Pro Corda
Leiston Abbey
Theberton
Leiston
Suffolk
IP16 4TD

Compiled by:

Brendon Wilkins, Lisa Westcott Wilkins and Kezia Evans

With contributions by Jimmy Adcock, Hugo Anderson-Whymark, Paul Blinkhorn, Sara Brown, Raksha Dave, James Earley, Kerry Ely, Lisa Gray, Matt Juddery, Richard Madgwick, Stuart Noon, Rebekah Pressler, Adam Stanford and Emma Wood.



DigVentures
Floor 4, 27-33 Bethnal Green Road
Shoreditch
London E1 6LA



@thedigventurers



DigVentures

T: +44 (0) 333 011 3990
E: info@digventures.com

Purpose of Document

This document has been prepared as an Evaluation Assessment Report for Pro Corda (the Client), English Heritage (Custodian), the Heritage Lottery Fund (Principal Funder) and DigVentures' global crowdfunding community (Stakeholder Sponsors). The purpose of this document is to provide a comprehensive account of the 2013 and 2014 field season, with specialist assessment of finds and samples, and recommendations for further investigation and analysis. It is supported by an online database of all written, drawn, photographic and digital data, and an Updated Project Design detailing recommendations for the 2015 field season. DigVentures accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared. DigVentures has no liability regarding the use of this report except to the Pro Corda Trust.

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Executive summary

DigVentures Ltd was invited by Pro Corda (an educational charity providing ensemble musical training for young people) to undertake a crowdfunded community-based archaeological research project at Leiston Abbey (hereafter 'the Site').

The central part of the Site is scheduled under the Ancient Monuments and Archaeological Areas Act 1979 (List Number 1014520), whilst four of the upstanding buildings on site are also listed under the Planning Act (listed Buildings and Conservation Areas) 1990. Scheduled Monument Consent was granted by the Secretary of State for Culture, Media & Sport on 5th July 2013 and 10th July 2014, issued on the basis of a Project Design for an Archaeological Evaluation (Wilkins et al 2013 & 2014), following consultation with Will Fletcher, Ancient Monuments Inspector, pursuant to wider consultation with English Heritage's specialist archaeological and scientific advisors.

Fieldwork took place over two seasons, between 28th June and the 14th July 2013 and between 7th and 20th July 2014. The project was designed to characterise undefined earthworks and settlement evidence in three different areas of the Site, with a programme of remote sensing including Ground Penetrating Radar (GPR), Magnetometry and Resistance Survey. The results of this work were used to target thirteen small-scale excavation trenches aiming to identify settlement evidence indicated by geophysical anomalies or extant earthworks. Additional work included a photogrammetry survey to produce a metrically accurate 3D digital elevation model of the Abbey Church and a low-level aerial photography survey using kite mounted cameras and UAV's to assess structural evidence for absent buildings associated with the eastern range.

The results presented in this report comprise those of the first and second Execution Stages of the project, and have been circulated for peer review and consultation with the wider specialist team (Review Point 6). 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 as a separate document) detailing recommendations for further work, analysis and publications.

Results Summary

Over the course of two excavation seasons, thirteen trenches were excavated across the site. Four trenches were excavated across earthworks and channels in the unscheduled area to the northwest of the Abbey (Trenches 1, 2, 3 and 6), and four trenches were excavated across earthworks and channels in the area to the west of the Abbey complex (Trenches 10, 11, 12 and 13). These earthworks were contemporary with the monastic remains, and had been designed to channel floodwater away from higher ground above the claustral precinct, which may then have been harnessed for industrial purposes downslope. These channels had truncated a small number of later prehistoric features, represented by two parallel ditches and two postholes. Some of the trenches (1 and 13, for instance) revealed residual evidence for an earlier use of the site, with Roman and prehistoric artefacts discovered. GPR and Resistance survey also proved successful to the south of the

Abbey complex where anomalies typical of wall lines were detected. Trench 7 confirmed that these high responses were the result of demolition spread of a substantial building, though insufficient evidence was recovered to determine the buildings original function. Trench 5 was excavated in an area currently used as a visitor car park, confirming the presence of a post-dissolution agricultural building and associated yard area identified by both the GPR and Resistance survey. A further trench (Trench 4) was excavated across an extant ditch to the rear of the Guesten Hall – previously interpreted as the potential remnant of an earlier phase of moated settlement predating the Abbey construction. Although it's size, scale and composition was certainly in keeping with this interpretation, logistical constraints of the adjacent building meant that the feature could not be excavated to its full depth. Trenches 8 and 9 were excavated at the reredorter in the scheduled claustral complex to investigate the previously unrecorded and unarchived excavations of the site in the 1980s. Evidence of the 1980s excavation were found, along with apparent evidence for the original medieval drain leading from the reredorter which was reconstructed by the Ministry of Works in the 1980s subsequent to the excavation.

Acknowledgements

Thanks to our project partners and current custodians of Leiston Abbey, Pro Corda, and in particular to Andrew Quartermain and Jonny Hodgeson who helped us throughout, and to Jon Ette, Pro Corda Board member, for introducing us to the site and for many fruitful discussions ever since.

Huge thanks are also extended to Will Fletcher, English Heritage Inspector, for helpful advice and direction throughout the project, and to Sophie Button at the Heritage Lottery Fund.

The project was managed for DigVentures by Brendon Wilkins, with Lisa Westcott Wilkins in the role of Project Executive. Raksha Dave, James Earley, Kezia Evans, Kerry Ely Matt Juddery and Maiya Pina-Dacier led the project team, supported by, Mike Bamforth, Ben Bazeley, Olivia Creavin, Hugh Fiske, Poly Heffer, Nat Jackson, Kelly Spampinato, Ben Swain, and Emily Woodburn. Jimmy Adcock and Emma Wood from GSB Prospection Ltd and Mike Langton from Mala GPR undertook the Geophysical Survey, with aerial photography and photogrammetry managed by Adam Stanford from AerialCam Ltd. Off site specialists advice and assistance came from Hugo Anderson-Whymark, Paul Blinkhorn, Sara Brown, Lisa Gray, Poppy Hodgkinson, Richard Madgwick, Stuart Noon, Natasha Powers, Rebekah Presler and graphics were completed by Emma Wood (Geophysics) and Ronald Bake. Floatation equipment was kindly loaned by LP Archaeology for all on site sample processing.

The Digital Dig Team website was developed with Tech partners – LP Archaeology and The Pixel Parlour – and we'd like to thank Mike Johnson and Nick Barron in particularly for bringing this demanding and complex project to fruition. Daniel Juhasz handled all videography, and Maiya Pina-Dacier oversaw all social content and community management.

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1 INTRODUCTION AND SCOPE

1.1 Project Background

1.1.1 DigVentures was invited by Pro Corda (hereafter 'the Client') to undertake a crowdfunded community-based archaeological research project at Leiston Abbey (hereafter 'the Site' – Figure 1). Following consultation with English Heritage, a project model was devised according to the MoRPHE framework (Management of Research Projects in the Historic Environment - 2006). This approach has been used to design a five-year multi-staged field research project, encompassing an evaluation and assessment stage (Years 1 and 2), an investigation and analysis stage (Years 3 and 4) and a final publication and presentation stage (Year 5).

1.1.2 The information contained in this report encompasses the evaluation and assessment stage, completed over the course of two field seasons (2013 and 2014). Scheduled Monument Consent and Section 42 Geophysical Survey licence was granted by the Secretary of State for Culture Media & Sport for both these field seasons, supported by Interim Assessment Report and Updated Project Design (Wilkins *et al* 2013), with the first Execution Stage of the project taking place between 29th June and the 14th July 2013, and the second between the 7th and 20th July 2014. The results presented in this report detail both season's fieldwork, and have been circulated for peer review and consultation with the wider specialist team (Review Points 3 and 6).

1.1.3 In April 2014 the project team received a substantial grant from the Heritage Lottery Fund to develop 'Digital Dig Team', a cloud-based, open-source software platform enabling researchers to publish data directly from the field using any web-enabled device (such as a smartphone or tablet) into a live relational database. The implications of this new approach is the subject of research in it's own right, as the born-digital archive enables geographically dispersed specialist teams to collaborate in real time during the data collection stage of field projects (Wilkins 2015).

1.1.4 Leiston Abbey has been a case study for this work, and as such, both the 2013 and 2014 excavation archive can be viewed as live open data by following this link and navigating to 'See the Data':

<http://digventures.com/leiston-abbey/>

1.1.5 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 archive processed for temporary storage. In the final iteration of this document, links to the primary digital archive will be embedded within each and every individual record number, creating an access step-change for archaeological reporting and archiving.

1.2 Project Scope

1.2.1 Leiston Abbey is a nationally important Premonstratensian Abbey close to Sizewell on the Suffolk coast. It was originally founded in 1182 close to the coast at Minsmere, but was relocated to the present site at Leiston in 1363 when flooding made the first site unviable. Aside from small-scale and

inadequately published excavations within the monastic precinct area, the Site has not been subject to coordinated multidisciplinary research, or an examination of the linkages between the abbey's first and second site. The overarching aim of the project is rectify this, helping to define and characterise the physical extent of the site through a programme of non-intrusive investigations and intrusive excavation, obtaining baseline data that will facilitate its future management.

- 1.2.2 An assessment of all documentary sources held by English Heritage during the Project Design stage defined a number of questions warranting further archaeological research. These included characterising the poorly understood earthworks associated with the monastic outer precinct, obtaining evidence for an earlier phase of activity predating the Abbey construction, and identifying the location of key functional buildings associated with the Abbey complex.
- 1.2.3 This project was funded through public crowdfunded contribution, and the professional excavation team were assisted through crowdsourced voluntary public participation. Though the public engagement and outreach programme provided a significant ancillary rationale to the project, this report will focus exclusively on the archaeological results. An evaluation of the public and community archaeology aspects of the work (and assessment of the breadth, depth and diversity of audience reach and engagement), is beyond the scope of this document, and has been formulated into a separate report (Westcott Wilkins 2014).

1.3 Site Description

- 1.3.1 Leiston Abbey is located on a gentle, south facing slope c.1.75km north of the centre of Leiston (TM 44395 64255). The Site is part owned by Pro Corda and the diocese of St Edmundsbury and Ipswich and the remains of the Abbey are currently in the guardianship of the Secretary of State, managed by English Heritage.
- 1.3.2 A complex of Grade II listed buildings built into the Abbey ruins and used during the post dissolution phase (Guesten Hall, 1268290; Barn, 1216380; and Retreat House, 1215754) are currently used by the musical charity Pro Corda. The central, inner precinct area of the Site is a Scheduled Ancient Monument (List Entry Number 1014520: Leiston Abbey (second site) and moated site). The Scheduled Monument includes most of the standing and buried remains of the monastic church and conventual buildings, together with adjacent earthworks, ponds, and the remnants of a potential moat surrounding the outer court. The field to the northwest of the claustral complex remains undesignated, and was a major area of focus of this phase of evaluation work.
- 1.3.3 Archaeologically, the site is considered to include some of the finest surviving monastic remains in Suffolk and is one of the most completely preserved examples of a Premonstratensian monastery in England. This overall research value is increased by proximity to the original abbey site in Minsmere. Preservation of the site of original founding (now an RSPB reserve) allows for the direct comparison of two chronologically and topographically distinct

sequences in its history. The evidence for earlier occupation of the site (potentially indicative of manorial status) offers the prospect of a direct comparison between the economic regimes centred on the moated site, the abbey and the Post-Dissolution farmstead. A synopsis of the known history of the Abbey is provided below, followed by a summary of the circumstances and dates of previous fieldwork

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction – The Premonstratensians

- 2.1.1 From St Augustine's mission to re-establish Christianity in AD 597 until the reign of Henry VIII, the eventual founding of over 700 monastic houses bears testament to monasticism's increasingly powerful grip on religious and secular life in the British Isles (Knowles 1949). The movement emerged from austere beginnings, but its enduring influence can be seen in both the wealth of upstanding ecclesiastical remains and patterns of landholding, as monastic estates stamped their industrial and agricultural footprint on the wider landscape (Aston 1993).
- 2.1.2 Housing monks, canons, and sometimes lay brothers, a diverse range of different religious orders were formed, united by the common theme of closed communities living a life of religious observance, bound under some form of systematic discipline. Leiston was a Premonstratensian Abbey – an order founded by Norbert, son of Heribert, Count of Geneppe of Xanten of the Lower Rhine in 1120 after a dream in which he saw white-clad figures carrying lights and crosses and singing as they walked in procession (Colvin 1951). Between 1143 and 1267 some 30 Premonstratensian abbeys, 3 nunneries and 6 cells were founded in England – numbers that remained relatively unchanged until the beginning of the 16th century.
- 2.1.3 The Premonstratensian orders, or 'White Canons', were not monks in the strict sense but rather communities of priests living together under a rule. The order was modelled on the Cistercian values of austerity and seclusion, in line with Norbert's own testament persuading the canons to 'fear the company of men as a fish shuns dry land' (Colvin 1951, P.7). The original siting of Leiston Abbey at Minsmere belonged firmly in this tradition, in which 'the apostolic element was overshadowed by the monastic, and a number of abbeys were founded, frequently in desolate or remote situations, several of which long retained their reputation for fervour' (Knowles 1949, 205, cited by Kerr, forthcoming). A question remains of whether Premonstratensians sought out marginal land as a result of ideological zeal, or perhaps as a pragmatic consequence of being latecomers to the monastic 'land grab' (Grieve, Pers. Comm). Whatever the motivation, Leiston's original location proved a little too desolate and remote for practical purposes, leading to the wholesale relocation of the Abbey complex to the current site at Leiston, and the ambitious edifice that remains, in part, to this day.

2.2 The History of the Abbey

Minsmere – Leiston Abbey (First Site)

- 2.2.1 Dedicated to the Blessed Virgin and originally housing 26 canons, Leiston Abbey was founded at Minsmere in 1182 by Ranulph de Glanville, Chief Justiciary to Henry II. Although the Minsmere site has never been excavated, the early history of the abbey can be reconstructed through a combined reading of early text sources with an analysis of fieldwork survey evidence.
- 2.2.2 The cartulary – a medieval manuscript roll containing transcriptions of original documents relating to the foundation, privileges and legal rights of the abbey – reveals an ambitious development at Minsmere (Mortimer 1979). Ranulph de Glanville's original endowment included the manor of Leiston and the churches of St Margaret, Leiston and St Andrew Aldringham. According to the foundation charter these were originally granted to the Augustinian canons of Butley Abbey, of which de Glanville was also patron. Once reassigned to Leiston, the Abbey was further enriched by later endowments and appropriations, growing from an annual value given in the taxation roll of 1292 as 130 pounds 15s 7d, to the valuation of 1535 as 181 pounds 17s 1d (the largest part of which derived from the manor of Leiston).
- 2.2.3 Described by contemporaries as 'the swampy site near the sea,' these funds became increasingly necessary as the landscape conditions at the Abbey's first site continued to deteriorate. Minsmere was prone to flooding, leading to catastrophic inundation in 1362 that weakened the abbey's foundations beyond repair (Mortimer 1979, 7). The canons were granted a papal licence in 1365 to move to a more favourable spot inland at Leiston. The original site was retained as a monastic cell, with the church and other claustral buildings demolished and rebuilt, recycling stone and other building materials wherever possible in the new structure.
- 2.2.4 A late medieval rectangular chapel is all that remains of this phase of Leiston Abbey at Minsmere (Scheduled Monument No. 21404), with cropmarks indicating that the ruin lies within the cruciform outline of a much larger cruciform church (Boulter 2003). Remote sensing of a seven-hectare area surrounding the chapel has delineated the outline of a cloister to the north of the church (contrasting with Leiston's second site) with associated buildings, ponds and water channels (Black 2008).

Leiston Abbey (Second Site) – Pre-Monastic Evidence

- 2.2.5 In addition to the various bureaucratic procedures that had to be worked through with church authorities to sanction the move to Leiston's second site, dismantling, transporting and rebuilding a structure of this size on a site approximately five miles away was no simple undertaking. The bulk of the cost was borne by Robert de Ufford, who had been granted patronage of the abbey by the crown in 1350. However, the cartulary also intimates that this posed a significant cost burden to the Abbey itself. Measures were taken to increase the profitability of existing land holdings, alongside spiritual incentives to encourage penitents to give alms to the abbey's reconstruction.

- 2.2.6 This may also have contributed to the decision of where to locate the new abbey – with a conveniently sited settlement donated by a sympathetic almsgiver. Various landscape features indicate that the abbey was unlikely to have been reconstructed on a 'blank canvas', and residual eleventh and twelfth century pottery recovered from previous excavations (Kerr, forthcoming) as well as a small quantity of twelfth to fourteenth century pottery in this report (Section 10) supports the interpretation that the site was already occupied before the re-siting of the abbey. Although substantial evidence is yet to be produced, a working hypothesis is that this was a moated manor site (defined in the present day layout by the ditch and fish pond surrounding three sides of the outer court) that could have been appropriated for the new construction.

Leiston Abbey (Second Site) – Monastic Evidence

- 2.2.7 The building plan for Leiston's second site was expansive, continuing in the ambitious spirit of its founder to be 'the greatest of all the houses of our order in England' (Colvin 1951, 119). Disaster soon struck however, when a fire destroyed all but the church in 1380, burdening the abbey with further debt and putting pay to all such aspirations.
- 2.2.8 Much of the plan of the abbey complex survives, including the church, and associated claustral buildings predominantly dating to the late 14th century (Clapham 1923). Aside from the relatively standard plan, a mix of features and styles in the building fabric reflects an eventful past. Stone capitals from the original 12th century abbey are re-set into the Presbytery crossing, and an inner gatehouse, constructed in the late 15th/early 16th century, remains upstanding. Medieval fabric can also be seen in ancillary buildings beyond the claustral complex – the so-called tithe barn and Guesten Hall buildings in the outer court.
- 2.2.9 Earthwork evidence dating to this period has also been identified in the fields to the northwest and west of the Abbey (Northwest Area & Western Area). In the ploughed field east of the claustral buildings (Eastern Area), cropmarks, geophysics and excavation has identified a large rectangular structure, probably the infirmary hall, and a 4 metre wide ditch thought to mark the eastern boundary of the monastic precinct. Two rectangular terraced platforms, c.0.5m high, one above the other, have also been identified on a south-facing slope immediately to the west of the claustral precinct (Earthwork Area). The specific form and function of features in these excavation areas has been the focus of this investigation, and is detailed further in Section 6 below.

The post-dissolution site

- 2.2.10 The abbey was among those suppressed in 1536 and in 1537 was granted, with its possessions, to Charles Brandon, Duke of Suffolk. The site was later occupied by a farmstead, and parts of the church and monastic buildings incorporated in the farmhouse and various associated outbuildings.
- 2.2.11 The northern chapel was re-roofed and reformed to provide a grain store; the Abbey House was converted from the south aisle, and later, a Georgian front was added to the house, which was extended in the 1920s. A thatched

farm building was also constructed along the north wall of the nave, though this was burnt down in 1938.

- 2.2.12 In 1928 Ellen Wrightson bought the Abbey ruins and farm for use as a religious retreat. When she died in 1946, she bequeathed the house, ruins, land and buildings to the Diocese of St Edmundsbury and Ipswich. It was purchased in 1977 by the Pro Corda Trust, with more recent buildings and conversions brought into use as a residential music school.

2.3 Previous Work and Current Initiatives

- 2.3.1 The inner precinct at Leiston Abbey has been subject to sporadic archaeological investigation from the 1920s onwards, with the first published plan appearing in Suckling's *History of Suffolk* (1846). A more detailed phased plan was published in Clapham's *the architecture of the Premonstratensians, with special reference to their buildings in England* (1923) and it is likely that the Site was subject to exploratory 'wall chasing' investigations during this period.
- 2.3.2 The site was scheduled in 1949, and taken into the guardianship of English Heritage. All subsequent archaeological investigation or development work has therefore been relatively small-scale, focussing on the inner precinct and claustral range and designed to assist with the management and interpretation of the Site.
- 2.3.3 In 1974 a geophysical survey was undertaken by the Ancient Monuments Laboratory in the fields to the east of the Abbey to establish the presence of structures indicated on Aerial Photographs (AML report G 3/74). This involved resistivity traverses, followed by augur boring to select areas for detailed survey. The data were processed and a plot produced which showed high resistance anomalies, indicating features such as walls and solid surfaces to the east of the current boundary hedge.
- 2.3.4 Valerie Fenwick excavated the Site in 1984, with the aim of improving the display and interpretation of the monument to visitors in advance of reconsolidation works at the Tudor gatehouse, the day stair and the reredorter. A short summary note detailing this work was published in *Medieval Archaeology* XXIX (1985, 200) with a further summary account drawn together by Kerr (Forthcoming).
- 2.3.5 Immediately following this work, the Central Excavation Unit (English Heritage) carried out a targeted trial trench excavation in December 1985 (Kerr, Forthcoming, and see 2.2.9 above). This focussed on the field immediately to the east of the guardianship area, confirming the remains of monastic buildings that had previously been indicated by aerial photographs and the 1974 geophysical survey. Situated to the east of the main claustral buildings and on the same alignment, these buildings probably formed an outer range or court beyond the dormer. Based on other Abbey ground plans, these structures were interpreted as the remains of the infirmary buildings (Coppack 1990, 77, though see 2.3.6 below for alternative). Evidence was also found for a ditch that may have formed the eastern edge of the monastic precinct, with residual sherds of eleventh-

twelfth century Thetford ware pottery hinting at the possibility of earlier occupation of the Site prior to the re-siting of the Abbey.

- 2.3.6 A community project in 2004 led by Suffolk County Council targeted three trenches in the inner precinct area, with a trench in the remains of a 19th century cottage (adjacent to the North Aisle, see 2.2.11 above) and a trench in what was presumed to be the kitchen building to the south of the refectory (LCS 136). Two burials were identified (recorded but not excavated) in the cottage trench, below construction and demolition debris associated with the later farm building. The trench to the south of the refectory was positioned to recover evidence for the monastic kitchen building where the uneven ground surface indicates the survival of buried foundations. Although a structure was identified in this area, the function of the building was not conclusive, and was interpreted as a potential infirmary building.
- 2.3.7 A series of relatively small-scale development-led archaeology projects have also been undertaken in recent years with varied results.
- Two machine excavated trenches (6 x 1.5m x 0.5m) were excavated SW of Guesten Hall in advanced of development. No archaeological artefacts recovered from either trench (SCCAS 1996).
 - The footprint for an extension to The Barn was stripped of its overburden in 2003, with a view to revealing any archaeological deposits prior to the construction of a new extension (LCS131). The original medieval wall and gable end was identified, with a secondary phase of building, possibly due to structural failure.
 - In 2004 archaeological monitoring was undertaken for a 0.4m deep cable trench extending from the farmhouse building through the abbey church to the Lady Chapel (LCS 155). The shallow depth of the trench resulted in various post-dissolution finds associated with a series of disturbed and re-deposited layers.
- 2.3.8 Aside from small-scale and inadequately published excavations within the monastic precinct area, the Site has not been subject to coordinated multidisciplinary research, and the location of key functional buildings still remains unknown. The Site has also suffered from an investigatory bias on the inner precinct area (in keeping with similar Abbey locations) resulting in a general dearth of knowledge for how the outer precinct functioned.
- 2.3.9 The potential research dividend from further archaeological work at Leiston is amplified by recent Geophysical and Building Recording work at the original Abbey location in Minsmere (Boulter 2008; Black and Black 2008), potentially allowing for the direct comparison of two chronologically and topographically distinct sequence in the Abbey's history. Of particular relevance to this question is the reuse of building material at the site, and the extent to which 12th century stylistic elements survive in the 14th century building. Any other material culture evidence linking the two sites will be pertinent, as will comparing and contrasting how the two sites were originally laid out and used.

3 PROJECT AIMS & OBJECTIVES

3.1 Background

3.1.1 The following is based on the project aims detailed in the *Project Design for an Archaeological Evaluation* (Wilkins et al 2012, Section 2.1) and the *Leiston Abbey Updated Project Design* (Wilkins et al 2013), designed to address the evaluation and assessment stage of the project (Years 1 and 2 of a 5-year project). The business case for this work has been designed in accordance with the fundamental principles of SHAPE (Strategic framework for the Historic Environment: Activities and Programmes in English Heritage, 2008).

3.1.2 The overarching aim of the project is to define and characterise the physical extent of the site through a programme of non-intrusive investigations and intrusive excavation, obtaining baseline data that will facilitate its future management (SHAPE sub-programme number 11111.130: development of a sound evidence base for specific locales and historic assets). The results of this work have been used to formulate an Updated Project Design with recommendations for further investigation, analysis and publication (bound as a separate document).

3.1.3 The wider objectives of Pro Corda to understand, manage, and promote the archaeology of Leiston Abbey fall under separate SHAPE sub-programmes (31521.110 and 12212.110) and although these formed a major consideration of the project, the 'public archaeology' dimension has been assessed and reported on in another document (Westcott Wilkins 2013 & 2014). The high-level aims of the project have been formulated as a series of key questions (objectives), which provide a framework for the methods, stages, products and tasks set out in later sections of this project design.

3.2 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 of the precinct and associated sub-surface archaeology be established by remote survey?
- **Q2:** What are the earthworks to the northwest of the scheduled area, and are they associated with the main claustral complex?
- **Q3:** What is the condition of the upstanding building remains?
- **Q4:** Can we identify the location of the original Abbey gatehouse, or can we establish the position of other 'lost' structures such as the infirmary?
- **Q5:** Is it possible to trace the abbey's water supply and management system in detail?

3.3 Aim 2: Characterise the results of non-invasive survey, refining the chronological phasing of the site with a programme of trial trenching and test pits.

- **Q6:** Is it possible to corroborate the location of the gatehouse, precinct wall or infirmary, as defined in Aim 1?
- **Q7:** Is there any evidence for earlier settlement at Leiston prior to the construction of the Abbey church?
- **Q8:** How were the earthworks to the northwest of the scheduled area used, and what functions and activities took place in this part of the site?
- **Q9:** What can we say about their scale and nature?

3.4 Aim 3: Understanding the palaeoenvironmental conditions and burial environment of the site.

- **Q10:** What is the current state of the archaeological and palaeoenvironmental material across the site?
- **Q11:** Can the palaeoenvironmental data recovered from sampling in the trenches inform us about farming, food processing or industrial activities?
- **Q12:** Can we increase our understanding of the local environment in the medieval period?

3.5 Aim 4: Making recommendations, analysis and publication.

- **Q13:** What can an integrated synthesis of the results of this work with previous interventions tell us about the site and its setting?
- **Q14:** How well do deposits survive, and how deeply are they buried?
- **Q15:** Assess the state to which the archaeological and palaeoenvironmental resource at Leiston Abbey is being successfully preserved *in situ*.
- **Q16:** Formulate recommendations for further archaeological and palaeoenvironmental study at Leiston Abbey based on Aims 1-3 and implement a programme to publish and disseminate the results.

4 METHODOLOGY

4.1 General Requirements

- 4.1.1 The archaeological fieldwork was carried out in accordance with the methodology defined in the Project Design for an Archaeological Evaluation (Wilkins et al 2013, Section 5), later replaced by the *Leiston Abbey Updated Project Design* (Wilkins et al 2014, Section 10). All work was undertaken in conjunction with best practice, national guidelines and published standards (ibid, Section 1.6). Methodological summaries are presented below, following detailed descriptions in the Project Design linking specific techniques to aims and objectives (ibid, Section 5).

- 4.1.2 An array of non-invasive survey techniques, including resistivity, magnetometry, Ground Penetrating Radar, topographic survey, LiDAR and low-level aerial photography was applied to three main areas of the Site (see Figure 1). Low-level aerial photography field to the east of the claustral buildings containing the buried remains of a large rectangular structure and precinct ditch was also subject to low-level aerial photography, but remained out of bounds for further investigation.
- 4.1.3 Each area was targeted with a specific archaeological purpose in mind, the intention being to use the combined non-invasive results to accurately position trial trenches for the following purposes:
- **Northwest Area:** to characterise undefined settlement evidence potentially associated with an outer precinct in an unscheduled area to the northwest of the claustral complex.
 - **Car Park Area:** to identify the position of the gatehouse, presumed to be located to the north of the Abbey church.
 - **Western & Earthworks Areas:** to characterise undefined settlement evidence potentially associated with an outer precinct to the west of the claustral complex and to trace the abbey's water supply and management system.
 - **Abbey Complex:** to investigate buried foundations to the south of the refectory, interpreted variously as a monastic kitchen or infirmary. Also to investigate the site of an unrecorded and unarchived excavation from the 1980s at the reredorter.
- 4.1.4 During the 2013 season, following remote sensing work, a limited number of targeted machine trenches (Northwest Area) and hand dug test pits (Car Park and Abbey Complex) were excavated, with their final position determined by the results of remote sensing, in consultation with Will Fletcher, English Heritage Inspector of Ancient Monuments (Figure 3). One 3.5 x 20 metre and three 1.8 x 20 metre trenches were excavated in the North-West Area (to assess upstanding earthworks); one 2 x 5 metre trench was excavated in the Car Park Area (to assess geophysical evidence for a demolished building); and one 2 x 5 metre trench was excavated in the Abbey Complex (to assess geophysical evidence for a circular building). A further trench was excavated across the potential moat at the edge of the scheduled area (Area 1 – 12 x 1.9 metres) to recover any evidence for an earlier phase of activity on the Site.
- 4.1.5 During the 2014 season, a limited number of targeted machine trenches (Northwest, Earthworks and Western Areas) and hand dug test pits (Abbey Complex) were excavated, with their final position also determined in consultation with Will Fletcher. One 6.7 x 11.7 metre trench was excavated in the Northwest Area (an extension of Trench 1 from the previous season to further assess evidence of pre-monastic use of the site); two 4 x 20 metre trenches were excavated in the Earthworks field (to assess upstanding earthworks); one 19 x 1.8 metre trench and one 5.5 x 3 metre trench in the Western field (to assess upstanding earthworks); and two trenches, one of 1.6

x 4.4 metres and the other of 3 x 3 metres at the reredorter in the Abbey Complex (to assess previously unpublished trenches from excavations in the 1980s).

4.2 Remote Sensing and Metric Survey

4.2.1 Remote sensing work (taking place between 29th and 30th June 2013) was designed to address the research questions associated with Aim 1 (Wilkins et al 2013, Section 5.3). This entailed a combination of non-intrusive geophysical survey (resistivity, magnetometry and Ground Penetrating Radar) in combination with a GIS analysis of historic mapping, LiDAR survey, and documentary research to determine likely features for targeted trenching. MIRA traverse positioning was carried out using a Trimble S6 Robotic Total Station.

4.2.2 The geophysical survey areas were geo-referenced relative to the Ordnance Survey National Grid using a Trimble R8 Real Time Kinematic (RTK) GPS to collect reference points within the survey area, as well as local detail, and subsequently corrected to the Leiston Abbey site plan. Geoplot 3 (Geoscan Research), Mala Rslicer, GPRslice and in-house GSB software was used to process and present the data. Due to logistical constraints and height of crop, the field to the east of the Abbey complex could not be surveyed except by low-level aerial photography (see 4.3 below).

4.3 3D Modelling, Topographic Survey and Low Level Aerial Photography

4.3.1 During the 2013 and 2014 field season, a pole and mast mounted photographic survey was undertaken on the upstanding Abbey remains (Abbey church), to produce a metrically accurate 3D digital surface model (DSM). The resulting DSM is intended to provide researchers with an accurate and versatile record of the form and condition of the upstanding structure for immediate analysis as well as providing a baseline dataset for comparison with future surveys to determine weathering rates and potential damage (Figures 23 & 24). This was supported by low-level aerial photography using kite mounted and UAV mounted cameras to investigate potential crop marks and landscape features adjacent to the Abbey, in addition to a standard topographic survey of banks and channels in the Northwest and Earthworks Area (Figure 10).

4.4 Excavation Methodology

4.4.1 Excavation took place over the course of two field seasons (2nd – 14th July 2013 and 7th – 20th July 2014) addressing the research questions associated with Aims 2 and 3. This entailed a programme of targeted interventions designed to 'ground-truth' the results of remote sensing and metric survey, identifying and investigating any archaeological features encountered, and obtaining appropriate samples for archaeological, artifactual and palaeoenvironmental assessment.

4.4.2 During the 2013 excavations, a total of four machine-excavated trial trenches and three hand-dug trenches were excavated. During the 2014 excavations, a total of five machine-excavated trial trenches and two hand-dug trenches were excavated. All trenches were marked out on the ground

using a 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.

- 4.4.3 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 5mm gauge, and/or wet-sieved on site using a standard archaeological floatation device.
- 4.4.4 All interventions were surveyed using a GPS tied into the Ordnance Survey grid. During the first excavation season, all recording was undertaken using DigVentures pro forma recording system, while during the second season, all recording was undertaken using the DigVentures Digital Dig Team recording system. A complete drawn record of the evaluation trenches comprises both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights.
- 4.4.5 A single context recording system was used to record the deposits. A full list is presented in Appendix 1. Layers and fills are recorded (001). The cut of the feature is shown [001]. Each number has been attributed to a specific trench with the primary number(s) relating to specific trenches (i.e. Trench 1, 1001+, Trench 2, 2001+). Features were also specified in a similar manner, pre-fixed with the letter F (i.e. Trench 1, F101+, Trench 11, F1101+).

4.5 Health and Safety

- 4.5.1 All work was carried out in accordance with its company Health and Safety Policy, to 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) health and safety manual Health and Safety in Field Archaeology (1996), and DigVentures' Health and Safety Policy.

5 REMOTE SENSING RESULTS

By Emma Wood & Jimmy Adcock

The full geophysical digital archive can be downloaded and reviewed here:
<http://ow.ly/IyMfx>

5.1 Introduction

- 5.1.1 This chapter presents the results of a geophysical survey undertaken by Jimmy Adcock, Emma Wood and Mike Langton between 29th and 30th June 2013 (Adcock and Wood 2014, 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 and 4.1.3 above). Figure 2 shows the overall location of each targeted area, and Figures 4 – 9 provide summary data depth-slices, greyscales and interpretations.

- 5.1.2 The overall survey area extended to approximately 2.5 Hectares (Figure 2), with methods including detailed magnetometer survey (fluxgate gradiometer), earth resistance and ground penetrating radar (GPR). Soils in this area comprise Newport 4 association (551g), deep well drained sandy soils, in addition to some very acidic soils with bleached subsurface horizon especially under heath or in woodland (SSEW 1983). Bedrock geology consists of crag group – sand, and superficial deposits belong to the Lowestoft formation (BGS 2014).

5.2 Method and Data Processing

- 5.2.1 All survey work is carried out in accordance with the current English Heritage guidelines (EH 2008) and following the method outlined in Section 4.2 above.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1m	0.25m
Resistance	Geoscan Research RM15/MPX	1m	1m
GPR	Mala MIRA 8-channel 400MHz	0.08m	0.08m
GPR	Mala X3M 250MHz	0.5	0.05m

Table 1 – traverse and sample interval by technique

- 5.2.2 Data processing was performed as appropriate using both in-house and commercial software packages (GeoSuB, Geoplot, GPR Slice, Rslicer) as outlined below

Magnetic Data

Zero Mean Traverse, Step Correction (De-stagger) and Interpolation (on the Y axis).

Resistance Data

Despike, High Pass Filter, Interpolation (on both X & Y axes).

GPR Data

GPR Slice – Manual gain, de-wow/DC-shift plus background removal and migration (where indicated) Rslicer – Spherical divergence gain, antenna ring-down correction, band-pass filtering, migration

5.3 Interpretation

- 5.3.1 All GPR interpretations were based on analysis of both raw and filtered depth-slice datasets as well as radargram analysis. A selection of raw and processed depth-slices can be found on the accompanying Archive CD for more detailed viewing (Adcock and Wood 2014).

- 5.3.2 When interpreting the results several factors were taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies were categorised by their potential origin. Where responses could be related to very specific known features documented in other sources, this was done (for example: Abbey Structure Wall, Precinct Ditch). For the generic categories levels of confidence were indicated, for example: Archaeology – ?Archaeology. The former was used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. This disparity can be due to poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification – ?Archaeology.

5.4 General Considerations

- 5.4.1 Generally conditions for survey were good; all areas were flat and weather fine and dry throughout. Ground cover comprised pasture in all areas.
- 5.4.2 Any depths referred to in the interpretation of GPR data are only ever an approximation. The conversion from delay time to depth depends upon the propagation velocity of radar waves through the ground; this can vary significantly both laterally and vertically on some sites. An average velocity of 0.09m/ns has been used after an iterative process of fitting hyperbolic curves to point-source reflections. Where there is a strong electromagnetic contrast, the GPR signal can be inter-reflected or reverberated, producing a delay in the reflection of the signal. This is termed 'ringing' and happens to some extent with all reflections, resulting in a greater apparent depth extent than actually exists. As a result, it is often not possible to detect the base of features; only the tops of buried deposits are detected with any kind of certainty (Annan 1997). Particularly strong ringing is often seen when buried metallic debris is encountered and this material is generally assumed to be of modern origins unless the site-type dictates otherwise.
- 5.4.3 The MIRA GPR data was collected with equipment kindly loaned by MALA Geoscience. All processing was completed on site at the time of survey and processed images were provided to GSB and DigVentures for inclusion within this report. As such raw plots cannot be included as part of this archive. Raw time-slices and radargrams are included for the data from the X3M system; the radargrams show the in-line co-ordinates along the bottom axis, whilst their traverse position is noted immediately above each plot.
- 5.4.4 In the following text, letters in square brackets refer to specific anomalies highlighted on the interpretation diagram. Depths noted on the diagram refer to the approximate distance below ground level to the top of the interpreted feature.

5.5 Survey Results – GPR Survey (Figures 4 & 5)

Northwest Area

- 5.5.1 Given the lack of obvious archaeological features within the magnetic data from the Northwest Area (see 5.7.1 below), GPR survey was confined to collecting a small strip of data running across one of the earthwork platforms

and corresponding channel. This was also designed to encompass a ferrous-like cluster of magnetic responses observed in this area.

- 5.5.2 All that was recorded were a zone of reflections [A] coincident with the magnetic response. Although a pit containing strongly magnetic material would account for this correlation between the magnetic and GPR datasets, more recent debris within the topsoil could equally have caused the responses; this is especially true when one considers the lack of archaeological-type responses across the field as a whole. Some faint linear responses were identified which are likely to be plough marks. From the strength of the geophysical evidence it is unlikely that the earthworks in this field represent settlement activity, and are more indicative of water management features.

Car Park Area

- 5.5.3 This area was comprehensively surveyed with the MIRA system, resulting in few responses of significant archaeological potential. The exception was an enigmatic circular response [B], but this had no associated magnetic signature and originated immediately below the turf, with the feature visible in the data from as shallow as 0.02m. Given this response, the likelihood was that this feature represented a relatively modern agricultural origin – perhaps footings for a grain silo or similar. With depth a more rectilinear spread of reflections [C] became apparent but their strength, alignment and proximity to the assumed modern feature lessened the potential for this representing a significant archaeological feature. Some isolated responses were assumed to be relatively modern, again potentially associated with the agricultural activity on site.

- 5.5.4 The first edition Ordnance Survey map (OS2014) was reviewed to assess these features further. Although a circular feature was visible in this general vicinity, it appeared to be much nearer existing buildings, and beneath the present-day track. Trench 5 was therefore positioned to extend equally across the circular feature and rectilinear spread to assess their significance (See Section 6.5 below).

Car Park Area

- 5.5.5 A series of unrecorded “search” traverses were collected with the MIRA system over what would become the project’s temporary campsite (on the northern side of the Abbey remains) in addition to a number of traverses along the Abbey’s main entrance driveway. The purpose of this was to identify any structural evidence relating to the inner precinct, or identify the return of the precinct boundary ditch below the entrance driveway. There was no suggestion of these features in the data, and detailed GPR survey was concentrated elsewhere.

- 5.5.6 In the south of the abbey complex more data were collected using the more rugged X3M cart, adjacent to the standing remains. This, perhaps unsurprisingly, yielded a far ‘busier’ data set than seen elsewhere on site. However, the pattern of response was more complex than had been expected suggesting multiple phases of post-dissolution activity. Whilst individual building footprints of the medieval layout are unclear, there are a series of anomaly groups that warrant discussion.

- 5.5.7 A linear band of strong reflections [D] was identified on the same strike as the standing remains – but this does not guarantee a medieval origin. The fact that the feature seems to curve round to the south at its western end does not tally with this being part of a building, unless it has been reused in a subsequent phase, possibly a garden. The return to the north [E] seems far more consistent with this being part of a structure. The eastern end of [D] lies within a complex of rectilinear trends and stronger anomalies, all of which share the same alignment as the Abbey. There are parallel linear anomalies whose spacing may hint at corridors or walkways, but these are difficult to identify clearly. The general increase in response through this area may also be evidence of a cluster of demolition material.
- 5.5.8 A corresponding zone of increased responses along the southern side of the extant structures were also interpreted as demolition material. Two groups of stronger, better defined, anomalies [F] and [G] were noticeable here, with a largely rectilinear distribution. From [G] a trend continued west before turning south towards a final concentration of responses [H]. As with the previously highlighted zones, these seemed to be predominantly running in two directions, either perpendicular or parallel to the Abbey. A strong reflector, which runs along the southern edge of the survey area, is believed to be a relatively shallow service pipe or culvert.
- 5.5.9 Given the complexity of the anomalies in this area, attributing these features to specific phases is beyond the bounds of possibility using geophysics alone. Though distinct features can be identified, their partial survival makes it extremely difficult to differentiate between separate periods of activity, or later reoccupation. Many of the highlighted responses could potentially be attributed to something as simple as a former garden layout, and this could explain some of the more ephemeral trends seen through the survey area. Trench 5 was therefore located to assess a linear band of strong anomalies [D] and areas hinting at potential walkways on the same alignment to the Abbey (See Section 6.6 below).

5.6 Survey Results – Resistance Survey (Figures 6 & 7)

Car Park Area

- 5.6.1 A weak semi-circular response [1] within the data is shown on the interpretation diagram as '¿Archaeology'. This feature corresponds with the circular response [B] in the GPR data (See Paragraph 5.5.3 above).
- 5.6.2 A rectilinear zone of high resistance [2] measuring approximately 7m x 5m was located in the north the area, and interpreted as modern in origin. It may be associated with the digging of the service trench as it abutted a modern pipe.
- 5.6.3 Further trends within the data with an Uncertain Origin are likely to be associated with agricultural activity i.e. drains.

Abbey Complex

- 5.6.4 High resistance anomalies [3] were associated with the Abbey itself, reflecting the foundations. A curving zone of similar response [4] in the southern area suggested an apse of some sorts. However this interpretation

must remain cautious due to lack of supporting evidence. The response may be associated with garden remains or paths.

- 5.6.5 Anomalies [5], to some extent correlate with the GPR responses [D & G] but are of differing alignments. It is possible that the resistance survey is detecting a spread of demolition material associated with a previous structure. Linear trends [6] are on the same alignment as the Abbey and also correspond with GPR anomalies [H].
- 5.6.6 To the north of the Abbey, a large zone of high resistance [7] was classified as Uncertain Origin. This may also be associated with demolition material but could equally be natural or geological. The ?Archaeology trend to the north of this response are on a similar alignment to the remains and may be associated with the Abbey.
- 5.6.7 Further trends within this northern area are of an uncertain origin as they are on differing alignments. A pipe was identified leading to the northeastern corner of the Lady Chapel, corresponding to a similar anomaly in the magnetic data (Paragraph 5.7.3).

5.7 Survey Results – Gradiometer Survey (Figures 8 & 9)

Northwest Area

- 5.7.1 Given the large number of earthworks in this field, magnetic survey was undertaken to help provide insight into their use or purpose, or identify enhanced soils indicative of settlement debris. Unfortunately no anomalies associated with archaeological remains were detected in this area. A small number of trends were identified and though marked as Uncertain Origin, they are likely to be the result of recent agricultural activity. The majority of the responses are of a ferrous nature, and are almost certainly of a modern origin.

Abbey Complex

- 5.7.2 Magnetic survey was limited to the northern part of the Abbey complex, resulting in scant evidence of definite archaeological remains. The responses were largely due to magnetic disturbance from the abbey itself, and other buildings within the site. A pipe was detected, corresponding with an anomaly also seen within the resistance data (Paragraph 5.6.7).
- 5.7.3 A linear anomaly, classed as Uncertain Origin was identified on the same alignment as the Abbey, broadly corresponding with similar trends in the resistance data. There may be a possibility that it is associated with the Abbey, however it could equally be of modern origin.

5.8 Conclusions

- 5.8.1 Three different geophysical techniques were used at Leiston Abbey, helping to corroborate and reinforce what would otherwise have been a variable set of results. GPR survey was most successful in the south of the Abbey complex, detecting wall lines on the same alignment as the abbey suggesting corridors and walkways. A circular and rectilinear feature was also identified in the car park area. Resistance survey has supported these findings, and helped to target hand dug trenches to 'ground truth' these

anomalies. Magnetic survey was less successful in terms of targeting trenches the Northwest Area, failing to detect any responses of a definite archaeological origin. However, as subsequent excavation results demonstrate, this data supports the interpretation that this area was utilised for water management rather than occupation.

6 EXCAVATION RESULTS

By Brendon Wilkins, Raksha Dave, James Earley, Kerry Ely, Kezia Evans and Matt Juddery

All digital context and feature records have been archived on the Digital Dig Team system and can be reviewed here: <http://ow.ly/IyOyQ>

6.1 Introduction

6.1.1 Over the course of two field seasons, thirteen small-scale evaluation trenches were investigated. Four trenches were located in an unscheduled area to the northwest of the claustral complex, two were placed in an unscheduled area to the west of the claustral complex, and a further seven trenches at the edge and within the scheduled area (Figure 3). The principle purpose of the work was to 'redefine and establish the precise physical extent of the site' (Aim 1) and 'establish the current state of preservation of the in situ archaeological and palaeoenvironmental material across the site' (Aim 2). Each trench was designed to address a specific research objective, and these are discussed with the excavation results below. Figure 3 shows the overall location of each targeted area, and Figures 11 – 22 provide illustration of individual trenches containing archaeological remains. Detailed descriptions of the trenches are included in Appendix 1.

6.2 Stratigraphic Sequence

6.2.1 A common stratigraphic sequence was recognised across the site, in keeping with the results from previous investigations. In Trench 2, for example, this comprised topsoil (2002) overlying mid brown yellow sandy silt subsoil (2002), followed by a light yellow brown natural clay (2003). The stratigraphic sequence varied in depth across the site, due to the presence of earthworks or landscape features.

6.3 The Northwest Area – Trenches 1, 2, 3 and 6

6.3.1 Four trenches were excavated in Area 1 in an area of rough pasture owned by Pro Corda and grazed by a local farmer. They were designed to evaluate the earthworks to the northwest of the scheduled area, establish how they were used and whether they were associated with the main claustral complex (Question 2 and 8). This built on the results of the remote sensing and topographic survey in this area, also seeking to trace the Abbey's water supply and water management system (Question 5). As remote sensing results from this area were inconclusive, trenches were purposefully targeted across both banks and channels, aiming to fully characterise the earthworks.

- Trench 1 (Figure 11) <http://ow.ly/NX76G>
- 6.3.2 Trench 1 was located close to the southern field boundary in the Northwest field and was excavated over two seasons in 2013 and 2014 (Plate 11.1). The first stage of work in this trench in 2013 measured 20 metres by 4 metres and was positioned across a channel between two upstanding banks. Following backfilling, this trench was reopened and extended in 2014, with an area measuring 11.7 metres by 6.7 metres opened at its eastern end to determine the extent of discrete features in this area (Plates 11.2 & 3).
- 6.3.3 In keeping with the common stratigraphic sequence, topsoil and subsoil deposits varied in depth across the trench, coming down on to a variable clay natural (1007; 1013 & 1015) into which a number of features had been cut. Mechanical excavation ceased at this point, and the surface was cleaned by hand to delineate two banks on either side of a pronounced channel running through the centre of the trench. A number of features were exposed during this hand clean, including two parallel ditch features (F103 & F104), two posthole features (F105 & F106) and a bank feature (F108), all localised in the northeast end of the trench. Though these features were relatively uncomplicated, chronological phasing was confused by a general mixing of finds (including Prehistoric, Roman and Medieval), likely to have been disturbed during the construction of upcast banks and drainage channels in the monastic period.
- 6.3.4 The earliest features in this trench (ditch features F103 and F104) were found to have similar profiles and characters, containing mixed dating material including animal bone, several later Neolithic or Bronze Age flint flakes and a single sherd of Early Medieval Sandy Ware pottery dating to the 12th Century. The first ditch feature (F104) was filled by a mid grey-yellow sandy clay (1018), a mid grey-brown sandy silt (1033) and light blue-grey sandy silty clay with orange flecks (1039). It extended NNW-SSE across the trench and was also identified continuing into Trench 3.
- 6.3.5 The second ditch feature (F103) also extended NNW-SSE across Trench 1 with a clear terminus in the east of the trench. It measured 0.65m wide and 0.35m deep and was defined by a 'U' shaped cut [1008 & 1037] filled by a homogenous, mid grey sandy clay (1009). This deposit contained disarticulated animal bone (including a fragmented horse phalanx and an amphibian element), one complete flake and two broken flakes characteristic of later Neolithic and Bronze Age reduction techniques. A second intervention at the northern end of this feature in the 2014 trench extension identified a terminus, filled by mid grey-brown sandy silt (1038) and containing disarticulated animal bone and flint flakes (Plate 11.3). Pottery (12th Century Early Medieval Sandy Ware) and CBM were also recovered, though these were recorded at the top of the deposit and could therefore be intrusive.
- 6.3.6 Though no clear stratigraphic relationships could be defined between these parallel features, the adjacent bank (F108) appeared to overlie ditch feature (F104) suggesting that the ditches belonged to an earlier phase of prehistoric activity predating the upstanding earthworks. Posthole features (F105 & F106) were also excavated in this part of the trench, filled by similar mid/dark grey brown silty clay (1012 & 1017) with similar rounded, shallow

profiles. Though no structural alignment could be defined by these discrete features, similar finds and deposits suggested were likely to belong to the same phase of activity as represented by the adjacent ditches.

- 6.3.7 The adjacent earthwork feature (F108) was excavated in two slots, designed to reveal any relationships with the ditch features in the southwest end of the trench. A complex series of interleaving layers were recorded, with occasional medieval pottery finds, animal bone and CBM of mixed dates including pantile dating to the 18th to 19th Centuries recovered as part of the fill. It was clear that these items had not been deliberately deposited, but had become incorporated in the bank during construction. The upcast bank excavated in Slot 2 was seen to overlay ditch [1006] supporting the interpretation that the earthworks represented a later phase of monastic activity predating the ditch and posthole features. Two abraded rim sherds recovered from abutting contexts (1004 & 1021) belonged to the same vessel, a Romano British greyware jar (with similar pottery also found washed into the same channel excavated downslope in Trenches 12 and 13). A small sherd of 8th Century Middle Saxon Ipswich ware pottery recovered from bank deposit (1034) observed in the south section of the trench was also likely to have been redeposited during the monastic bank construction.
- 6.3.8 Two additional posthole features (F101 & F102) located towards the north of the extended section of Trench 1 did not seem to bear any great resemblance to the other posthole features within the trench. Posthole feature (F101) was oval in shape with rounded sides leading to a rounded base and was defined by light brown clayey silt with occasional chalk flecks and charcoal inclusions. Meanwhile posthole feature (F102) was circular in shape with vertical sides leading to a flat base was filled with mid grey-brown sandy silt with three flakes of burnt flint recovered during excavation.
- 6.3.9 The general mix of finds in Trench 1, including Prehistoric, Roman and Early Medieval, is indicative of an appreciable level of multi-period activity in and around Leiston Abbey. Evidence for these multiple chronological phases was most pronounced in the northwest part of the trench, and subsequently disturbed through construction of large banks and channels to assist with water management during the monastic period. The concentration of lithic material in Trench 1 is noteworthy, and could support a Prehistoric phasing for ditch features (F103 & F104) and associated postholes. This picture is complicated however by the recovery of 8th Century Middle Saxon Ipswich ware pottery from the bank and 12th Century Early Medieval sandy ware pottery from both ditch features. Palaeoenvironmental evidence in these features for earthworm granules could account for this however, indicating significant taphonomic post-depositional movement of artefacts through features (see Section 7.3.5). Though supporting the argument that earlier activity took place on site prior to construction of the abbey, the activity represented by Trench 1 is too fragmentary to assign specific chronological phasing or function to features predating the monastic earthworks.
- Trench 3 (Figure 12) <http://ow.ly/NX7ei>*
- 6.3.10 Trench 3 was located along the northern field boundary, and measured 25 x 1.9m. Ditch feature F301 (a continuation of ditch feature F104 recorded in Trench 1) was identified in this area, extending beyond the trench edge in a

NNW – SSE direction (Plate 12.3). It also had sharp sides and slightly irregular base, and was filled by mid grey brown sandy clay (3003).

Trench 2 and 6 (Figure 13)

- 6.3.11 Positioned along the western and eastern edge of the field respectively, Trenches 2 and 6 were also characterised by a similar bank and channel arrangement as recorded in the other two trenches (Plates 13.1-13.3). No sub-surface cut features were identified in these trenches, although Trench 6 cut through a layer of recently dumped waste material. This was likely to have originated from construction and landscaping of the Abbey, and was dumped in this area due to the convenience of the adjacent gate. No other significant finds or features were recorded in these trenches.

6.4 The Moat – Trench 4 (Figure 14)

- 6.4.1 Trench 4 was targeted to recover evidence for earlier settlement at Leiston prior to the construction of the Abbey church (Question 5). It measured 12 x 1.9 metres, and was positioned across an active drainage ditch along the northern edge of the Guesten Hall, previously interpreted as the potential remnant of a Medieval Moated site extending around two sides of the Outer Court (Plate 14.1). Remote sensing survey failed to identify a continuation of this ditch to the east, with the potential return along the side of the Barn, connecting with the extant pond to the south to create a full enclosure.
- 6.4.2 The precise positioning of this trench was constrained by logistical considerations, such as the adjacent Guesten Hall building and well-established trees and vegetation growing along much of the earthwork's length. It became evident through excavation that the feature was too deep (4.5m+) to fully excavate within the logistical confines of the trench, and unfortunately this meant that the base of the feature could not be reached or dating material recovered. However, both the scale of the moat feature (F401) and the stratigraphic sequence observed was in keeping with the features original interpretation as a moat, with two more recent recuts intended to maintain the feature as an active drain.
- 6.4.3 Although feature boundaries were extremely diffuse, the original moat cut [4011 & 4013] was identified on both the northern and southern ends of the trench. This had been filled by a blue grey deposit (4020), that originally formed as a water lain sediment and was identified in the base of the trench at the limit of excavation. This was recorded at 1.6m deep, and showed no indication of reaching the base of the feature. A small piece of natural wood was identified at this level (Plate 14.2), ruling out the possibility that this deposit was unmodified natural subsoil. This deposit was overlain by mid yellow clay (4019) containing tile and chalk fragments, and several slump deposits (4009 & 4015), recorded on the northern and southern sides of the feature, consisting of soft blue grey clay likely to have formed in standing water during the later phases of moat silting. These deposits were in turn overlain by a series of later deposits on either side of the trench, including (4003, 4004 and 4005) on the northern bank of the moat, and (4007 & 4010) on the southern bank. These deposits produced ceramic building material of a range of dates including late medieval/early post-medieval roof tile in deposit (4004) and early post-medieval roof tile in deposit (4010).

- 6.4.4 These deposits were truncated by at least two relatively recent recuts, likely to have been constructed to clear out the ditch to create a functional drainage ditch for adjacent properties. Machine cut, with straight, vertical sides, they were characterised by a sharp break of slope, with a gradual base and concave sides, and filled by mid grey silty clay containing occasional tile. This in turn had been truncated by a later ditch [4012] also the result of cleaning out of the moat to create an active drain, during the redevelopment of the Guesten Hall in the 1980s. This was also a machine cut feature with a gradual base and concave sides, and was filled by a primary deposit of soft blue/yellow sandy clay (4016), followed by dark grey brown silty clay (4014) and dark brown, humic silty clay (4008),
- 6.4.5 The potential moat had been recently recut to form an active drainage ditch, with roof gully pipes running directly into the feature from the adjacent Guesten Hall. The entire feature was overlain by a thin layer of silty clay topsoil (4001), apart from the southern side of the feature, which was overlain by a poorly sorted mix of clay and topsoil, likely disturbed during the cleaning out of the ditch associated with the redevelopment of the Guesten Hall.

6.5 The Car Park – Trench 5 (Figure 15)

- 6.5.1 Trench 5 measured 5.5 x 3 metres, and was positioned to extend equally across the circular feature and rectilinear spread (F501) identified with both GPR and Resistance survey (Plate 15.1 and Section 5.5). This trench was defined by a circular deposit of mid yellow brown silty clay and angular flint cobbles (5002), set into a circular foundation trench [5013] for a later post-medieval agricultural building (Plate 15.2). No bonding was observed between the cobbles, though post-medieval pottery and fragments of slate were recovered from the surface of this deposit and a horseshoe. The structure was associated with a cobbled yard surface [5005] relating to the rectilinear anomaly identified by geophysics. Although this was assumed to be contemporary with the circular structure, no stratigraphic relationship could be determined within the logistical confines of the trench. A mixed assemblage of CBM was recovered from this trench, dating from the Late Medieval to the Early Post-Medieval period, some of which showed evidence of burning and reuse prior to deposition in this area.
- 6.5.2 As was predicted by the GPR depth slices, these structures were observed directly beneath the grass vegetation layer and were recorded directly where predicted. Once they had been exposed, cleaned, and drawn in plan, a section was excavated along the length of the trench, revealing a number of interleaving mid brown clay demolition layers (5001, 5004, 5007 and 5009) containing mixed quantities of brick, tile, rubble, chalk and pottery sherds including Late Medieval Transition ware (C15th) and Romano British grey ware. A small quantity of animal bone fragments were also recovered from these layers, but only six could be identified (see Section 8 below). The central part of the structure had been truncated by a later ditch feature, (F502), running East-West across the trench, with steep sides and a rounded base (Plate 15.3). It was filled by mid yellow brown sandy silt, with a large quantity of poorly sorted building debris and pottery.

6.6 The Abbey Complex

Trench 7 (Figure 16)

- 6.6.1 Trench 7 measured 5 x 2.7 metres and was located on the basis of remote sensing results designed to assess the potential for buildings in this area, and establish their purpose. The geophysics results indicated a complexity of anomalies in this area, potentially reflecting several phases of use, and substantial accumulations of demolition material. No *in situ* building material was observed indicative of wall footings, possibly due to the small size and positioning of the trench. It was defined by a series of interleaving demolition layers, exposed in section as the trench was excavated in a number of steps.
- 6.6.2 Topsoil (7001) was removed by hand and sieved for artefacts (Plate 16.1); these predominantly comprised unidentifiable ferrous objects and CBM, although two early modern pendants in art deco and art nouveau style were also recovered (See Section 12 below) and a partially complete lead alloy Papal Bulla of Pope Clement VI (dating between 1342 and 1352) recovered from a localised deposit of dark grey-brown clay sand (7002) in the north-eastern part of the trench. The artefacts from these layers relate to the monastic period of the site as well as the use of the site as a working farm and also reflect the fashion for these sites as contemplative tourist destinations, popularised by artists such as Turner and Constable.
- 6.6.3 Directly below these layers, a series of sandy clay deposits (7007 & 7004) were recorded extending across the trench (Plates 16.1 & 2). These contained frequent inclusions of CBM and poorly sorted rubble with frequent air pockets. These deposits overlaid a number of other abutting contexts (7007, 7008, 7009 and 7012) of similar clay silt composition, with differing quantities of CBM, clinker or rubble inclusions defining the boundary edges of irregular tip layers. They represent significant reworking and landscaping of the area post-dissolution.
- 6.6.4 These deposits overlaid an earlier, more homogenous layer of mid grey brown clay sand (7011) containing animal bone fragments, mixed pottery sherds ranging from Late Medieval transitional ware (c. 1400-1600) to glazed red earthenware (16th – 19th Centuries), ceramic floor tile dating to the 17th to 18th century, glass and a copper alloy French jetton (SF95), probably dating to between 1340-1380 (See Appendix for full descriptions). Below this layer mid grey black clay (7015) with lime mortar inclusions was recorded, containing one glazed red earthenware body sherd dated to the 17th Century, numerous disarticulated animal bone fragments, and a sterling silver penny (Edward II) dating to between 1310-1314 (SF96).
- 6.6.5 The final deposit in the sequence was light yellow brown sandy clay (7016), with lime mortar inclusion. It had the appearance of a levelled surface, likely to be part of the original construction cut for the building. A diffuse boundary was observed with the underlying natural subsoil (7017), suggesting a degree of trample. The deposit was observed in section and plan in the northeastern part of the trench, and was presumed to extend across the entire trench.
- 6.6.6 The grave of a large canine [F701 & 7014] truncated post-dissolution deposits (7007 and 7012), and was likely to have been interred when there was no

surface trace of the original building remaining (Plate 16.3). It was a large, exceptionally well-preserved mature male specimen, with little surface erosion visible on the bones (see Section 8.4.4 below). Radiocarbon dating of the canine skeleton indicated a date of either 1650-1690, 1730-1810 or post 1920 (Beta-383664).

Trench 8 (Figure 17) <http://ow.ly/NX7mt>

- 6.6.7 Trench 8 was positioned within the former monastic reredorter building – the southern-most part of the upstanding remains of the claustral complex (Plates 17.1 & 2). Measuring 4.40 x 1.60 metres and on a N-S orientation, the trench was located in an area formerly excavated in the 1980s (Fenwick 1985). With no published plans or archive report available for this work, the aim was to clear overgrown vegetation and topsoil, investigating whether the reconstructed drain (F801) built to assist with public interpretation in the 1980s, had any bearing on the actual course of the original monastic drain (Plate 17.3). Once exposed, the goal was to record the drain in plan and section and to recover dating evidence to help contextualise the use and modification of the building post-dissolution.
- 6.6.8 Several phases of use could be discerned in the upstanding reredorter wall (F805 & 8014), including a substantial arched culvert (8013) visible at the base of the wall marking the location of the main reredorter drain. Post-dissolution the reredorter was reused as a farm outbuilding, possibly as a piggery, and a door (F803) was cut into the wall (8010) expanding the former arch (Plate 17.4). This door was subsequently blocked in two phases, firstly with poorly constructed blocking materials (8011) comprising stones, flint nodules and CBM. This initial blocking phase left a semi-circular space at the top of the door, presumably as a window, which was later blocked up with English coursed brick bonded with cement (8012).
- 6.6.9 Leading from the post medieval door feature (F803) in a N-S orientation was a reconstructed drain feature (F801), constructed by the Ministry of Works as an interpretive feature following excavation led by Valarie Fenwick in 1984. The feature was obscured by vegetation growth, and prior to cleaning it was unclear what the relationship was between the reconstructed drain and the reredorter wall or original medieval drain. Vegetation and topsoil (8001) was therefore removed by hand and sieved for artefacts to address these questions. A natural layer of mid brown-yellow clay (8017) was observed directly beneath the topsoil, into which a number of features were cut, including the reconstructed drain feature (F801). The reconstructed drain had been bonded to the blocked door section (F803) of the reredorter wall with concrete and built with flint nodules and occasional brick, assumed to have been part of the original monastery walls. Though extending in the same direction as the original monastic reredorter drain, the reconstructed drain bore few other similarities and was considerably narrower than the original arched culvert (8013).
- 6.6.10 Beyond the modern drain, a number of other features were observed in the southern end of the trench cut into the natural clay (8017). These included a potential wall footing (F804), identified in the southeastern corner of the trench and extending into the south and east sections. This feature was rectangular in shape, filled with a mid brown-grey clay silt and producing

artefacts such as CBM, bone and metal objects including a piece of lead sheet (SF 89). Two empty cuts for stones [8018 & 8019] were excavated to the south and south east of the drain feature (F801).

- 6.6.11 This area had been heavily disturbed, and it was not clear whether these had been removed post dissolution, or as part of the earlier 1980s excavation. Evidence for this earlier archaeological intervention dominated the southern third of the trench, where backfilled trench feature (F802) cut into the natural layer (8017). Containing multiple deposits (8004 & 8004) numerous finds were recovered from these deposits including CBM, a variety of types of glazed ceramic tile, glass, and a number of metal objects, notably a stamped copper alloy sheet (SF56), likely to have become incorporated into the feature through deliberate backfill.

Trench 9 (Figure 18) <http://ow.ly/NX7rD>

- 6.6.12 Trench 9 was positioned directly to the south of Trench 8 over a raised area of land thought to have been formed by the spoil heaps from previous excavation of the site in the 1920s and 1980s. It comprised a 3 x 3 metre hand dug trench, positioned above the presumed course of the reredorter drain identified in Trench 8, running downslope towards the southern site boundary (Plate 18.1). The topsoil layer (9001) was defined by a mid grey-black soil and a variety of modern artefacts were discovered including bottle caps, a rusted Yale lock and a Hula Hoops crisp packet dated to 1989 from 'Back to the Future' text printed on the reverse. Once removed, a series of interleaving layers and negative cut features were observed, and were excavated in section and sondage down to the natural clay (Plate 18.2).
- 6.6.13 The earliest feature discovered within Trench 9 was a drainage ditch (F905) running on a N-S orientation from the north section of the trench and cutting into the natural clay (9015). This was revealed through a slot cut at the northern edge of the trench (Plate 18.3) and was in line with the reconstructed drain feature (F801). The base of the ditch was rounded, lined with tile and was filled by a dark black-brown clay silt with occasional charcoal fleck inclusions (9008 & 9013). A large number of artefacts were discovered within the fill from a wide range of materials including CBM, limestone, metal objects, pottery dating to between the 15th and late 15th Century, animal bone, shell, charcoal, glass, jet, wood and flint. Of particular interest were two conjoining pieces of the same pot, discovered in both fills (9008 & 9013), as well as a number of small finds including two jet beads (SF 79 & 83), possibly from the same necklace dating between 1250AD, a stone bead dating between 1350 and 1500 AD, an engraved length of fine metal (SF 63) and a bone nit comb (SF 77) dating from 16th to 18th century. These post-medieval finds indicate that the drainage ditch feature continued to be used after the dissolution of the monastery, surviving as a functional part of the reredorter building as it was modified, potentially for agricultural purposes (Plate 18.4).
- 6.6.14 A number of densely intercutting features and layers were uncovered above the monastic drain feature. These included a post-medieval pit feature (F903), filled by yellow-brown clayey silt (9004) with artefacts including CBM, animal bone, shell, ferrous objects and pottery sherds that dated the feature to the 15th Century. Post-medieval pit feature (F904) was filled with a dark

black-brown clayey silt (9005) in which a copper alloy jetton was discovered (SF 49) along with a wide range of sherds of different types of pottery dating to the late 15th Century. This pit feature (F904) was truncated by two later post-medieval pit features (F901 and F902) that were both filled with a dark black-brown clayey silt (9003 & 9010). Pit feature (F901) was also filled with a slump of the pit edge, a mottled yellow-brown silty clay (9006) that showed similarities to the fill of (F904). The discovery of a copper alloy cosmetic spoon (SF 51) in this pit edge slump layer (9006) was dated to the late medieval to post-medieval period (14th – 16th Century). All three pit features were dated through the pottery finds in their fills to the late 15th Century.

- 6.6.15 These intercutting pit features were sealed by a mid brown-yellow mottled layer with chalk fleck inclusions (9002). Artefacts recovered from this layer included a wide range of modern items such as a possible lock mechanism, ferrous nails, shell, brick, tile and animal bone as well as a mixture of pottery sherds ranging in date from mid-13th to late-15th Century. These were potentially deposited as spoil from previous excavations, or landscaping works during the 20th century when this area was used as allotments.

6.7 The Earthworks Area

- 6.7.1 Two trenches were investigated in the Earthworks Area to the west of the scheduled complex in an area of rough pasture owned by Pro Corda. The field was defined by a number of visible earthworks including a N-S drainage ditch feature running downslope from the Guesten Lodge fish pond, and banks enclosing two platforms to the west of this feature. Trial trenching was preceded by a topographic survey (Figure 25), with work in this area designed to understand how the earthworks were used, what functions and activities took place, trace the Abbey's water management supply system and understand how activity in this field interfaced with the main claustral complex (Questions 2, 5 and 8).

Trench 10 (Figure 19) <http://ow.ly/NX7wq>

- 6.7.2 Trench 10 was orientated NW-SE and measured 20 x 4 metres; it was positioned across both ditch and bank of a drainage feature observed running south from the Guesten Hall fishpond downslope into the north end of the field (Plate 19.1). Topsoil (10001) was removed by machine, leaving a mid-brownish grey silty clay subsoil (10002) to be removed by hand. Below this subsoil deposit a number of discrete features were identified potentially relating to two separate phases. These included a ditch feature (F1005) in the southern end of the trench, and four structural posthole features localised in the northern end of the trench (Plates 19.2 – 5).
- 6.7.3 The main ditch and earthwork feature (F1005) was defined by a substantial, U-shaped cut [1023] extending in a NW-SE orientation, and bounded on each edge by two upcast banks (1009 & 1004). It was filled by mid-yellow greyish brown clayey sand (10019) with inclusions of chalk, flint nodules, pebbles, shell, bone and charcoal inclusions. The artefacts discovered within were of mixed dates; including Medieval and Post-Medieval pottery (SF 24, 27 & 33) the majority of which dated to the early 18th Century and a bone knife handle provisionally dated to 1570-1600 (SF 36). A thin alluvial layer of

mid greyish-brown clayey sand (10003) had washed into the feature and sealed the archaeological deposits below the subsoil.

- 6.7.4 The upcast bank deposits (10009 & 10004) comprised mid yellow-brown sandy clay with inclusions of charcoal flecks, pebbles and chalk fragments. The northern bank (10004) had slumped slightly downslope into the ditch fill, with a mix of artefacts recovered including a Nuremberg rose/orb jetton dating to the late 16th Century (SF 1), an 18th Century wire and gold button (SF 44), a sword belt hanger dating to 1500-1650 AD and late 17th Century pottery sherds indicating later working and flattening of the banks. The southern bank (10009) also produced a range of objects, including a pair of possible tweezers (SF45) dating to between the Roman and Early Medieval periods, 200-700 AD. In keeping with the general mix and range of dates of artefacts recovered from the ditch feature (F1005), these banks were likely constructed during the later monastic phase of the site, then reworked as the ditch continued to be used (and cleaned out) post-dissolution.
- 6.7.5 A mid yellow-brown silty clay layer (10020) was identified in the northern end of the trench, producing occasional finds including a sherd of post-medieval pottery (SF 29) and a retouched flint flake (SF 35). A series of three postholes (F1002, F1003 & F1004) orientated NWW-SEE truncated this layer (10020) (Plate 19.6). Wide and shallow, they were characterised by a substantial post-pipe with a central fill surrounded by a packing layer of yellow/brown or yellow clay (10010, 10015 & 10018). The fills of these posthole features (10008, 10010, 10014, 10015, 10017 & 10018) all produced low quantities of finds including CBM. Though the scale of these features would suggest that they were structural postholes (that had subsequently decayed in situ), not enough area was exposed in plan to indicate the scale, date or function of a building in this area, and further remote sensing or excavation work is recommended to determine it's footprint.
- 6.7.6 One further posthole feature was discovered in the northwest of the trench (F1001) it bore little resemblance to the other structural postholes in the area, and could belong to an earlier or later phase of building in this area. This was sub-circular in shape and filled with mid grey-brown silty clay (10006) with a small number of flint stone inclusions and wood fragments recovered from the deposit.
- Trench 11 (Figure 20) <http://ow.ly/NX7CN>
- 6.7.7 Trench 11 was positioned in the west of the Earthworks Area on a NW-SE orientation (Plate 201.1). Measuring 20 x 4 metres, it was located on a diagonal across a defined 'gap' in an earthwork bank that appeared to form an entranceway onto an enclosed platform area. Topsoil (11001) was removed by machine, and was then cleaned down by hand to a natural layer into which a series of features were cut. These included a ditch and upcast bank, several intercutting gullies and pits (Plates 20.2 – 3), and a layer of chalky packing material (11022) consolidating the platform entrance way (similar in form to chalk clay layer (10024) in Trench 10).
- 6.7.8 The principal feature in Trench 11 was a large ditch and bank (F1102) orientated NW-SE, and interpreted through topographic survey as part of the same land management system as ditch feature (F1005) in trench 10 (Plate

20.6). It was filled by a series of deposits, the primary being a mid brownish-grey silty clay with occasional small stone inclusions (11024), followed by a secondary deposit of mid greyish-brown silty clay (11011). This secondary deposit contained occasional charcoal flecks, frequent medium stone inclusions and finds including CBM, pottery, bone and a copper pin dating to between 1400 and 1900 AD. The upcast bank deposit (11009) had slumped into the ditch, moving downslope from the north. It was a mixed mid brownish-grey to light greyish-brown silty clay with frequent inclusions of charcoal flecks, chalk fragments, CBM, and a range of finds including a bone knife handle dating to 1550-1600 AD.

- 6.7.9 To the south of ditch feature (F1102) a large chalk and clay layer (11022) was identified, comprising light brownish grey silty clay with very frequent chalk inclusions and mid-16th Century pottery finds. To the north, ditch feature (F1102) was truncated by a gully feature (F1101) oriented SW-NE. The gully narrowed slightly, being 0.20 m on the SW end and 0.16 m at the NE end, and was excavated in two sections to define its relationship with the main ditch. The cut of the gully feature [11005 = 11020 = 11018] was filled by dark brownish grey sandy clay with occasional charcoal flint and chalk inclusions (11006) and dark brownish grey sandy silt with inclusions of chalk and charcoal flecks and small pieces of flint (11021).
- 6.7.10 At the northern corner of the trench, a series of four intercutting features were identified (Plate 20.3). The earliest was a linear gully feature (F1103) running in a NE-SW orientation cut into the natural clay. It was filled by a coarse grained dark grey-black silt with approximately 20% charcoal and occasional small stone inclusions (11004). Cutting this gully feature at its northern end was a large pit feature (F1104), which was in turn cut by a posthole feature (F1107) and a later pit feature (F1105). Each of these features produced a number of artefacts, including CBM and ceramic tile, animal bone and pottery. The final feature excavated in Trench 11 was posthole (F1106) filled with loose mid-brownish grey silty clay with stone and flint inclusions (11017), and a near perfect arrangement of packing stones remaining in situ.

6.8 The Western Area

- 6.8.1 Two trenches were investigated in the Western Area to the west of the scheduled complex in an area of pasture owned by Pro Corda. A number of linear earthworks had been visually identified and so trenches 12 and 13 were excavated in order to trace the Abbey's water supply and water management system (Question 5), to identify whether the earthworks were associated with the main claustral complex (Question 2) and to investigate if there is any evidence for earlier settlement at Leiston prior to the construction of the Abbey church (Question 7).

Trench 12 (Figure 21) <http://ow.ly/NX7GM>

- 6.8.2 Trench 12 was inserted in the centre-north of the Western Area on an E-W orientation and measuring 20 x 3 metres (Plate 21.1). Topsoil (12001) was removed by machine, coming down onto an archaeologically sterile natural layer (Plate 21.2). A continuation of the water channel observed in Trench 13 was identified, but no artefacts were recovered from a sondage excavated

to ascertain its depth, and no further excavation was conducted within the trench.

Trench 13 (Figure 22) <http://ow.ly/NX7LZ>

- 6.8.3 Trench 13 was positioned at the northern boundary of the Western Area (Plate 22.1). Oriented E-W, it measured 19 x 1.80 metres. Topsoil (13001) was removed by machine to expose a layer of natural clay into which a water channel feature (F1301) was cut, continuing downslope in a NNW-SSE orientation (Plate 22.2).
- 6.8.4 Interpreted from topographic survey and LiDAR data, this feature channelled water downslope from the earthwork features excavated in Trench 1 in the northwest area. Excavated in sondage due to its scale a 3 x 1.60 metre slot was positioned along the northern edge of the trench to ascertain the feature's form and function.
- 6.8.5 The primary fill of the water channel feature (13005) was mid-bluish grey silty clay with frequent chalk and occasional flint inclusions, and the secondary fill (13004) was defined by mid orange-brown silty clay with occasional chalk and flint inclusions. Neither the primary fill nor the secondary fill produced any artefacts. The tertiary fill of the water channel feature (13003) was defined by mid brownish-grey sandy clay with occasional chalk and charcoal inclusions. This fill produced artefacts such as a ferrous nail and piece of slag and several sherds of abraded Roman greyware pottery (SF 58, 59, 60, 61 & 62), comparable in form to similar artefacts identified 'upstream' in the Northwest Area.

6.9 Archive

- 6.9.1 The archive is currently held at DigVentures' East of England office under the site code LA13, but will ultimately be deposited for permanent storage with an appropriate museum or repository (such as English Heritage) under HER code LCS 176 (2013 interventions) and LCS 177 (2014 interventions).

7 PALAEOENVIRONMENTAL RESULTS

By Lisa Gray

All digital records relating to palaeoenvironmental samples from Leiston Abbey can be reviewed on the Digital Dig Team system here: <http://ow.ly/lyktu>

7.1 Introduction

- 7.1.1 The palaeoenvironmental sampling strategy was designed to recover evidence to address the principle objectives of Aim 3 to 'understand the palaeoenvironmental conditions at the site', followed by 'recommendations for further work' (Aim 4). Project Archaeobotanist, Lisa Gray, assessed the assemblage, making recommendations for further work (Aim 4) following the methodology and best practice guidelines detailed in the Project Design (Wilkins et al 2013, Section 5.5.8).

7.1.2 This section will assess the significance, preservation and potential of plant macrofossils from well-stratified features. Of the 49 soil samples taken, all were processed on site, with 17 of these programmed for full assessment (see Table 1 below, with a full quantification table for processed samples in Appendix 2). The selection of which samples to select for assessment was based on a categorical sampling strategy (Categories A, B and C) as outlined in the UPD, Appendix 3), and all samples not proposed for assessment were retained, should assessment be required at a later date. Decisions on what samples to propose for processing were made on the basis The purpose of this work was to assess the state of palaeoenvironmental material on site (Q10); to recover evidence relating to farming, food processing or industrial activities (Q11); and to increase understanding of the local environmental context to the archaeological remains (Q12).

Sample	Cont ext	Sample Size (L)	Flot size (ml)	Trench Number	Contamination	Provisional Interpretation	Provisional Date
1	1007	50	250	T1	Root action	Primary deposit of ditch [1008] – natural subsoil	Medieval
2	1012	20	300	T1	None	Posthole [1011]	Medieval
3	1018	60	250	T1	None	Primary deposit in ditch [1006]	Medieval
6	1009	50	200	T1	Root action	Primary deposit in ditch [1008]	Medieval
18	11006	10		T11 / F1102	Mixture with overburden, root action	Gully [11005]	Undated
24	10015	10		T10/LA_10015	None	Posthole [10013]	?Post-medieval
25	10017	10	50	T10/F1004	none	Fill of posthole [10016].	?Post-medieval
26	10014	30	250	T10	none	Posthole [10013]	?Post-medieval
33	11004	60	1200	T11	None	Gully [11003]	Undated
34	11008	60		T11	Possible mixing with other context	Pit [11007]	Undated
36	10019	20	150	T10	None	Fill of ditch [10023] below (10004)	Undated
41	8015	20	25	T8/F804	None	Fill of feature associated with structure	Undated

Sample	Context	Sample Size (L)	Flot size (ml)	Trench Number	Contamination	Provisional Interpretation	Provisional Date
						of wall or drain [8016]	
42	1029	Not given	75	T1	Mixture with overburden	Burned layer	Undated
45	9013	20	200	T9	Possible mixing with other context	Fill of post-medieval Midden pit [9009]	Post-medieval
46	9008	10	50	T9	None	Fill of post-medieval midden pit [9009]	Post-medieval
48	1037	60	150	T1/F103	None	Cut of ditch-equivalent to ditch [1008]	?Prehistoric
49	9008	5	25	T9	None	Sample taken from pot fill, small find no. 87	Post-medieval

Table 2 – Palaeoenvironmental sample details

7.2 Methodology

- 7.2.1 Sampling and processing was carried out on site by the excavation team using a Siraf-type flotation tank, with specialist advice and attendance as detailed in the Project Design (Wilkins et al 2013, Section 5.5.7). A 1mm mesh was used to collect the residue and a 250-micron mesh to collect the flot.
- 7.2.2 The residue was scanned and recorded by the DigVentures team and the dried 'flots' (material collected in the 250 mm sieve) were scanned by Lisa Gray using a binocular stereo-microscope with magnifications of between 10 and 40 times and the quality of preservation, diversity and significant taxa were recorded. The term 'seed' has been used to replace 'achene', 'nutlet' and 'fruit' for clarity. Correct botanical nomenclature will be used in the tables if an analysis is carried out.

7.3 Results (Appendix 2)

- 7.3.1 No known biases in sampling have been highlighted. Contamination (see table 2) is due mostly to root action and possible mixing with adjacent contexts due to bioturbation.
- 7.3.2 The samples were not very archaeobotanically productive and produced botanical and faunal evidence reflecting disturbed, aerobic preservation conditions and chalky soil.
- 7.3.3 All flots contained abundant uncharred rootlet fragments. The flot from medieval ditch sample <3> contained abundant terrestrial snail shells and flots from samples <36> (undated ditch), <41> (undated drain), <42>

(undated burned layer), <45> (post-medieval midden pit) and <49> (pot fill from post medieval midden pit) contained low to moderate quantities of terrestrial mollusca. Flots from samples <1> (prehistoric ditch), <42> (undated burned layer), <48> (prehistoric ditch) contained low numbers of earthworm egg capsules. Uncharred (uncharred and unmineralised) seeds were present in the form of low numbers of ruderal, scrub and grassland plants; elderberry (*Sambucus nigra*), buttercup (*Ranunculus acris/repens/bulbosus*), blackberry/raspberry (*Rubus fruticosus/idaeus*) and stitchwort (*Stellaria media*) seeds.

- 7.3.4 The worm eggs, mollusca and rootlets indicate that stratigraphic movement by bioturbation is likely so these seeds should be interpreted as intrusive and probably modern. The uncharred seeds present are robust and also likely to survive changing preservation conditions where more fragile seeds decay. The apparently aerobic and alkaline conditions reflected in this environmental assemblage favour the preservation of charred and mineral-replaced plant macrofossils (Campbell et al. 2011,6).
- 7.3.5 A bag of what appeared to be 'seeds' from sample <48> (ditch F103) were presented for assessment. When broken, these sub-ovoid, granular objects averaging c5mm in diameter they revealed small fragments of grit bound with silt. It is possible that these are calcium carbonate earthworm granules (Canti 2003) that have begun to accrete surrounding silt and grit. The fragments examined in this case are slightly larger than fresh earthworm granules but with years of gradual accretion they may have grown in size. One of these fragments was smooth, magnetic and not breakable. If these are earthworm granules they support the possibility that earthworm activity has had a significant taphonomic effect on the stratigraphy of the site and that movement of seeds and grains after burial is possible.
- 7.3.6 The only plant remains that could be confidently considered archaeological were those preserved by charring. Charring occurs when plant material is heated under reducing conditions where oxygen is largely excluded leaving a carbon skeleton resistant to decay (Boardman and Jones 1990, 2; Campbell et al 2011, 17). These conditions can occur in a charcoal clamp, the centre of a bonfire or pit or in an oven or when a building burns down with the roof excluding the oxygen from the fire (Reynolds, 1979, 57).
- 7.3.7 The quality of preservation of most of these charred remains were poor and the absence of chaff to aid cereal grain identification means that the level of identification will only be to family, genus level or at most 'cf' species.
- 7.3.8 The charred plant remains consisted of fragments of charcoal of identifiable size (>4mm²) in each sample with most of these in sample <2> (medieval posthole), <26> (medieval posthole) and <34> (undated pit). Charred twig fragments were present in samples <34> and <41> (undated construction feature). Charred cereal grains were found in low numbers in samples <3> (medieval ditch), <18> (undated gully), <24> (?post-medieval posthole), <34> (undated pit), <36> (undated ditch), <41> (undated construction feature), <42> (undated burned layer) and <46> (post-medieval midden pit). The grains were those of bread/rivet wheat (*Triticum aestivum/turgidum*), rye (*Secale cereale*), hulled barley (*Hordeum vulgare*).

- 7.3.9 Other items in these flots consisted of the faunal remains already stated and one indeterminate magnetic inorganic fragment found in sample 48 (1037 prehistoric ditch). Sample <41> contained a small fragment of woven textile.

7.4 Palaeoenvironmental (archaeobotanical) Discussion

Assessment of the state of palaeoenvironmental (archaeobotanical) material on site (Q10)

- 7.4.1 The current state of the archaeological and palaeoenvironmental material is affected by the predominantly aerobic conditions on site. This is likely to reduce the amount of plant remains preserved by waterlogging. Mineralised plant remains, preserved in these aerobic, alkaline conditions, may be recovered in future interventions enabling their assessment alongside charred plant remains. The likelihood of faunal bioturbation also means that the stratigraphic integrity of these plant remains is in question.

Evidence relating to farming, food processing or industrial activities (Q11)

- 7.4.2 The approximate number of charred grains per litre of sampled soil ranges from 0.2 to 1 grain. This is very low and many of these grains are in poor condition suggesting that they are residual or redeposited. Until all of the samples are dated it is not possible to infer anything about the context and period related variation of these cereals. They are typical of those found in excavations from the Anglo-Saxon periods onwards (Murphy undated, 54), and further dating evidence from excavated features will enable period related variation to be determined. The fill of the pot found in midden fill (9008), sample <49> contained nothing other than identifiable charcoal, an uncharred elderberry seed, low numbers of terrestrial mollusca and abundant uncharred root/rhizome fragments.

The local environmental context to the archaeological remains (Q12)

- 7.4.3 Unfortunately the uncharred/unmineralised seeds noted in section 7.3.4. cannot be guaranteed to be from any specific period or location due to their resilience and evidence for bioturbation. It is likely that mollusca or geo-archaeological evidence will answer environmental questions more adequately than archaeobotanical remains. If well-sealed waterlogged organic deposits are found then a wider range of useful plant remains representative of the local environment may be recovered. In the absence of contexts such as this sampling for phytoliths, durable stable silica structures in grasses (Evans and Connor 1999, 135-136) may also provide useful results.

7.5 Recommendations and Archive

- 7.5.1 The palaeoenvironmental archive is currently stored, bagged by context and sample residue fraction in archive boxes by DigVentures. The archive will be stored until the project is fully closed and all analysis is complete. No further work is needed on the plant macrofossils (seeds and grains) but the charcoal could prove useful if needed for dating or to be used in any investigation into wood fuel usage.

8 FAUNAL REMAINS

By Poppy Hodgkinson and Richard Madgwick

The full quantification tables for the faunal archive can be downloaded and reviewed here: <http://ow.ly/IyMwW>

8.1 Introduction

8.1.1 Two seasons of excavation at the monastic site of Leiston Abbey, Suffolk (2013-14) unearthed a modest faunal assemblage of 509 disarticulated identifiable fragments and a well-preserved dog skeleton. The vast majority of remains derive from medieval and post-medieval contexts. Possible prehistoric and Roman contexts have also been identified, although only a small number of bones were recovered therein. A substantial proportion of the assemblage also derived from contexts that currently remain unphased. This assessment report discusses the assemblage by phase, rather than trench, as dividing the bones by trench would make for prohibitively small sample sizes and for phase is a more illustrative unit of interpretation for assessment of potential. However, contexts are grouped by trench in the raw data that has been submitted with this report.

8.1.2 The faunal remains are assessed below following English Heritage guidelines on animal bones in archaeology (Baker and Worley 2014). The specific objective of this work was to assess 'the current state of the archaeological and palaeoenvironmental material across the site' (Aim 3, Q11) assessing the interpretive potential and significance of the assemblage, to recommend directions for further research and curation and to guide recovery strategies in subsequent excavation seasons.

8.2 Method

8.2.1 Topsoil was removed by either machine or by hand, after which excavation proceeded by hand for all trenches. Deposits from all features were 100% dry sieved using a 5mm gauge or were wet sieved using standard archaeological floatation apparatus (see Wilkins 2013). This strategy ensured excellent attention to detail, resulting in the recovery of small mammals, fish and amphibians and certainly minimised data loss through recovery bias.

8.2.2 There is some discrepancy between the wet sieved samples and hand retrieved specimens. Most notably, the wet sieved samples produced a far higher percentage of small taxa, whereas almost the entire larger mammal remains were the result of hand recovery (Charts 1 and 2). This is the case for all phases, although sheep/goat remains were also common in wet sieved contexts not assigned to a phase. Wet sieved and hand recovered/dry sieved specimens are combined in further analysis in this report.

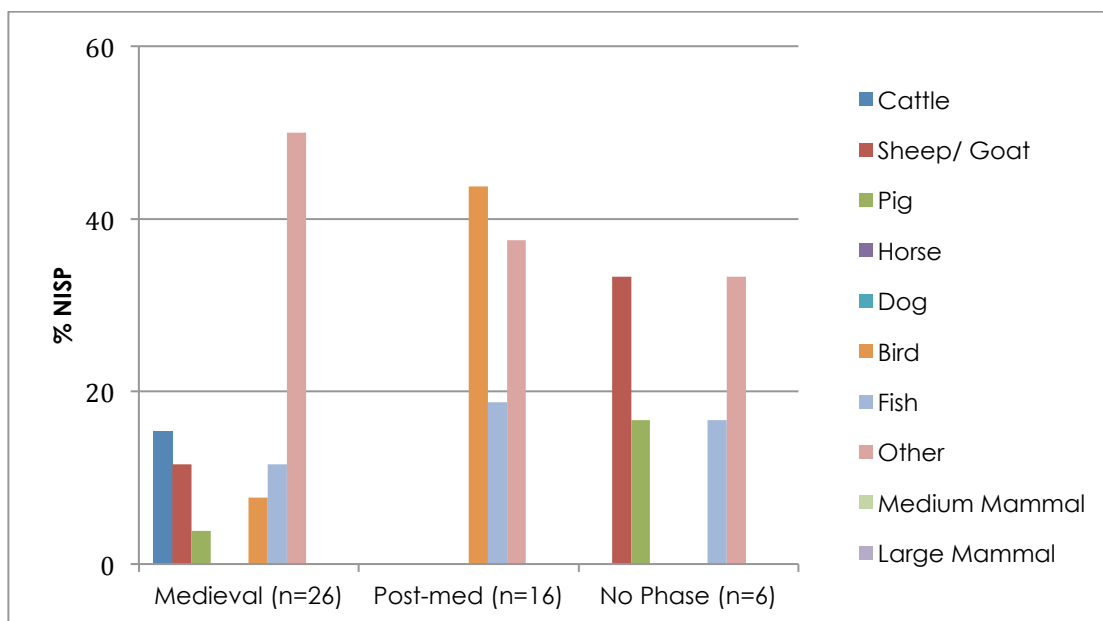


Chart 1 – Percentage of taxa (by Number of Identified Specimens – NISP) in wet sieved samples from Leiston Abbey for each phase

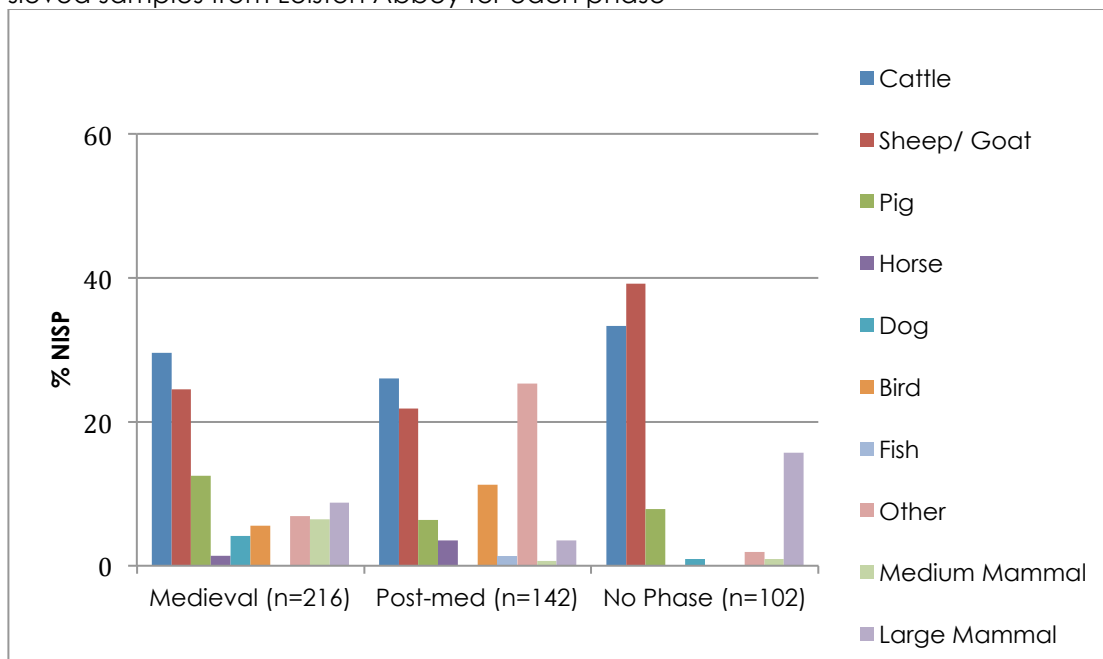


Chart 2 – Percentage of taxa (by NISP) in hand recovered/dry sieved specimens from Leiston Abbey for each phase

8.2.3 This assemblage was scanned for the purposes of an assessment of potential by the authors in the Osteoarchaeology laboratory at Cardiff University following Cardiff Osteoarchaeology Research Group (CORG) recording protocol (see Mulville 2005). Identification was aided by the CORG comparative collection and reference library.

- 8.2.4 Every fragment was examined and recorded as identifiable to taxon, to taxon size (e.g. large (cattle-size), medium (sheep-size) or small (hare-size) mammals) or as unidentifiable. Fragments were considered identifiable if they comprised at least 50% of one zone of an identifiable anatomical element (following Serjeantson 1996). Rib fragments with surviving vertebral articulations were recorded to taxon size, as were vertebral centra. Of cranial specimens, only occipitals, zygomatics and nasals were recorded. Non-articulating carpals and tarsals (except for the calcaneus and astragalus) were not recorded.
- 8.2.5 Assessment recording quantified specimens that provide data for age reconstruction (through dental eruption/attrition and epiphyseal fusion) and sex determination. The potential for metric analysis was also assessed by quantifying specimens that could yield at least one measurement (following von den Driesch 1976). Fragments with evidence of burning and butchery were also counted.
- 8.2.6 The general condition of the assemblage was assessed by assigning each bag of bones a number from 1 to 5, with '1' being the best preserved (pristine surface preservation and little or no fragmentation) and '5' being the worst (mostly unidentifiable scraps with poor surface preservation). This provides an ordinal scale on which to assess each context in terms of the degree of fragmentation and the level of surface preservation.
- 8.2.7 This report incorporates data and findings from the previous assessment of the faunal material from 2013 excavations (Madgwick n.d.).

8.3 Assemblage Summary

- 8.3.1 The Leiston assemblage comprises 1648 specimens, the majority of which come from medieval contexts. The overall condition of the assemblage reveals a relatively good rate of preservation; many complete specimens with excellent surface condition were present as were a small number of foetal bones (which are highly vulnerable to destruction). There is little variation in bone condition across phases.
- 8.3.2 The dominant taxon on the site based on NISP is cattle, closely followed by caprines. Pig, horse, dog, fish, bird and 'other' taxa (comprising principally lagomorphs, amphibians and rodentia) were also recorded. There is some inter-phase variation in relative taxon representation. A greater proportion of birds and 'other' taxa (principally lagomorphs) from the medieval to the post-medieval phase.
- 8.3.3 The number of samples deriving from medieval contexts is far higher than those from post-medieval contexts and consequently it is likely that the increase in these taxa represents a genuine pattern, rather than resulting from sampling methods. There is also a noteworthy reduction in recovered pig remains. A modest number of the recorded specimens provide useful data for ageing, sexing and metrics. Butchery and burning evidence was very sparse across the entire assemblage.

Phase	Cattle	Sheep/Goat	Other taxa	Pig	Bird	Dog	Fish	Horse	Large Mammal	Medium Mammal	NISP	UNID	Total
Prehistoric	1										1	11	12
Medieval	68	56	28	28	14	9*	3	3	19	14	242	656	898
Post-med	37	31	42	9	23		5	5	5	1	158	235	393
No Phase	34	42	4	9		1	1		16	1	108	237	345
Total	140	129	74	46	37	10	9	8	40	16	509	1139	1648

Table 3: Representation of taxa (by NISP) at Leiston Abbey by phase. *skeleton not included

Phase	% Identified	% Unidentified	Total
Prehistoric	8%	92%	12
Medieval	38%	62%	1057
Post-med	40%	60%	393
No Phase	31%	69%	345
Average	29%	71%	1807

Table 4 – Percentage of identified and unidentified specimens by phase

Phase	Meas.	Age	Sex
Prehistoric			
Medieval	40	70	
Post-med	34	43	6
No Phase	31	26	9
Total	105	139	15

Table 5 – Specimens with metric, age and sex data

Phase	Butchery	Burning
Prehistoric		
Medieval	2	1
Post-med		1
No Phase		4
Total	2	6

Table 6 – Number of specimens with butchery and burning evidence

8.4 Bone Condition

8.4.1 Bone preservation at Leiston Abbey is good, with 29% (table 4) of the assemblage classed as identifiable: 509 specimens of 1648 (table 3). Prehistoric contexts showed considerably worse levels of preservation and comprised only 8% identifiable specimens. A total of 47% of the contexts that

were assessed were found to be in 'excellent' to 'moderate' condition (stages 1-3, table 7).

- 8.4.2 During assessment, it became clear that some contexts had multiple bags of bones of varying condition. This was dealt with by taking an average of the bone condition in each bag and treating the result as a single context; all original data on bone condition is accessible in supplementary data files.

Condition	1	2	3	4	5	Total Contexts
Prehistoric				1	1	2
Medieval	2	4	11	11	7	46
Post-med	1	4	2	3	1	14
No Phase		1		4	1	9
Total %	6%	17%	24%	34%	19%	71

Table 7 – Condition of the bones in each context on a scale of 1 to 5

- 8.4.3 This good preservation (along with detailed recovery) is reflected in the quantity of small mammals, birds and amphibians present in the assemblage. The presence of many complete elements, as well as foetal animals in some contexts is also indicative of very good preservation conditions.

- 8.4.4 Overall, most context assemblages are likely to have undergone fairly short taphonomic histories. Although they may often be mixed to some degree, they are unlikely to have been substantially reworked and therefore have considerable potential for the reconstruction of phase-specific husbandry strategies, processing practices and perhaps even depositional events. Only two butchery marks were identified in the assemblage; these can be attributed to medieval contexts (table 6). Burning is also rare, with only 6 bones displaying evidence for it across all phases, indicating that roasting was unlikely to have been commonly practised in food preparation.

8.5 Phased Assemblage Descriptions

- 8.5.1 The majority of specimens from Leiston Abbey are assigned to either the medieval or post-medieval period, with only a small number of fragments from prehistoric contexts (Chart 3). The bones will now be considered by phase in terms of taxon representation and the potential to address wider zooarchaeological questions. Due to limited interpretative potential, unphased contexts are not discussed.

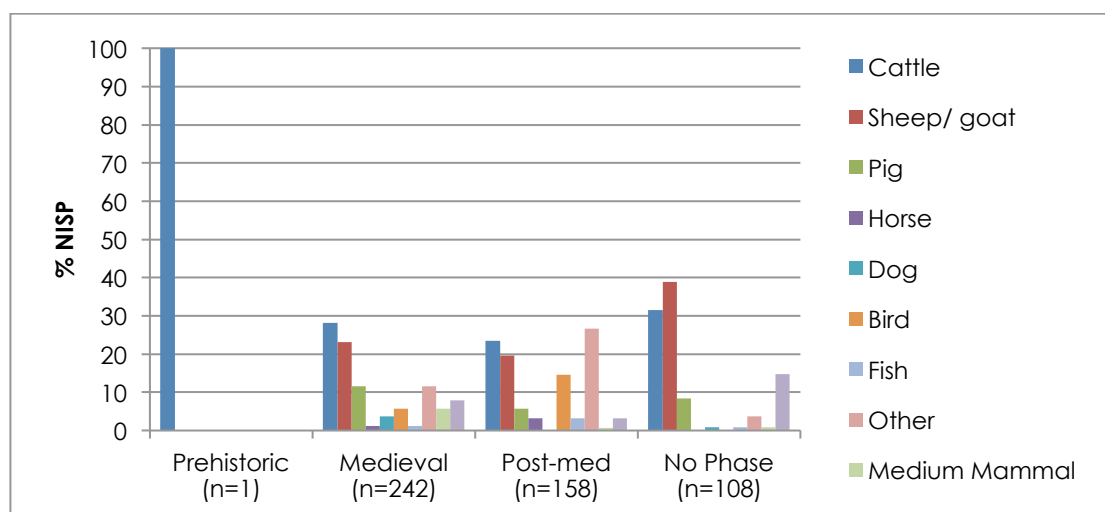


Chart 3: Percentage of represented taxa (by NISP) at Leiston Abbey in different phases

Prehistoric

- 8.5.2 A single cattle specimen was the only identifiable fragment from prehistoric contexts, rendering the assemblage of negligible interpretative value.

Medieval

- 8.5.3 Cattle are the most abundant species identified for this phase, followed by sheep/goat, pig and 'other' species (Chart 4). Bird, dog horse and fish were also recorded. A single, very large male dog skeleton was also recovered from a context assigned to this phase (comprising 168 dog specimens in total), but ¹⁴C dating indicated that it was either post-medieval or modern (see 'dog skeleton' section below). 'Other' taxa that were recorded for this phase are a mole, a number of lagomorphs, amphibians, a cat and a rat. This phase contains a number of contexts of interest: two contained neonatal pig remains. Another held many cranial fragments that may have comprised a single sheep skull when deposited. A further context contained a number of small mammal, bird and amphibian remains, which are likely to derive from a fox scat.

- 8.5.4 A total of 40 identified specimens can be measured, and 70 provide data on the age of each individual. No fragments display evidence for sex determination. A total of two bones from this phase displayed butchery marks.

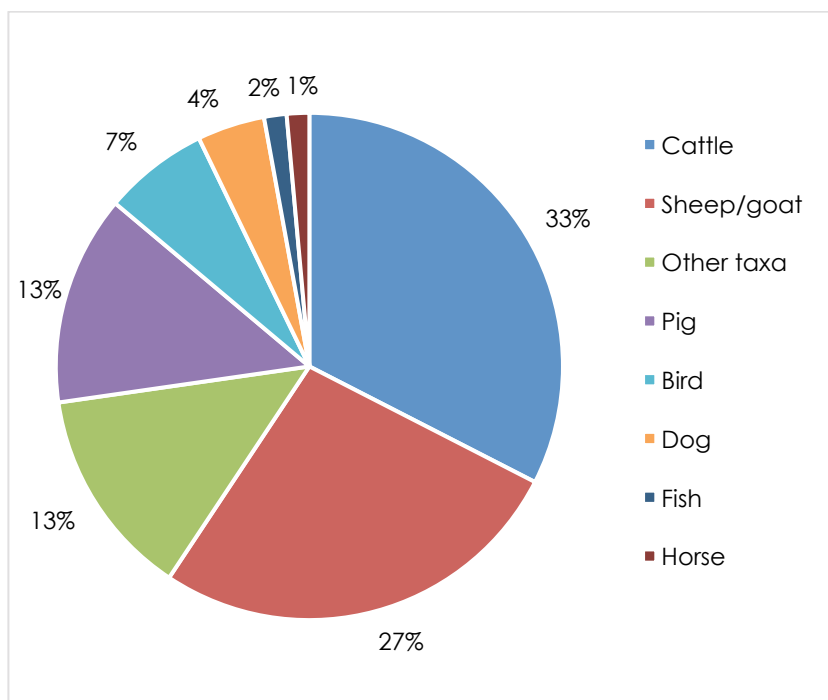


Chart 4 – Percentage of identifiable specimens from medieval contexts assigned to each taxonomic category

Post-Medieval

- 8.5.5 The category of 'other' taxa accounted for the highest number of specimens in this phase followed by cattle, sheep/goat, bird and pig (see Chart 5). Horse and fish were also present. The 'other' taxa from post medieval contexts comprise lagomorphs and rodents. The birds recorded include probable chickens, geese and pigeons as well as some other unidentified bird species, though full taxonomic identification was not undertaken at this stage of analysis. Three post-medieval contexts contained finds of interest: including parts of a foetal sheep, an almost entire galliform skeleton and some foetal cattle remains.
- 8.5.6 A total of 34 fragments can provide at least one measurement, 43 specimens provide information for age reconstruction, and 6 provide data for sex determination. Burning and butchery evidence was almost entirely absent.

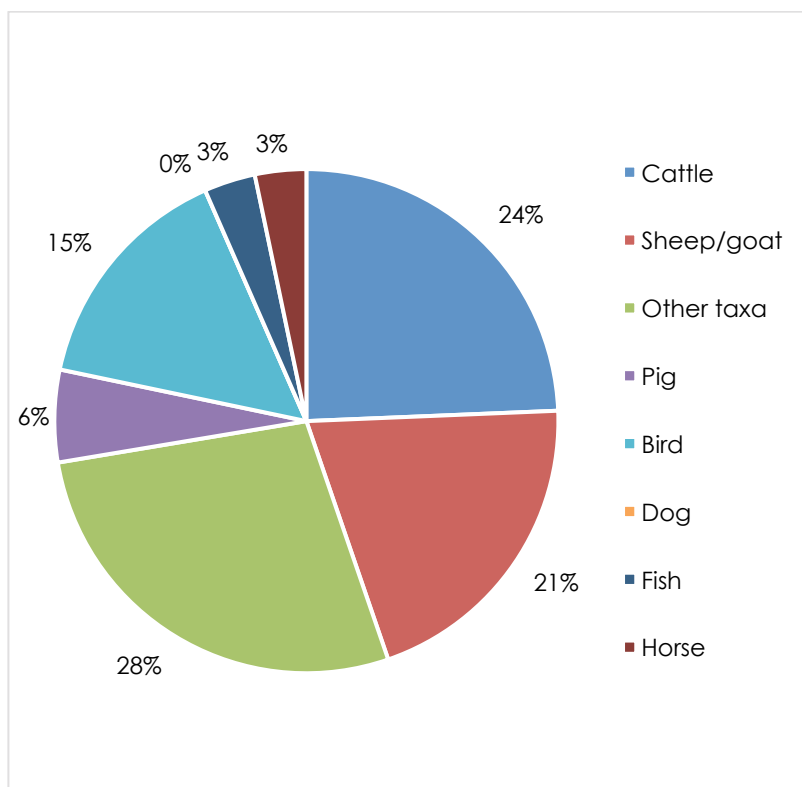


Chart 5 – Percentage of identifiable specimens from post-medieval contexts assigned to each taxonomic category

8.6 The Dog Skeleton

8.6.1 After initial assessment but prior to dating, further analysis was conducted on the canid skeleton recovered from context 7013 at Leiston Abbey in order to provide a suite of biographical information. The size and exceptional preservation of the individual suggested that it was likely to be modern, however, this was contradicted by stratigraphical phasing placing the dog relatively early in the Trench 7 sequence. A rib fragment was submitted to Beta Analytical and revealed that it was not of medieval date (conventional radiocarbon age 190 ± 30 BP. The 2σ multi-nodal calibration indicated a date of Cal AD 1650-1690, Cal AD 1730-1810 or Cal AD 1920 - Post 1950 (Beta-383664). Although this severely limits the interpretative potential of the skeleton, the biographical information is provided here as a record. The skeleton was exceptionally well preserved. No cortical surface erosion was observed and it had only suffered very minor fragmentation. Almost all elements were present, including carpals, tarsals and phalanges, providing evidence for good attention to detail in recovery.

8.6.2 The skeleton was of a male canid, as evidenced by the presence of a well-preserved baculum. A metric assessment was undertaken following von den Driesch (1976) with the principal aim of obtaining 'Harcourt factors' for estimating shoulder height (see Harcourt 1974; Koudelka 1885). All long bones yielded greatest length measurements that could be used to estimate shoulder height. All seven 'Harcourt factors' were calculated with shoulder

height estimations ranging from 695mm to 720mm, providing a mean of 711mm (28 inches). Modern breeds with shoulder heights in this range include Great Danes and Mastiffs (www1). The metric data ranks this dog among the largest recovered from an archaeological context in the UK. As no clear cut was established and therefore the stratigraphic relationship of the burial to surrounding contexts was unclear (Brendon Wilkins pers. comm.), there was a suspicion that the dog may have been modern. Three pig elements were recovered from the fill of the burial that were consistent with being of medieval date based on size, morphology and taphonomy.

8.6.3 All ossification centres showed complete fusion, demonstrating that the dog was fully mature. Precise ageing of dogs using dental attrition is not possible following similar schemes as are available for other domesticates (e.g. Grant 1982). However, the dentition was in an advanced stage of attrition, with almost all enamel being worn away on several of the anterior teeth. The canid is certain to have been elderly at death, probably over the age of ten. Further evidence for the advanced age of the dog was observed on the right hind limb. The astragalus, calcaneus and associated tarsal bones showed clear evidence of degenerative pathology. Floritic, reactive bone growth was present on the calcaneus and prevalent on the astragalus. Associated tarsal bones had fused together and were coated in remodelled bone to the degree that they the individual elements could barely be differentiated. Other long bones associated with the ankle joint (tibia and metatarsals) showed no signs of pathology. This localised evidence of the degeneration of the ankle joint is likely to relate to osteoarthritis, a common disorder in canids of an advanced age. Although it does not affect all of the joint's articular surfaces (proximal metatarsals and distal tibia are unaffected) the severe degeneration would have certainly substantially affected locomotion. The animal would have been able to put weight on the limb but would not have been able to run and may have walked with a limp.

8.6.4 Overall the Leiston Abbey canid represents an interesting isolated find of a very large dog. The animal lived to an advanced age and suffered from joint degeneration on the right hind limb. In terms of modern breeds, the size of the animal is consistent with a Great Dane or a Mastiff. The relatively prognathic cranio-facial area is morphologically more similar to a Great Dane, although the estimated shoulder height is toward the smaller end for this breed.

8.7 Discussion

8.7.1 The faunal remains from Leiston Abbey represent an interesting assemblage of a modest size. The assemblage makes an important contribution to the corpus of data from medieval/post-medieval monastic sites in England and in particular in East Anglia. Although the assemblage is relatively small, it is well preserved and most remains have not undergone a protracted taphonomic history. The assemblage consequently has the potential to address a range of questions surrounding husbandry, processing and waste-management at the abbey and to explore the social and economic relations between the abbey and settlements in the surrounding landscape.

The assemblage is recommended to progress to full recording for the production of a comprehensive report.

- 8.7.2 Taxonomic representation is broadly typical for monastic assemblages from England, although the presence of a substantial quantity of lagomorpha in the post-medieval period is more unusual. Further analysis of taxonomic representation will focus on more detailed quantification, including calculation of the Minimum Number of Individuals (MNI) and the Minimum Number of Elements (MNE). Combined with species identification for fish and birds, this will provide much greater resolution as to which taxa were the mainstays of the abbey economy in terms of number of animals and dietary contribution. The fish, birds and 'other' taxa present at Leiston are certainly worthy of further analysis. It is surprising that more fish were not recovered given the site's proximity to coast and to fresh water sources. The presence of small mammal remains and the extensive sieving programme means that this is highly unlikely to relate to poor recovery. The presence of other wild taxa, particularly lagomorphs, is noteworthy. Wild mammals are rarely common in monastic assemblages and Moreno-Garcia (2007) has highlighted that rabbits were rarely exploited at these sites.
- 8.7.3 The increase in wild animals in the post-medieval period is likely to relate to the site's post-dissolution phase and signals a diversification in dietary practice. However, taphonomic analysis is required to assess whether the lagomorph remains may be intrusive. The presence of both rat and cat remains is typical of monastic assemblages. The good preservation of remains means that substantial quantities of ageable element parts were recovered. These provide good potential for reconstruction of age profiles for both the medieval and post medieval periods. Samples will remain small and the resolution with which cull profiles can be reconstructed will be limited. However, some indications of husbandry strategies will certainly be possible, in terms of the contribution of meat, milk and wool to the economy. The very sparse data for sex determination hinders detailed economic reconstruction but artifactual evidence (e.g. wool processing finds) may be of some use. The sample has some potential for an assessment of size change in domestic animals between the two periods, although this is limited in such a small sample.
- 8.7.4 Detailed analysis of age profiles and element representation has the potential to address questions surrounding Leiston's role as a producer or consumer site. The presence of foetal remains certainly suggests that livestock were raised by the site's inhabitants, but the abbey is likely to have also drawn from the wider productive agricultural landscape of Suffolk. Preliminary analysis of processing evidence indicated a dearth of butchery evidence. More detailed recording for full analysis is certain to yield some extra data but it is clear that butchery evidence is rare. This may result from skilled butchers leaving very few modifications on the bones but is more likely to be an indication of low level processing, with large joints being cooked for the abbey's inhabitants. The lack of burning evidence is of limited interpretative value, as even in roasting large joints, burning evidence is rarely common. Further detail on processing practices would be acquired through analysis of bone fracture freshness in accordance with Outram (2001), to establish whether bone fat and grease were frequently exploited.

The Leiston assemblage would also benefit from detailed taphonomic analysis to assess waste management practices, in terms of immediate or delayed deposition and the exploitation of faunal waste by dogs.

8.7.5 At present the assemblage is divided into broad chronological categories and with refined phasing it may be possible to track changes in husbandry and processing through time. However, in a relatively small assemblage this is likely to produce prohibitively small sample sizes. Subsequent seasons of excavation are likely to radically increase the assemblage size and improved phasing would therefore be of benefit in further analysis.

8.7.6 The faunal assemblage has the potential to contribute to longstanding research themes surrounding monastic diet and how it varies regionally, chronologically and across different orders. A substantial corpus of faunal data from monastic assemblages in England exists, though it is more limited for East Anglia and Premonstratensian order assemblages such as from Leiston Abbey are very rare. Important comparative assemblages include (but are by no means restricted to) St Gregory's Priory, Canterbury (Powell et al. 2001) and St Mary's Merton, Surrey (Pipe 2007), both medieval Augustinian monasteries and Benedictine monasteries including Bermondsey Abbey Southeast London (Pipe et al. 2011) and Eynsham Abbey (Ayres et al. 2003). Norwich Greyfriars (Moreno-Garcia 2007), of a Franciscan order and the nunnery at St Mary's Abbey, Winchester (Brown 2011) also represent useful comparative assemblages

8.8 Archive

8.8.1 All faunal remains have been washed and are currently stored, bagged by context, or sample residue fraction in cardboard archive boxes. They have been appropriately labelled and are in a suitable condition for archiving.

9 STRUCK FLINT

By Hugo Anderson-Whymark

9.1 Introduction

9.1.1 The struck flint and burnt unworked assemblage comprising 31 items recovered from multiple contexts, and were assessed with recommendations for further work by Project Lithic specialist, Hugo Anderson-Whymark (see Table 6 below). The objective of this work was to 'assess the current state of archaeological material across the site' (Q10) in relation to the results from previous investigations (Q13).

9.1.2 Seventy-five struck flints and thirty-three pieces of burnt unworked flint were recovered in total from Trenches 1, 5, 9, 10 and 11. The struck flint assemblage comprises 43 flakes, a bladelet, an edge-retouched flake, 8 chips and one blade (a flake $\geq 2:1$ length to breadth ratio) with a maximum dimension $< 10\text{mm}$. These artefacts all exhibit moderate edge-damage indicating that they are not contemporary with the archaeological contexts they were recovered from. The burnt unworked flint is not intrinsically datable the small pieces present may have been burnt in a fire at any point in the past.

9.2 Methodology

9.2.1 The flints were catalogued according to broad artefact/debitage type and retouched pieces were classified following standard morphological descriptions (Bamford 1985, 72-77; Healy 1988, 48-49; Bradley 1999, 211-227; Butler 2005). A blade is defined as a flake over twice as long as it is wide and a bladelet is a blade under 40mm in length. Additional information was recorded on the condition of the artefacts including, burning, breakage, the degree of edge-damage and the degree of cortication. The assemblage was catalogued directly onto a Microsoft Access database and data manipulated in Microsoft Excel.

Context	Trench	Description
(1001)	1	1 blade-like flake, broken
(1002)	1	2 flint flakes, one broken.
(1004)	1	3 flakes, 1 broken bladelet. The latter is corticated and exhibits platform edge abrasion, a punctiform butt and dorsal blade scars.
(1015)	1	1 edge-retouched flake. Minimal edge retouch to the distal edge.
(1027)	1	1 burnt unworked flint
(1034)	1	1 flint flake and 1 piece burnt unworked flint
(1036)	1	3 pieces burnt unworked flint
(1937)	1	One flint flake, corticated with moderated edge damage.
(1039)	1	3 flint flakes and one corticated blade all with moderate edge damage. The blade may date from the Mesolithic or Early Neolithic.
(5009)	5	2 flakes and 2 broken flakes.
(5013)	5	2 flakes and 2 broken flakes.
(9002)	9	1 flint flake
(10019)	10	3 flint flakes with heavy edge damage
(11011)	11	1 flint flake
(11015)	11	1 flint flake with moderate edge damage
(1009)	1	SS 1. 2 complete flakes, 3 broken flakes, 5 chips and 3 pieces of burnt unworked flint.
(1012)	1	SS 2. 1 broken flake and 13 pieces of burnt unworked flint.
(1018)	1	SS 3. 14 complete flakes, 7 broken flakes, 3 chips and 2 burnt unworked flints.
(1009)	1	SS 6. 1 complete flake, 2 broken flakes and 4 burnt unworked flints.
(1017)	1	SS 7. 1 flake.
(1004)	1	SS 9. 1 flake.
(1037)	1	SS 48. 2 flakes
(9008)	9	SS 49. 1 burnt unworked flint.
(10008)	10	SS 20. 1 burnt unworked flint.
(10015)	10	SS 24. 3 small pieces burnt unworked flint

Context	Trench	Description
(10021)	10	SS 35a. 2 flint flakes, one broken, both with heavy edge damage
(11017)	11	SS 37. 1 burnt unworked flint.
(10019)	10	SF 18. 2 broken flint flakes with moderate edge damage
(10020)	10	SF 35. Hard hammer flake with extensive edge damage

Table 8 – Flint assemblage by context and trench (SS refers to items recovered from soil samples, SF refers to small finds)

9.3 Results

- 9.3.1 The struck flints recovered in the first excavation season are dominated by small, broad, flakes struck from single and multi-platform flake cores without preparation of the core edge. This simple reduction technique is characteristic of the later Neolithic and Bronze Age. The only retouched artefact was manufactured on a flake of comparable technology to the others in the assemblage and exhibits very slight retouch along the distal edge; this artefact is not intrinsically datable. In contrast to the flakes, the bladelet was the product of a careful blade-orientated reduction strategy, as demonstrated by the presence of platform-edge abrasion, a punctiform butt and the scars of earlier blade removals on the dorsal surface. These attributes indicate this artefact dates from the Mesolithic.
- 9.3.2 The presence of a single Mesolithic blade and a small collection of Later Neolithic/Bronze Age flints indicating some prehistoric activity on, or in close proximity to, the 2013 excavation trenches, but the limited size of the assemblage precludes discussion of the nature of this activity.
- 9.3.3 The struck flints recovered in the second season of excavation were typically of squat proportions and the butt ends, where present, exhibit plain platforms and prominent bulbs; the latter are characteristic of direct percussion using a hard hammer, such as a flint or quartzite pebble. Platform-edge abrasion is notably absent. These simple reduction strategies are most characteristic of the later Neolithic and Bronze Age. The narrow proportions of the blade and presence of dorsal blade scars indicate that this flint is the product of a blade-orientated reduction strategy. This reduction strategy is typical of Mesolithic or Early Neolithic industries, indicating this artefact is much older than the other flints recovered. The burnt unworked flint is not intrinsically datable.
- 9.3.4 The flint from the 2014 typically exhibits moderate to extensive edge damage, indicating that these artefact are residual finds in later archaeological contexts. The flint assemblage recovered from the 2014 excavation season is remarkable similar to the material from the 2013 season, but again serves only to indicate the presence of some prehistoric activity in the local environs.

9.4 Recommendations & Archive

- 9.4.1 The lithic assemblage has no potential for further analysis, therefore no further work is recommended. The struck flints are stored individually within

plastic bags marked with a permanent black marker. The flintwork is adequately boxed and bagged for long-term storage and curation.

10 POTTERY

By Paul Blinkhorn

10.1 Introduction

10.1.1 The pottery assemblage comprised 267 sherds with a total weight of 6,520g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 2.03. The majority of the assemblage is of later medieval and post-medieval date, but earlier material in the form of Romano-British and Middle Anglo-Saxon pottery was also present.

10.1.2 The aim of the research was to evaluate the current state of the archaeological material across the site (Q11), to determine whether there is any evidence for earlier settlement at Leiston prior to the construction of the Abbey Church (Q7) and to increase our understanding of the local environment in the medieval period (Q13).

10.1.3 The following ware types were noted:

Fabric Code	Name	Date	Description	No. Sherds	Weight	EVE
P95	Ipswich Ware	AD720-850	Middle Saxon, slow-wheel made ware, manufactured exclusively in the eponymous Suffolk wic. There are two main fabric types, although individual vessels which do not conform to these groups also occur	1	16	0
P300	Early Medieval Sandy Ware	12th-14th Century	Dense sub-rounded quartz up to 1mm, most 0.5mm or less, rare calcareous fragments up to 1mm, scattering of fine silver mica	6	40	0.13
P327	?Late Hedingham-type Ware	?mid 14th – 15th Century	Fine micaceous glazed wares, with a plain or copper-mottled glaze (Cotter 2000)	11	133	0
P356	Surrey Whiteware	Mid 13th – mid 15th century (Pearce and Vince)	A range of whitewares from several sources in Surrey, including Kingston and Cheam. Range of vessel forms which changes over time, but the earlier assemblages are dominated by glazed jugs, some with	6	96	0

Fabric Code	Name	Date	Description	No. Sherds	Weight	EVE
		1988).	slipped, incised and plastic decoration			
P401	Late Medieval Transitional Ware LMTI	c. 1400-1600	Orange fabric with grey core, or grey fabric with reddish-brown outer surface. Fine, dense sub-rounded quartz < 0.1mm, rare sub-rounded black iron oxide up to 0.5mm. Rare flakes of silver mica. Dark green glaze	22	363	0.39
P402	Late Medieval Transitional Ware LMTII	c. 1400 – 1600	Uniform orange-red fabric with dark green or orange copper-speckled glaze on one or both surfaces. Dense sub-rounded quartz up to 0.5mm, rare black iron ore of the same size. A few sherds noted with patchy white internal slip	136	4124	0.85
P403	Late Medieval Transitional Ware LMTIII	c. 1400 – 1600	Fairly hard, fine light orange fabric with a light orange glaze. Virtually sand-free matrix with sparse to moderate sub-rounded quartz up to 0.5mm	1	2	0
P404	Langerwehe Stoneware	Late 14th – late 15th Century (Gaimster 1997)	Hard, light grey to buff, often slightly under-fired stoneware fabric, usually with a matt, dark purplish-brown external iron wash. Late examples are usually better-fired, and largely indistinguishable from Raeren stonewares	11	133	0
P405	Raeren/Aachen Stoneware	Late 15th – mid 16th century (ibid)	Hard, dark grey stoneware with a brown under-glaze iron wash under a salt glaze on the outer surface. Range of drinking vessels, particularly mugs	12	222	0
P406	Low Countries Redware	15th – 17th century (Hurst et al 1986, 130)	Orange red fabric with moderate to dense sub-rounded quartz up to 1mm, most 0.5mm or less, rare flecks of iron ore. Wide range of utilitarian vessels	6	608	0.66

Fabric Code	Name	Date	Description	No. Sherds	Weight	EVE
			such as Grapen (tripod cooking pots), pans, etc.			
P407	Frechen/ Cologne Stoneware	Mid 16th – 17th Century (Gaimster 1997)	Hard, dark grey stoneware fabric with a mottled salt glaze	1	14	
P410	Anglo-Dutch tin glazed earthenware	17th - early 18th century (Orton 1988)	Fine white earthenware, occasionally pinkish or yellowish core. Thick white tin glaze, with painted cobalt blue or polychrome decoration. Range of table and display wares such as mugs, plates, dishes, bowls and vases	1	3	
P413	Cologne/ Westerwald Stoneware	17th century + (Gaimster 1997)	Hard, grey fabric with clear salt glaze. Vessels include jugs with moulded decoration and chamber-pots, often with blue and purple manganese and cobalt decoration.	1	4	
P425	Glazed Red Earthenware	16th – 19th century	Fine sandy earthenware, usually with a glossy brown or green glaze, occurring in a range of utilitarian forms. Numerous production centres known throughout East Anglia (e.g. Wade-Martins, 1983). Vessels from this site have a fabric very similar to LMTII	16	308	
P426	Manganese-glazed Earthenware	Late 17th-18th century	Fabric similar to P425. Range of large, heavy utilitarian vessels, mainly pancheons, with a dark purplish-brown mottled glaze	1	8	
P433	Staffordshire White Salt-Glazed Stoneware	AD1720 -1780	Hard, white fabric with a distinctive white 'orange peel' textured glaze. Range of fine tablewares such as mugs, tea bowls and plates (Mountford .1971)	1	2	
P438	English	1680+	Hard, grey fabric, often with	3	17	

Fabric Code	Name	Date	Description	No. Sherds	Weight	EVE
	Stoneware		a brown, iron-rich exterior wash. Range of utilitarian vessels, particularly mugs (Mountford 1971)			
P1000	Miscellaneous 19th and 20th Century wares	19th - 20th century	Mass-produced white earthenwares, stonewares etc.	25	310	
P1001	Roman or-British Greyware			6	117	

Table 9: Pottery fabric types recovered at Leiston Abbey

- 10.1.4 The range of fabric types is fairly typical of later medieval sites in the region, and reflects the known chronology of Leiston Abbey. The assemblage is dominated by late medieval transitional wares, which are generally dated to the 15th – 16th century in Suffolk (e.g. Anderson et al 1996), but the evidence from this site suggests that they may have started as early as the mid-14th century. Certainly, there are relatively few sherds of medieval coarseware (fabric P300), a ware that is very common on medieval sites of the 12th – 13th century in the region, but is in steep decline by the second half of the 14th century. Four of the sherds occur in contexts with no other pottery, so these have the potential to be amongst the earliest features of the Abbey phase of the site, or may even pre-date it. Reference to the stratigraphic record should clarify the matter.
- 10.1.5 The sherds of possible Hedingham Ware (fabric P327) are all plain glazed wares, indicating that they are later medieval in date. The best-known products of the tradition, highly decorated jugs, generally fell from use before 1350 (Cotter 2000, Fig. 52), and very little is known about the industry after that date (ibid. 90). Again, reference to the stratigraphic record, and future excavation of known earlier features, has the potential to clarify this.
- 10.1.6 Imported pottery is relatively well-represented, with German stoneware drinking vessels and Low Countries cooking pottery. Documentary evidence for the port of Colchester shows that Flemish ships were calling there regularly by the 1340s (Cotter 2000, 265), and, from the late 14th century, there are records of Low Countries pottery arriving in such large quantities there that it was liable for taxation (ibid.). There seems little reason to think that this was not the case at other places in East Anglia. Certainly, Low Countries Redwares are well attested at the ports and large towns in the region such as Kings Lynn (e.g. Clarke and Carter 1977, fig. 102), Norwich (e.g. Jennings 1981, 90) and London (e.g. Vince 1985, 79). The fact that they occur here is a reflection of the wealth and status of the Abbey during its

lifetime, as they are good evidence that the place was trading directly with foreign merchants.

- 10.1.7 The trade in German Stonewares is also well-attested in East Anglia, with Colchester again having documentary evidence which shows that the material was arriving there from the late 14th century onwards (ibid 277), and the picture is similar for other ports in the region.

10.2 Phased Assemblage Descriptions

Trench 1

- 10.2.1 The pottery occurrence is shown in Table 10. Nearly all the pottery from this trench potentially or certainly pre-dates the foundation of the Abbey, other than a very small sherd of Late Medieval Transition ware from context 1018. The Roman pottery comprises large but slightly abraded sherds, and the sherd of Ipswich Ware is very worn, so all these sherds may be residual. The sherds of Early Medieval Sandy Ware (P300) may also pre-date the Abbey, although such pottery was still in use in the mid-late 14th century. The lack of later wares in association suggests that they are probably earlier.

	P1001		P95		P300		P402		
Context	No	Wt	No	Wt	No	Wt	No	Wt	Date
1004	1	35							RB
1018							1	1	15thC
1021	1	37							RB
1034			1	16					MSAX
1037					2	5			12thC
1039					1	4			12thC

Table 10 – Pottery occurrence, Trench 1

Trench 5

- 10.2.2 The pottery occurrence is shown in Table 11. As with Trench 1, there is very little pottery, and only one sherd that definitely dates to the time of the Abbey. The sherd of Roman pottery is again somewhat abraded and could be residual, and the fragment of Early Medieval Sandy Ware (P300) may pre-date the foundation of the Abbey.

	P1001		P300		P402		
Context	No	Wt	No	Wt	No	Wt	Date
5009	1	9			2	2	15thC
5013			1	5			12thC

Table 11 – Pottery occurrence, Trench 5

Trench 6

- 10.2.3 Trench 6 produced just three sherds of pottery, all modern (total weight: 110g), all from context (6001).

Trench 7

- 10.2.4 The pottery occurrence is shown in Table 12. All the contexts are 17th century or later, and thus post-date the life of the Abbey. Earlier wares are

present as residual material however, indicating that there was disturbance of earlier strata.

	P401		P402		P403		P405		P410		P425		P426		P438		P1000		
Context	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Date
7000	2	18	1	4							1	37			1	3			L17thC
7001			3	14							2	6	1	8			14	170	MOD
7011			1	4	1	2	1	3	1	3	5	183							17thC
7015											1	6							17thC

Table 12 – Pottery occurrence, Trench 7

Trench 8

- 10.2.5 The pottery occurrence is shown in Table 13. The presence of the sherds of Surrey Whiteware and Hedingham Ware suggest that there may be activity relating to the earlier phases of the Abbey in this area of the site, although the date-ranges of both types mean that they could conceivably pre-date it.

	P327		P356		P402		P407		P1000		
Context	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Date
8001			1	54							M13thC
8002					1	6	1	14	8	30	MOD
8005	1	15									14thC

Table 13 – Pottery occurrence, Trench 8

Trench 9

- 10.2.6 The pottery occurrence is shown in Table 14. This trench produced the majority of the pottery so far excavated during the course of this project. The assemblage is not only large, but is generally quite well preserved, and includes a number of partially complete vessels.
- 10.2.7 The bulk of the imported pottery from the site, including all but one small sherd of the Low Countries wares, occurred here, and, given that they are the sort of pots that would have been used in relation to cooking, suggest that the assemblage is largely kitchen waste. All the German Stonewares are fragments of drinking vessels, as is often the case, with most of the Late Medieval Transition Ware sherds being fragments of large jugs, although a bunghole from a cistern, a large vessel used for storing ale, was also noted. Given that such vessels are usually virtually identical to large jugs, other than having a bunghole near the base, it is possible that a number of such vessels were present, but lacks the appropriate feature sherds. The most curious vessel is a near-complete jar that was found apparently buried in situ. The vessel has a single small hole drilled, post-firing, through the centre of the base-pad, and unusually thick lime scaling on the inner surface. Its exact purpose is uncertain, and while it may have been used in some sort of domestic or industrial process, a function as a makeshift urinal is not out of

the question. Chemical analysis of the internal deposit would clarify the exact function.

	P300		P327		P356		P401		P402		P404		P405		P406		
Context	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Date
9001									3	20	2	15					L15thC
9002			1	15	1	3			19	201	5	13	6	92	3	61	L15thC
9003									5	392	1	2					L15thC
9004			2	56					2	45							15thC
9005			2	27	4	39	13	63	13	503			3	104	2	533	L15thC
9008	2	26					6	162	19	2610	3	103					L15thC
9010									1	24							15thC
9013			1	2			1	20	49	136							15thC
Total	2	26	6	100	5	42	20	245	111	3931	11	133	9	196	5	594	

Table 14 – Pottery occurrence, Trench 9

Trench 10

10.2.8 The pottery occurrence is shown in Table 15. Nearly all the pottery from this trench is post-medieval, although earlier wares are present, showing that there has been some disturbance of medieval strata.

	P327		P402		P405		P406		P413		P425		P438		P433		
Context	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Date
10003			2	14													15thC
10004			4	50							1	1	2	14			L17thC
10009			2	5			1	14			1	18					M16thC
10019	1	2	7	79	2	23			1	4	3	6			1	2	E18thC
10020											1	44					M16thC

Table 15 – Pottery occurrence, Trench 10

Trench 11

10.2.9 The pottery occurrence is shown in Table 16. It produced very little pottery, but all of it is likely to date to the life span of the Abbey.

	P327		P402		P425		
Context	No	Wt	No	Wt	No	Wt	Date
11011	3	16					14thC
11022					1	7	M16thC
11024			1	14			15thC

Table 16 – Pottery occurrence, Trench 11

Trench 13

- 10.2.10 The only pottery from Trench 13 was three sherds of Roman Greyware (weight = 36g) from context (13003). It was all slightly abraded, and may be residual.

10.3 Discussion

- 10.3.1 Given the on-going nature of the project, there seems little to be gained at this stage by reporting on the pottery in anything other than the most basic detail, as above, especially if further work is to be carried out in the existing trenches. It is however worth noting at this stage, for future reference, aspects of the pottery that will certainly require full publication, and also to highlight some potential research topics which further excavation at Leiston Abbey could address with regards to our knowledge of the pottery of the area.
- 10.3.2 Most of the trench-specific pottery assemblages excavated so far are quite small, other than that from Trench 9, which has produced over half the pottery so far from the site, and also several quite interesting vessels, not least a near-complete jar with a hole drilled in the base which was sunk into the ground, possibly as a make-shift urinal. The trench also produced most of the Low Countries pottery from the site, in the form of utilitarian earthenwares that were almost certainly used in the kitchen. A typical, although slightly later (mid-16th century) example of a slipware milk-pan very similar to the one from here can be clearly seen in the centre of Joachim Beuckelaer's 1570 painting 'The Four Elements: Fire', depicting a kitchen in a wealthy Flemish household. The painting also has a couple of Grapen similar to that from here, albeit both partially obscured, and a selection of Stoneware vessels. This suggests that Trench 9 may have been located on the site of a kitchen midden from the Abbey.
- 10.3.3 With regards to research topics, the site has the potential to make a very useful contribution to enhancing our understanding of the ceramics of the region, particularly the chronology of the Late Medieval Transitional Wares, which are traditionally given a date-range of c AD1400-1550/1600 (e.g. Anderson et al 1996). Given Leiston Abbey's relatively short life span, all the stratified pottery associated with the Abbey must date to between 1363 and c. AD1550. At this stage, Late Medieval Transitional wares appear to be present in all the features associated with the Abbey, suggesting that some of them may have been in use before AD1400. Future excavation at the Abbey, and reference to the stratigraphic record, has the potential to clarify this. In addition, given the uncertainties surrounding the Hedingham Ware industry after AD1350, the pottery assemblages have the potential to enhance the understanding of this very important regional industry.

10.4 Recommendations and Archive

- 10.4.1 The pottery has been boxed and bagged for long-term storage and curation. This assemblage will need to be published in detail when the excavations are complete, along with drawings and or photographs of a

number of the vessels, including the Low Countries earthenwares and the possible urinal.

11 CERAMIC BUILDING MATERIAL

By Rebekah Pressler

11.1 Introduction

- 11.1.1 A total of 154 sherds of ceramic building material derived from multiple contexts were assessed from the excavation assemblage of two field seasons. Approximately 85% of the assessed sherds are medieval to post-medieval roof (peg) tile; the rest of the assemblage consists of medieval and early post-medieval floor tile, pan tile and a few unidentifiable fragments. The ceramic building material assemblage was assessed with recommendations for further work by Rebekah Pressler, with the objective being to 'assess the current state of archaeological material across the site' (Q10) in relation to the results from previous investigations (Q13). A detailed description of each sherd assessed is located Appendix 3.

11.2 Fabrics

- 11.2.1 Six fabrics were identified from the assemblage of assessed fragments:

Fabric Number	Description
CBM1	Variable pinkish buff-to-buff white finely textured sandy (almost chalky) fabric. Possibly from West Suffolk.
CBM2	Pink/orange to red/orange sandy fabric with variable poorly assorted quartz/gritty inclusions.
CBM3	Variably coloured red/orange to red/brown coarsely sanded fabric. Usually oxidized.
CBM4	Variable orange/red to deep red soft sandy with moderate white quartz and occasional ironstone inclusions.
CBM5	An orange/red sandy fabric with quartz and flint inclusions
CBM6	Orange/red sandy fabric (Later Post-Medieval).

Table 17: ceramic building material fabric types identified at Leiston Abbey

11.3 Discussion

Roof Tile (Peg Tile) 13

- 11.3.1 The roof (peg) tile broadly dates from the 13th century to the early post-medieval period (presumably coinciding with the dissolution of the monasteries in 1536). A large proportion of the tile (mostly probably fabric 1) assessed is glazed, suggesting a date range from the 13th to the 15th century and is indicative of the wealth of the abbey. Three sherds of a finer buff/pink fabric (1) from 11011 are likely dated later, from the around the 15th to the 16th centuries and probably derive from west Suffolk. Other notable examples include sherds from 9005 (fabric 4) which are most likely early post-medieval in date.
- 11.3.2 Also amongst the earliest dated sherds, of particular interest is a small fragment of glazed roof tile recovered from the topsoil (4001) in Trench 4;

Though this a residual sherd in an unstratified deposit, it adds further to our understanding of the earliest abbey structures.

- 11.3.3 Some of the fragments from contexts (8001, 9002 & 10009) are mortared (most likely the earlier tiles) suggesting they may have been broken and re-used in the abbey's reconstruction in the mid to late fourteenth century.
- 11.3.4 Of further interest are a group of partially reduced roof tiles and a single brick from layer (5008), all of which date to the Late Medieval period. Four of the tiles and the brick fragment exhibit signs of burning or signifying they may have been re-used for a later hearth or fireplace.

Pantile

- 11.3.5 Two incomplete pantile fragments were derived from context (8002), most likely dating from the 18th to the 19th century. Interestingly one of the tiles most likely derives from west Suffolk (CBM2).

Floor tiles

- 11.3.6 The earliest dated floor tile dates to the 13th century and most likely came from the original site of Leiston Abbey in Minsmere. A very fine moulded example from (11015) (SF9) in CBM4 with a dark green glaze, dates to the 13th century and details tendrils and foliage standing out in relief. The same design has been noted at Campsea Ash priory and also at Butley (Keen, L. 1971). Another fine example from (11006) with a buff pink fabric, coppery green glaze and a relief design is possibly similarly dated, but more difficult to find a provenance for. It may be a west Suffolk example, however similar tiles have also been noted from the Low Countries.
- 11.3.7 Later floor tiles (possibly fourteenth century or later) include SF81 from gully fill (9008) and SF16 from bank deposit (10009), which interestingly have the same fabric as SF9 from a posthole fill (11015) suggesting a continuity in the use of a clay source during this period. The tiles, which have a white slip and clear overglaze, by description are of a similar type to those produced at Danbury, Essex in the thirteenth and fourteen century (Drury, P.J. & Pratt, .D. 1975).

11.4 Recommendations and Archive

- 11.4.1 Much of the material retrieved is significant, providing some clear typologies of fabric, although in most of the cases it is difficult to ascertain a provenance for the tiles (although many of them most likely derive locally or at least from Suffolk or east Anglia). As fieldwork continues at Leiston Abbey, further research into CMB fabrics in the area may be useful in refining this, and it is recommended that analysis continue as the project progresses. On that basis the ceramic building material has been boxed and bagged for long-term storage and curation.

12 SMALL FINDS

By Stuart Noon

12.1 Introduction

12.1.1 The small find assemblage comprises 99 objects. This selection comprises 32 finds derived from deposits in Trenches 7, 8, 9, 10 and 11, and assessed with recommendations for further work by project finds specialist Stuart Noon (See Appendix 4). The objective of this work was to 'assess the current state of archaeological material across the site' (Q10) in relation to the results from previous investigations (Q13). Finds are described and discussed individually below, followed by further recommendations.

12.2 Finds Assessment

Small Find No.	Context No.	Object Type	Short Description
1	10004	Jetton	A Rose/orb jetton of Hans Krauwinckel II from Nuremberg, Germany. On the obverse the legend states 'HANNS KRAVWINCKEL IN NV' (Hans Krauwinckel in Nuremberg) and on the reverse states 'GOTES SEGEN MACHT REICH' (God's blessing maketh rich'. The jetton is decorated with three crowns alternating with three lis arranged around a central rose on the obverse and an imperial orb within a double tressure of three arges and three angles. The date for this jetton is c.1580-1650 AD.
2	11006	Musket Ball	A complete post-Medieval cast lead musket ball dating to c.1600-c.1800. The ball is spherical and pitted with no impact marks and has a light grey patina. The musket ball is 15mm in diameter and weighs 14.23g, suggesting that it was used in a pistol.
8	10009	Horse Fitting	This iron horse fitting was probably a curbed bit suited for more mature horse (4 to 5 years old) with the capacity of accepting more pressure from the bit and more pressure on their face. They were used primarily for working horses could be dated anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD.
14	11011	Copper Pin	The copper pin originally would have had another pin inserted in it, which is now detached. The pin is hollow, round sectioned and unlikely to be a pin, needle or bodkin which would be expected to be solid and needles and indeed bodkins with elongated sub-oval threading-holes. No parallels have been found for this object and the

Small Find No.	Context No.	Object Type	Short Description
			identification remains unknown and a period is not extent. It is perhaps part of some kind of mechanism later Medieval to Early Modern 1400 to 1900 AD.
19	11022	Iron Socketed Object	This iron-socketed object could be a socketed tool or a functional object like a door hinge. No parallels were found for this object, which could be dated anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD
20	11022	Single-loop buckle	A Medieval to Early Post-Medieval cast copper alloy single-loop buckle probably dating 1250 – 1500 AD. The buckle is D-shaped with a worn and broken ring; the spindle has broken off at the weakest points, the corners of where frame and spindle meet. The buckle is similar to sword belt buckles dating 1250 – 1400AD but this example is larger and the metal appears to be later.
36	11019	Bone carved knife handle	This intricately carved bone knife handle dates to 1550 – 1600 AD. The handle has been decorated with an incised geometrical pattern designated as cross-hatching. The handle is oval in section and is hollow to secure the tang of the blade. The handle expands to the top with two drilled holes and diagonal cuts and then to a pointed knop. It has been noted that the handle shows similarities with cutlery handles found on the Mary Rose.
37	11011	Iron ring	This iron attachment or clasp ring could be dated to anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD.
41	11001	Rolled lead strip (poss. Roman curse tablet)	The object is a rolled strip of lead that has been deliberately folded by what appears to be three and a half turns. It could either be a Roman curse tablet, a medieval net sinker, a weight or an offcut, therefore assigning the find a date range of 43-1400 AD.
42	u/s	Cu-alloy strap fitting	An incomplete small decorative copper alloy strap fitting of probable Late Medieval to Early Post-medieval date 1550 – 1750AD. It has a rounded knop with two transverse indentations flaring to a narrow tapering body. The front is convex and the reverse is hollow. There are two integrally cast copper alloy spikes on the reverse that are bent and slightly broken that would have secured the fitting to the strap. The form of this find

Small Find No.	Context No.	Object Type	Short Description
			suggests an early date range even though it has the integrally cast spikes
43	10001	Buckle	A small cast copper alloy double looped asymmetrical buckle dating 1575 – 1700 AD. The buckle has one trapezoidal and one 'D' shaped loop with a rectangular knop projecting outwards from the centre of the 'D' shaped loop. The strap bar has iron corrosion around the pin rest and buckle frame, indicating that there was a forked pin and that it would have been made from iron. The buckle is bevelled on the inside and outside of the edges with lobed protrusions at either side and is flat and undecorated on the reverse.
44	10004	18 th Century Button	This button is a discoid slightly plano-convex section button. The convex surface bears the low relief motif of an equal armed cross in the style of a Greek cross. Similar buttons are on display at the V&A Museum and a button with a similar design is also listed on the Portable Antiquities Service database NLM-E611E3 dated 1600 to 1700 AD. Therefore the date of 18 th century has been assigned to this object
45	10009	Cu-alloy object (poss. pair tweezers)	This object is made from a copper alloy folded sheet and is possibly a pair of tweezers from a chatelaine set, but could also be a copper sheet offcut. The object appears to have two leaves that meet with an oval intersection and are parallel sided for half of the length flaring out to turn and form a 5.8mm pinch. The edges are square and sharply defined suggesting that they have been cut from sheet metal and they are undecorated. The possible pair of tweezers could be Roman to early Medieval in date, 200 to 700AD, but could conceivably also be much later, even up to the post-Medieval if they are an offcut
49	9005	Jetton	This copper alloy French Jetton was recovered from the fill of a post-medieval rubbish pit, which is conducive to the deposition of this find. A jetton of the ship/shield type, this was most likely struck in Paris in the reign of Charles VIII (1483-1497). Obverse: galleon ship and four flour de lis within a diamond. Reverse: Profile view of a sailing ship. Both sides appear to be

Small Find No.	Context No.	Object Type	Short Description
			surrounded by different legends in a nonsense Lombardic script.
50	9005	Cu-alloy fragments	These two fragments were originally attached. Fragment 1, the larger of the two, is semi-circular, almost cup shaped. The form and function of the fragments is unknown. The metal construction could be dated anywhere from the Late Medieval to the Late Post-Medieval, 1500 to 1800 AD but could easily be earlier or later.
51	9006	Cosmetic spoon	An incomplete cast copper alloy spoon that could be an ear scoop, hoof or medical instrument, probably from a chatelaine set. The implement has a small rounded scoop at one end that appears to be complete. The shank below is narrower with an S-twisted (barley twist) handle and tapers out to the break. This object could be Roman to early Medieval in date 200 to 700AD, though a 14th to 16th century date is more probable.
75	10001	Jetton	A heavily worn and corroded copper alloy rose orb jetton of the master Hans Krauwinckel II from Nuremburg and dating to 1553-1577. This was discovered in the topsoil deposit of Trench 10 (10001) and may well be redeposited, especially given the wear and corrosion on the jetton
77	9008	Bone comb	This bone comb dates to the 16th – 18th century. The comb is mostly complete and has teeth on both sides. There is a central solid band from which the teeth come. One side is more delicate, with thinner teeth. The comb has broken at one end. At each there is a section that finishes the comb off although one end is broken.
78	8002	Fe Fragment	This cast iron fragment could be anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD. Its form and function are unknown, it was possibly a machine part.
79	9008	Jet bead	This object is a jet sub-spherical bead with a centrally drilled circular hole possibly dating to the medieval period 1250 – 1500 AD. The ends are slightly flatter than the rest of the bead and the body exhibits turning lines from lathe finishing. This appears to be of the same construction and material as SF83 and even though the diameters and weights are slightly different it is conceivable that they could be parts of the same necklace. The suggested

Small Find No.	Context No.	Object Type	Short Description
			date for this object is medieval, 1250-1500 AD.
80	9008	Cu-alloy object	The copper alloy object is difficult to identify but could be a fragment of a pin. It is similar in profile to Roman pins such as SWYOR-A1E3C0, GNCL-618DA4 and GLO-A54AFD on the portable antiquities database. It is difficult to date as there are no clear parallels to this object. The date range could be 40 to 700 AD but it could also be part of an object up to 1700 AD.
83	9013	Jet bead	This jet bead appears to be of the same construction and material as SF79 and even though the diameters and weights are slightly different it is conceivable that they could be parts of the same necklace. This jet bead is sub-spherical in shape with a centrally drilled circular hole and possibly dates to the medieval period 1250 – 1500 AD. The ends are slightly flatter than the rest of the bead and the body exhibits turning lines from lathe finishing. The suggested date for this object is medieval, 1250-1500 AD.
88	9008	Bead	This find was discovered in association with SF87, a post-medieval ceramic jar. The bead is small, round and probably made of stone, possibly sandstone with a centre hole drilled through the middle. The object is circular in plan with a large central perforation. The form and function of stone beads does not change much over the centuries and as with all things archaeological it all about the context and it most likely that the date of the Post-medieval ceramic jar that it was discovered in will approximately date it.
89	8015	Lead sheet fragment	A small piece of cast lead sheet fragment. An incomplete cast lead sheet fragment of this type is likely to be structural and dating to Medieval and Post Medieval 1200-1800 AD. There is no sign of rouletting that usually occurs on lead sheet of a more recent date, and the extent of patination may suggest that this piece is older. The fragment could indicate a staged removal of lead sheet or flashing. This lead could also have been a part of a window, possibly for leaded glass
91	9013	Stone bead	A stone sub-spherical bead with possible mould line and a central aperture probably ceramic possibly dates to 1350 – 1500 AD. The

Small Find No.	Context No.	Object Type	Short Description
			form and function of stone or ceramic beads does not change much over the centuries. Beads of this style were used from the Iron Age to at least the medieval periods and cannot be dated with certainty.
93	10004	Iron sword belt hanger	An incomplete iron double looped sword belt hanger dating 1500 – 1650 AD. The buckle has a strap bar dividing the buckle into two loops with a circular suspension loop set perpendicular at a 90° angle at the top. The frame is complete and has rounded outer edges. The metal has lost most of its original surface, is a mid-reddish-brown colour and is pitted. Although this buckle is iron the form and the function fits with the typology and it would probably originally have been gilded. Therefore it has been assigned to the early Post-medieval period
94	10020	Cu-alloy ring	This heavily worn copper alloy ring is of uncertain date and type. Copper alloy rings can be horse harness furniture rings or personal trappings such as suspension loop/belt loops. Rings of the type of this object are problematic as no thorough research is extent and they probably do not change much in form from the Roman to the medieval periods. The object was discovered in a layer provisionally dated to the mid-16th Century by the presence of a glazed red earthenware potsherd. The angular section of the ring suggests a Medieval date of 1200 to 1500 AD. This would suggest the date of this object is on the late side of the date range assigned
95	7011	Jetton	A Medieval copper alloy French Jetton – was discovered from much lower in the sequence, from a mixed post-dissolution demolition layer (7011). This example probably dates to between 1340 – 1380AD. On the obverse the inscription is illegible, probably a royal crown with large central fleur-de-lis with trefoil ornamentation across the body or shield of France type. On the reverse, triple stranded straight cross fleuretty can be seen, within a four-arched tressure.
96	7015	Hammered silver penny	A Medieval silver hammered penny based on the style of the central fleur of the crown, and the reverse legend is an Edward II class 11a. The letter E and C is closed and both have a

Small Find No.	Context No.	Object Type	Short Description
			rounded back. The style of the reverse legend also suggests an Edward II and not Edward I. The mint is Bury St Edmunds, and the reverse legend reads as VILL 'S[CI EDMV]NDI. The obverse legend reads as EDWA [R ANGL DNS hYB]. Initial mark is a cross Pattee. Date is c.1310-c.1314. North 1060.
97	7002	Papal Bulla	A Papal Bulla of Pope Clement VI that has been cut in half lengthways. The production of this object dates between 1342 and 1352 (the period of the papacy of Pope Clement VI). On the obverse of the object is the face of St Paul with the text 'SP'. A full papal bulla of this type would also show the face of St Peter, and the full text would be 'SPASPE' (abbreviation for St Paul and St Peter). The reverse shows the text 'CL//ME//PP', the full coin would have shown 'CLE//MENS//PP VI' with PP standing for 'Pastor Pastorem'.
98	7000	Pendant	A Post-medieval to Early Modern pendant in the art deco style dating to 1878. The pendant is silver-plated, rectangular stamped with ENGLAND STERLING PI 202213 inset with cut glass rectangle, loop and one link of the chain. The patent number is not British, suggesting that it was a probably made in America and imported.
99	7001	Pendant	This pendant dates to 1920 to 1930 and was designed in an Early Modern nouveau pendant style. It featured a rectangular elongated tapered bale made of copper alloy setting with loop for a chain containing a blue polished stone possibly cobalt glass

Table 18 - Short descriptions of selected Small Finds

12.3 Summary

12.3.1 The range of finds was on whole tricky to date and an interesting assemblage. There appears to be a certain residuality in terms of Roman items indicating that a Roman site may well be nearby. There also appears to be a range of finds that span the Late Medieval to the Early Post-Medieval periods in monastic and secular settlement terms and in many cases the objects could be assigned to either period. They certainly indicate a range of activities within this span. There also appears to be some later invasive iron objects on the site that would probably be expected, although in light of the early date for the sword hanger they may well be earlier than the dates that have been assigned.

12.4 Recommendations and Archive

- 12.4.1 The assemblage is currently stored at the DigVentures' East of England office, and is adequately boxed and bagged for long-term storage and curation. No further work is recommended beyond basic stabilisation of the objects.

13 CONSERVATION

By Sara Brown

13.1 Introduction

- 13.1.1 Two artefacts, including a gold button (SF 44) and bone comb (SF 77), were presented for conservation at the end of the 2014 field season. The gold button was recovered from bank deposit (10004) in Trench 10; and the bone comb was recovered from the fill of a pit (9008) in Trench 9. The conservation requirement for both artefacts was to stabilise for dry storage and remove adhered soil from the artefacts. These are discussed in turn below, followed by recommendations for future care.

13.2 Bone Comb (SF 77)

Condition on arrival

- 13.2.1 The comb is covered in soil and other foreign contaminants from the burial environment. These will be removed during conservation. Further, the comb has an almost consistent orange patina over its surface presumed to have been caused by the presence of iron ions in the burial environment.
- 13.2.2 Part of the body of the comb is missing and there is a crack in the bone that will require consolidating. Further, under microscopic examination the surface of the comb is showing early signs of delamination and will additionally require consolidation. An acrylic polymer dispersion which is frequently used on archaeological bone; Primal WS24 is to be used as a consolidant.
- 13.2.3 The structure of the comb appears to be largely stable. With reference to the crack noted above, it is unclear if cracking occurred prior to deposition or during burial. It can be said that this deterioration has not occurred post-excavation as soil has ingressed into the crack during burial. Additionally, it should be noted that as bone is a very porous material, during burial it would have been subjected to capillary forces as moisture levels rise and penetrate the microstructure and surface tension and levels fall and water recedes. Due to this action, some evidence of surface delamination and cracking is not wholly unexpected from a bone object that has been excavated from a waterlogged/damp context.
- 13.2.4 The bone has been carved into a comb with two sets of teeth. The thicker set has a diameter of between 1.5-2 mm. There are 7 teeth present with evidence of at least 8 having been lost either pre-deposition or during burial. The thinner set of teeth have an approximate diameter of 0.5 mm. 10 teeth are present with evidence of a further 19 which have been lost.

Treatment summary

13.2.5 The following methods were applied:

- Controlled air-drying
- Solvent cleaning (1:1 ethanol/water solution)
- Consolidation (Primal WS24)

Notes on treatment

13.2.6 The bone comb is now stable and all of the material that has been adhered to the surface post excavation has been removed. Drying was achieved with little distortion to the object and the surface has been consolidated to prevent delamination of the bone surface.

13.2.7 During treatment, it was identified that one of the teeth was broken about half way down; it had been held in situ by the burial material surrounding it. The fractured tooth has been retained and can be found in the object's original polyethylene bag. The fractured tooth has not been re-adhered to the comb, as it does not contribute towards any scientific or aesthetic value.

Future care

13.2.8 Store as currently housed, taking care when handling to avoid physical damage to the teeth. Storage conditions should be monitored and/or controlled; ideal conditions will be between $20 \pm 2^{\circ}\text{C}$ and 45 - 65% Relative Humidity. Where climate controlled environments are not available, the object should store be stored in an ambient environment buffered against sudden changes in temperature and Relative Humidity.

13.3 Gold Button (SF 44)

Condition on arrival

13.3.1 Upon examination the button appears to have been constructed from two 4 mm metal strips of gold secured and bound by gold wire. This gold wire is constructed from twisted bundles of metal wire with fine gold strips coiled around each bundle that, to the naked eye gives the appearance of solid gold wire.

13.3.2 The button itself has soil and other contaminants from the burial environment adhered to the all surfaces. Additionally, soil etc. has ingressed between the ornate gold and where areas of the gold wire have been severed the exposed ends of the bundles of metal wire are misshapen.

13.3.3 No analysis has been undertaken by the Conservator to identify the composition of the metallic elements as a finds specialist has assessed these pre-treatment. Additional, identification may be clearer post-treatment.

Treatment summary

13.3.4 The following methods have been applied:

- Burial material has been removed as far as is practicably possible.
- Loose elements of metallic wires have been secured in situ with Paraloid B72.

- Organic fibres that make the core of the gold wire have been consolidated with an acrylic dispersion.

Notes on treatment

- 13.3.5 During burial, the burial material had penetrated deep into the centre of the button. What material was loosely adhered to the surface of the button and or could easily be removed without risk of loss has been removed. Due to the nature of the burial soil (very silicate rich with large deposits), removing the burial material from the centre would have caused the gold wires to bend and distort and possibly fragment. The soil is not contributing to the deterioration of the button and therefore the decision was taken to leave, what remains, in situ. It is regrettable that more could not be removed however, ethically, I could not justify progressing further with treatment at the expense of you and the object.
- 13.3.6 With regards to securing the loose fragments of decorative wire from the button, these elements have not been secured so far as to constrict the natural movement of the object but should prevent further loss during storage. Where the use of adhesive was not appropriate, for example when it would alter the object aesthetically through adding an obvious and excessive glossy appearance, a less invasive acrylic emulsion has been used to consolidate the fibres instead. Care is still required when handling the button, as the gold wire is extremely fragile and can be easily damaged.

13.4 Recommendations and Archive

- 13.4.1 Both objects should be store as currently housed, taking care when handling to avoid physical damage to the teeth. Storage conditions should be monitored and/or controlled; ideal conditions will be between $20 \pm 2^{\circ}\text{C}$ and 45 - 65% Relative Humidity. Where climate controlled environments are not available, the object should store be stored in an ambient environment buffered against sudden changes in temperature and Relative Humidity.

14 DISCUSSION**14.1 Introduction**

- 14.1.1 The project was designed as the first execution stage of a five-year multi-staged field research project, encompassing an evaluation and assessment stage (Years 1 and 2), an investigation and analysis stage (Years 3 and 4) and a final publication and presentation stage (Year 5). The results contained in this report encompass the evaluation and assessment stage of the project, designed to provide the site custodians with baseline information on the Leiston Abbey Scheduled Ancient Monument, and clarify specific research questions on which further investigation, analysis and publication can be built.
- 14.1.2 The results are presented with a high degree of confidence that archaeological features or significant deposits within the trenches and geophysical survey were recognised and recorded where present. The conclusions drawn from this data is summarised below, with potentially fruitful research objectives and specific recommendations for further work detailed in an Update Project Design (2015).

14.2 Project Aim 1

- 14.2.1 Aim 1 focussed on remote sensing, setting out to define and establish the physical extent of the site using three different geophysical techniques – GPR, magnetometry and resistivity. This was supported by topographic survey, LIDAR, low-level UAV aerial photography, 3D terrain modelling and 3D photogrammetry of the upstanding built structures. Five main areas were selected for survey, addressing research questions Q1, Q2, Q3 and Q5. The purposes of this work was to establish whether the layout of the precinct and associated sub-surface structures could be established by remote sensing, and help to target hand and machine dug trenches to 'ground truth' any significant anomalies. The focus was on establishing the position of 'lost' structures in the inner precinct (such as the kitchen or infirmary) in addition to identifying former structures associated with the outer precinct (such as the outer gatehouse, precinct boundary ditch and water management system).
- 14.2.2 The capacity for remote sensing to define the layout of the precinct and associated structures (Q1) depended on the area surveyed and the technique used. Taken as a whole, however, the combined results allowed conclusions derived from different instruments to be compared and corroborated. Remote sensing was least successful in defining the earthworks in the Northwest Area (Q2 & Q5), where magnetic survey failed to detect any responses of a definite archaeological origin. Results were more favourable in the south of the Abbey complex, detecting wall lines on the same alignment as the abbey suggesting corridors and walkways. A circular and rectilinear feature was also identified in the car park area. Attributing function to these 'lost structures' was not possible on survey data alone, and the plots were used to target trenches that could help characterise and refine the results (see Section 14.3 below).
- 14.2.3 The adjacent fields to the east of the Abbey were under substantial crop during both the 2013 and 2014 field seasons, meaning that geophysical survey could not be undertaken in this area. Lack of access was not a complete hindrance however, and low-level kite mounted aerial photography was collected to further define the Abbey's 'missing' structures (Figure 10), tracking the course of the precinct ditch and potential infirmary buildings identified in Kerr's 1985 excavation (Q4, and see Section 2.3.5 above). When access is possible, additional survey work should be undertaken to further define the footprint of buildings and associated activity in these fields as a priority (see also recommendations in Section 14.5 below).
- 14.2.4 Remote sensing data, including topographic, LIDAR, 3D digital terrain modelling and low level aerial photography (using kite mounted cameras, a hexacopter and UAV) has successfully helped to target trench locations. Further landscape analysis of this data will help contextualise the excavated trench data, and support provisional interpretation for potential 'zones' such as the inner precinct (enclosing the abbey complex), an inner court (enclosing the current Guesten Hall and Barn) and a larger outer court enclosing industrial and domestic activities, defined by a field boundary visible on the LiDAR plot to the north and west, bounding the Abbey from its demesne lands.

- 14.2.5 The pole and mast mounted survey of the Abbey church and Lady Chapel has produced a metrically accurate 3D digital surface model from which orthostatic elevations have been extracted (Q3). Further data capture has been undertaken for the remaining claustral precinct, with only the Abby House remaining to be surveyed. This innovative and experimental technique has been extremely successful to date, and it is recommended that the remaining later buildings (encompassing the Georgian farmhouse and later buildings) be completely surveyed in the 2015 field season.
- 14.2.6 This 'complete record' data collection will be essential for any further analysis of the built structure, and help trace any 12th century stylistic markers that were imported. The interpretation and analysis stage of the project should review current understanding of the Abbey's built phasing, using the measured survey data from the 2013 & 2014 field seasons to refine this where possible. A question remains over whether parts of the flushwork remained unchanged from the later structure (as suggested for the Abbey crossing by Clapham, 1923) or whether these were re-carved with a 14th century styling. A continuation of the survey will also help to identify any evidence for the fire of the 1380s, with high-resolution images able to delineate scorch marks on the upstanding masonry.

14.3 Project Aim 2

- 14.3.1 Aim 2 was devised to characterise the results of the non-invasive survey, with a programme of machine and hand-dug test trenches, focussing in on the zones defined through remote sensing. A major research objective of the evaluation stage was to recover evidence for earlier settlement at Leiston prior to the construction of the Abbey (Q7). This was achieved in Trench 1 in the Northwest Area, with a mix of finds and features including Prehistoric, Roman and Early Medieval, indicative of an appreciable level of multi-period activity in and around Leiston Abbey. Though supporting the argument that earlier activity took place on site prior to construction of the abbey, the activity represented by Trench 1 is too fragmentary to assign specific chronological phasing or function to features predating the monastic earthworks.
- 14.3.2 Trench 4 was likewise designed to address the potential for Leiston's antecedents, excavated across an active drainage ditch adjacent to the Guesten Hall in the expectation that evidence could be recovered immediately predating the construction of the Abbey in the 14th century. This feature had previously been interpreted as the potential remnant of a medieval moated site, and the objective was to recover dating evidence from the base of this feature that could confirm this hypothesis. Though the scale and deposit sequence was consistent a moat, logistical constraints meant that it was not possible to fully excavate to the base of the feature and recover dating evidence. Any further work to assess this feature or recover dating evidence will require a percussion coring rig or similar.
- 14.3.3 With no indication from the geophysics on the function of the earthworks in the Northwest Area, trenches were positioned across various banks and channels to establish their association with the main claustral complex. Work in this area (Trenches 1,2,3 & 6) has helped to trace the Abbey's water

supply and management system (Q5), defining a complex system of overflow channels designed to route water away two extant storage ponds to the north of the abbey. These were routed to the northwest of the Abbey, before turning downslope into a field designated as the western area. Trenches 12 & 13 were located in this area to evaluate the potential for sluice gates or other evidence of industrial activity harnessing flowing water (Q8 & 9). Though no associated structural evidence was identified, the course of the water channel was confirmed running downslope, routing any overflow water a safe distance away from the main Abbey buildings.

- 14.3.4 Investigation of the Earthworks Area (Trenches 10 & 11) has indicated that this was the site of major activity in the monastic and post-dissolution period, with substantial ditches, banks, activity platforms, gullies, pits and structural postholes identified. Prior to investigation these earthworks were poorly understood, aside from a general assignment to the 'outer court'. Trench investigation was preceded by a topographic survey to help delineate the complex of banks and ditches, and provide a topographic context for the archaeological features. The field was defined by two rectangular terraced platforms, approximately 0.5m high, one above the other on a south-facing slope. These platforms were bordered on each side by a shallow ditch, with their eastern boundary formed by an outlet channel running from the 'fishpond' near the Guesten lodge, and continuing downslope the field boundary below.
- 14.3.5 Trenches were positioned at a diagonal across bank, ditch and platform features to understand the relationship between these different features. The preservation of both upcast banks and adjacent ditches was exceptional. The general mix of finds and date ranges indicating that these ditches were likely constructed during the later monastic phase of the site, then reworked as the ditch continued to be used (and cleaned out) post-dissolution. Several substantial gully and posthole features were recorded on the 'platform', and though it was clear that these were evidence of structural remains, not enough area was exposed in plan to indicate the scale, date or function of a building in this area.
- 14.3.6 Further remote sensing or excavation work is recommended in this area to elucidate the footprint of structures, and determine any potential phasing spanning the monastic and post-dissolution use of the site. Further analysis will seek to assess the landscape context of the structures and features so far identified, seeking parallels with other Premonstratensian abbeys in the region (such as Langley Abbey) and any changes or continuities that can be identified from the Minsmere geophysics ground plan.
- 14.3.7 In the Abbey complex itself, geophysics results were corroborated by Trenches 5 and 7, targeting a circular Post-Medieval structure in the car park area and a demolished monastic structure in the south of the Site. Though attributed to the post-dissolution farming phase of the site, further comparative work will be necessary to establish the potential function of the structure recorded in Trench 5. No in-situ traces relating to the former monastic building were observed in Trench 7, with the earliest recorded deposits the result of post-dissolution demolition. Due to the overall location

of this building in close proximity to the refectory, it has been argued that this building is the likely location for the monastic kitchen (Q6).

- 14.3.8 Though this could not be determined without opening a larger trench to recover firmer evidence of the original building, the general mix of finds recovered from adjacent Trench 9 were certainly in keeping with a kitchen midden (See Section 10.3.2). Trenches 8 & 9 were designed to reopen unpublished (and un-archived) trenches previously excavated in the 1980s, making this data publically available for the first time. These trenches specifically related to interventions made by Valerie Fenwick in 1984 with the aim of improving the display and interpretation of the monument to visitor in advance of reconsolidation works (see Wilkins *et al* 2014, Section 2.3.4). Aside from a short summary note published in *Medieval Archaeology* XXIX (1985, 200) this work remains unpublished and unfortunately the primary archive and associated finds can no longer be located.
- 14.3.9 Work in Trenches 8 & 9 has successfully redressed this, creating a full drawn and written record for this earlier intervention, applying new technological innovations (such as 3D digital modelling) to relate the several phases of use discerned in the upstanding reredorter wall with the subsurface archaeology that had previously been obscured by the Ministry of Works reconstruction.

14.4 Project Aim 3

- 14.4.1 Aim 3 was designed to further our understanding of the 'palaeoenvironmental conditions and burial environment of the site'. To this end a systematic sampling strategy was implemented, with floatation undertaken on samples from all features on site, dry sieving of all excavated deposits through a 5mm gauge, and metal detecting of all remaining spoil. The aerobic burial environment and likelihood of faunal bioturbation has limited the evidence available to answer specific questions regarding farming, food processing and industrial activities.
- 14.4.2 Plant remains recovered from samples were low in number (ranging from 0.2 to 1 grain per litre of sampled soil) and predominantly charred. They were in a poor condition generally, and potentially redeposited or residual. Further site sampling of well-sealed waterlogged organic deposits in future phases of work may provide a wider range of useful plant remains representative of the local environment to supplement this assessment. In the absence of contexts such as this, sampling for phytoliths, durable stable silica structures in grasses (Evans and Connor 1999, 135-136) may also provide useful results.
- 14.4.3 Recovery of faunal remains was much more successful, with both wet and dry sieving of all contexts ensuring collection of small mammals, fish and amphibians and minimising data loss through recovery bias (Q10). Although the assemblage is relatively small, it is well preserved and most remains have not undergone a protracted taphonomic history. The assemblage consequently has the potential to address a range of questions surrounding husbandry, processing and waste- management at the abbey and to explore the social and economic relations between the abbey and settlements in the surrounding landscape (Q11 & 12). Further phases of site work will add to this assemblage, with the potential to contribute to

longstanding research themes surrounding monastic diet and how it varies regionally, chronologically and across different orders.

- 14.4.4 Artefact recovery was also very good, and the individual specialist reports in this document have outlined a number of research angles that may be profitable followed with further work. Prior to assessment, artefacts required limited conservation and stabilisation (aside from bone comb SF77 & gold button SF44) and have been securely stored for later analysis and curation.
- 14.4.5 Both Pottery and CBM assemblages have the potential to enhance understanding of regional industries (Late Material Transitional wares particularly) and further collection of this material will add considerably to the present corpus. A small quantity of residual Roman material was recorded in both the pottery and small finds assemblage, indicating that a previously unidentified Roman site may be nearby. Of the remaining finds, a broad range of artefacts was discovered spanning the Late Medieval to the Early Post-Medieval periods. Material culture markers linking the Abbey with its first site at Minsmere (such as moulded floor tile SF9 and the Papal Bulla SF97) are of particular note, and future phases of research should seek a broader understanding of the relationships and linkages between these two abbey sites.

14.5 Project Aim 4 – Updated Project Design (Review Point 6)

- 14.5.1 The evaluation has been successful in collating and assessing the data from Aims 1-3 (Q13) and has entered into a Review Point cycle with the wider specialist team and English Heritage. Designed as the first execution stage of a five-year multi-staged field research project, the results of the first evaluation stage (Years 1 and 2) have been detailed here with recommendations for a continuation of fieldwork. In consultation with English Heritage, these results will be formulated into an Update Project Design (Aim 4) to be applied to the next stage of Execution scheduled for July 2015 and 2016, with analysis and publication scheduled to follow in 2017.
- 14.5.2 The overarching aim of this stage of works was to define and characterise the physical extent of the site through a programme of non-intrusive investigation and intrusive excavation, obtaining baseline data that will facilitate its future management. Though further comparative and landscape work will be necessary to put these results into a broader monastic context, this stage of work has added considerably to our existing knowledge base. Collating the results from previous excavations (Q13), in addition to creating a new record for previously unpublished and unarchived interventions (Q14), is leading to improvements in how the site is currently managed and presented.
- 14.5.3 New interpretation boards (to replace the current boards put in place following the 1980s excavations) are proposed for 2015, drawing on survey and excavation results presented here. Further modification to the current music school buildings is scheduled for the immediate short term (creating a dedicated exhibition space for this project's findings) with more ambitious redevelopment plans for the medium term.

- 14.5.4 Whilst in general terms the archaeological and palaeoenvironmental resource at Leiston Abbey is being successfully preserved *in situ* (Q15), it should be noted that several areas are under significant attritional threat and further investigative work should be prioritised in these areas. A drain in the undercroft (also investigated during the 1980s) is being damaged by burrowing rabbits, and a partially characterised area to the east of the abbey interpreted as the location of the infirmary buildings (Kerr, forthcoming) is also of concern. When trenches were last excavated in this area, features were 'scarred by furrows, but floors and other layers survived within and around the remains of buildings' (Kerr, Forthcoming). Ploughing intensified in this area in 2014 to harvest potatoes, and given the relatively thin layer of topsoil in this area (0.2m), it remains to be seen how much of this material still remains *in situ*. Further evaluative work should be undertaken in these areas as a priority.
- 14.5.5 The project archive has been prepared in accordance with the guidelines outlined in Appendix 1, P1 of MoRPHE PPN 3 (English Heritage 2011) and in accordance with the Guidelines for the preparation of excavation archives for long-term storage (UKIC 1990; Walker 1990). It is currently held at DigVentures' East of England office under the site code LA, but will ultimately be deposited, with any addition materials derived from the 2015 field season, with an appropriate local museum under HER code LCS 176 (2013 interventions) and LCS 177 (2014 interventions). Appendix 5 of this document (bound under separate cover, and subject to further consultation with English Heritage) formulates the results and recommendations presented here into a series of aims and objectives, detailing the strategies and resources necessary to compete the next stage of work in this multi-stage field research project (Q16).

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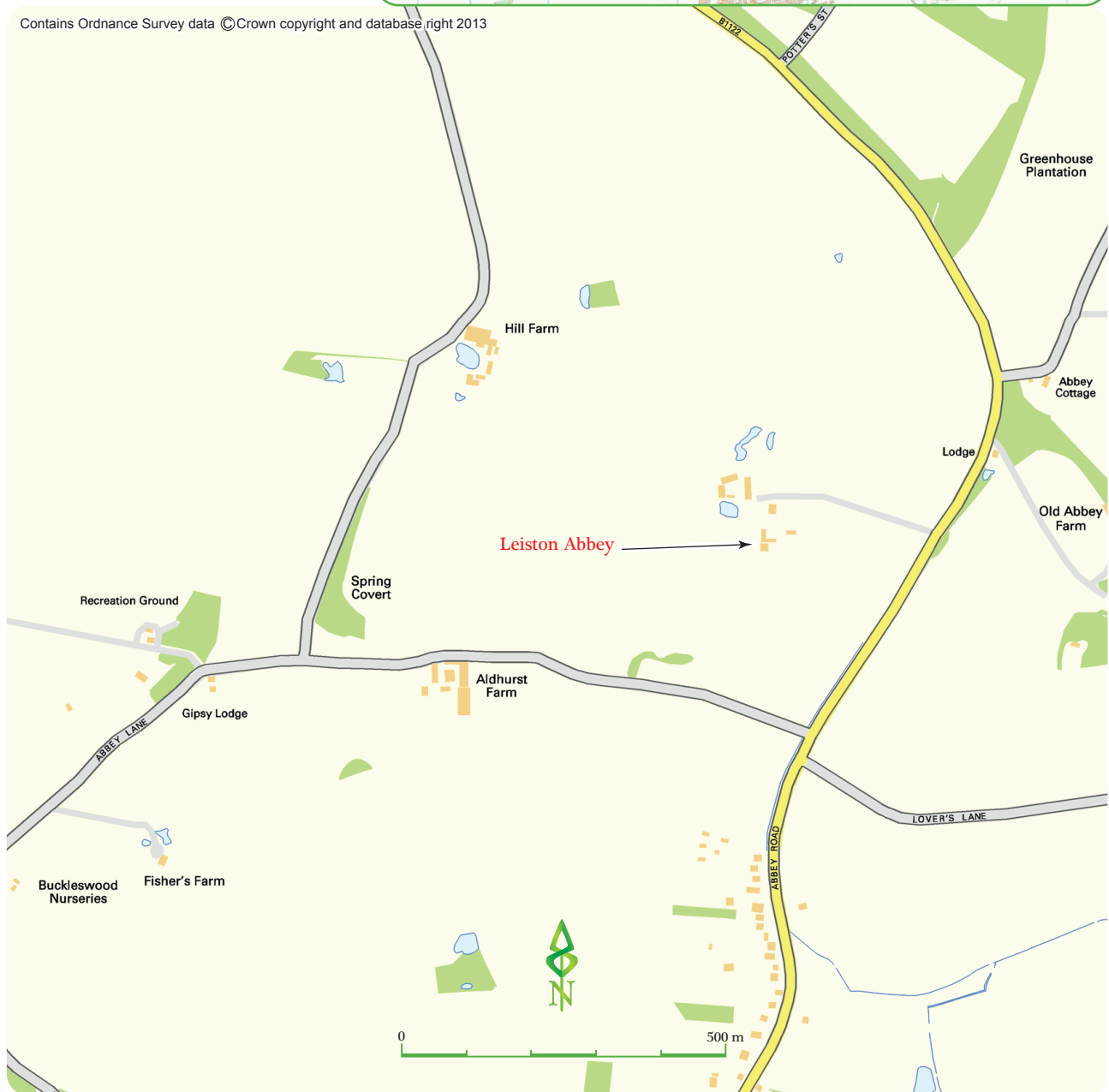
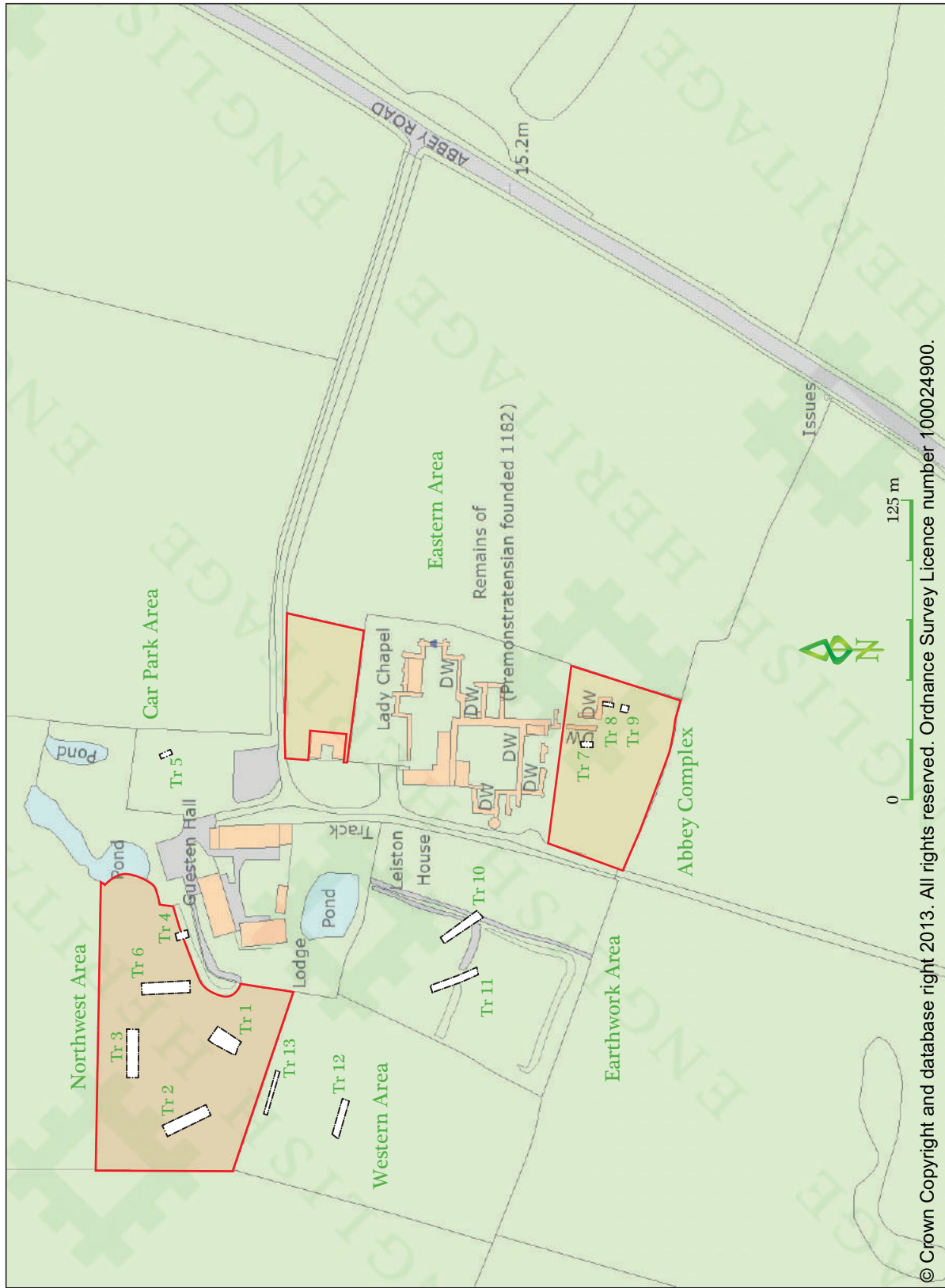


Figure 1 - Site location.



Figure 2 – Location of Remote Sensing.



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Figure 3 - Trench location plan.

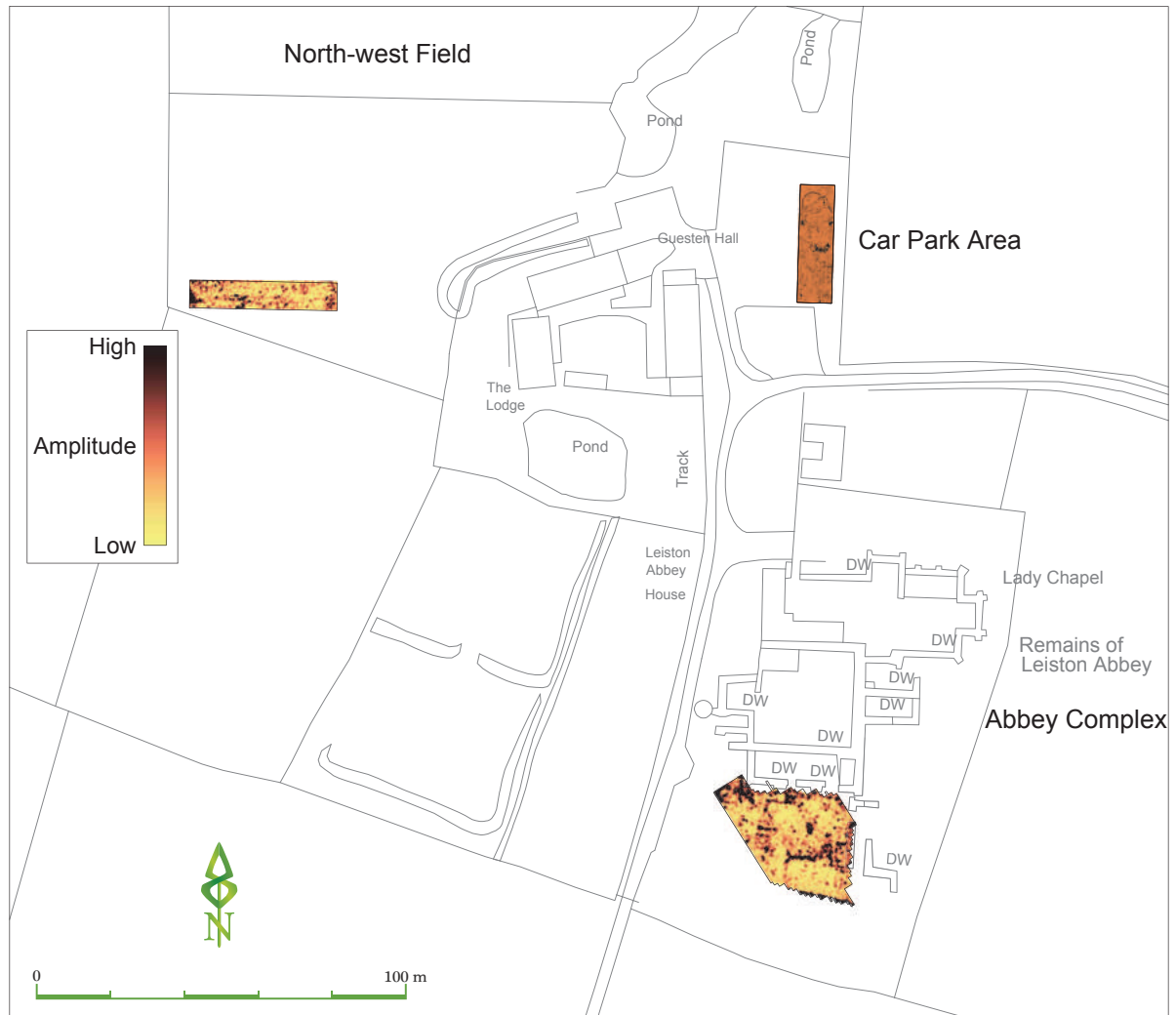


Figure 4 - Summary GPR Depth-Slices.

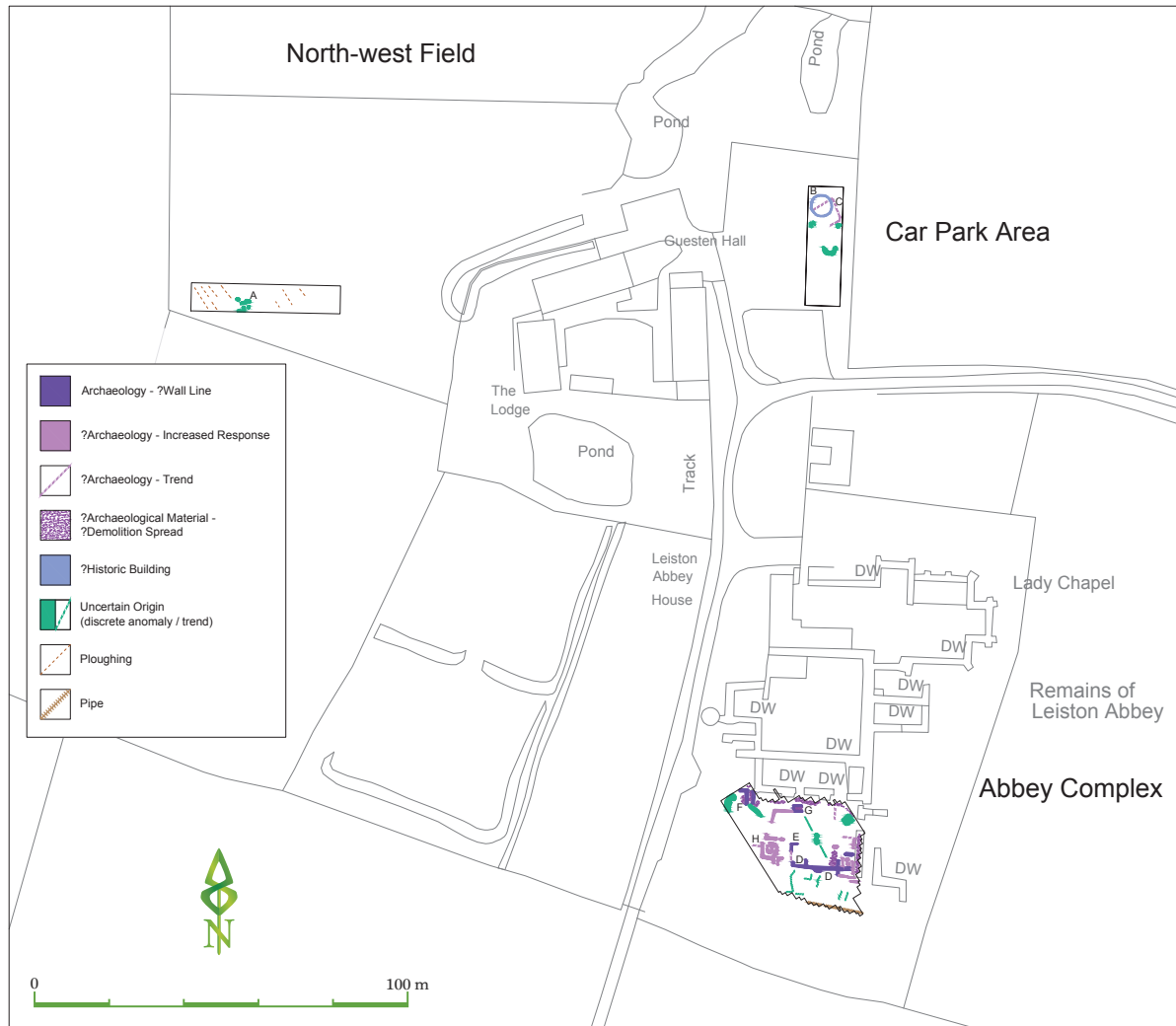


Figure 5 - Interpreted GPR.

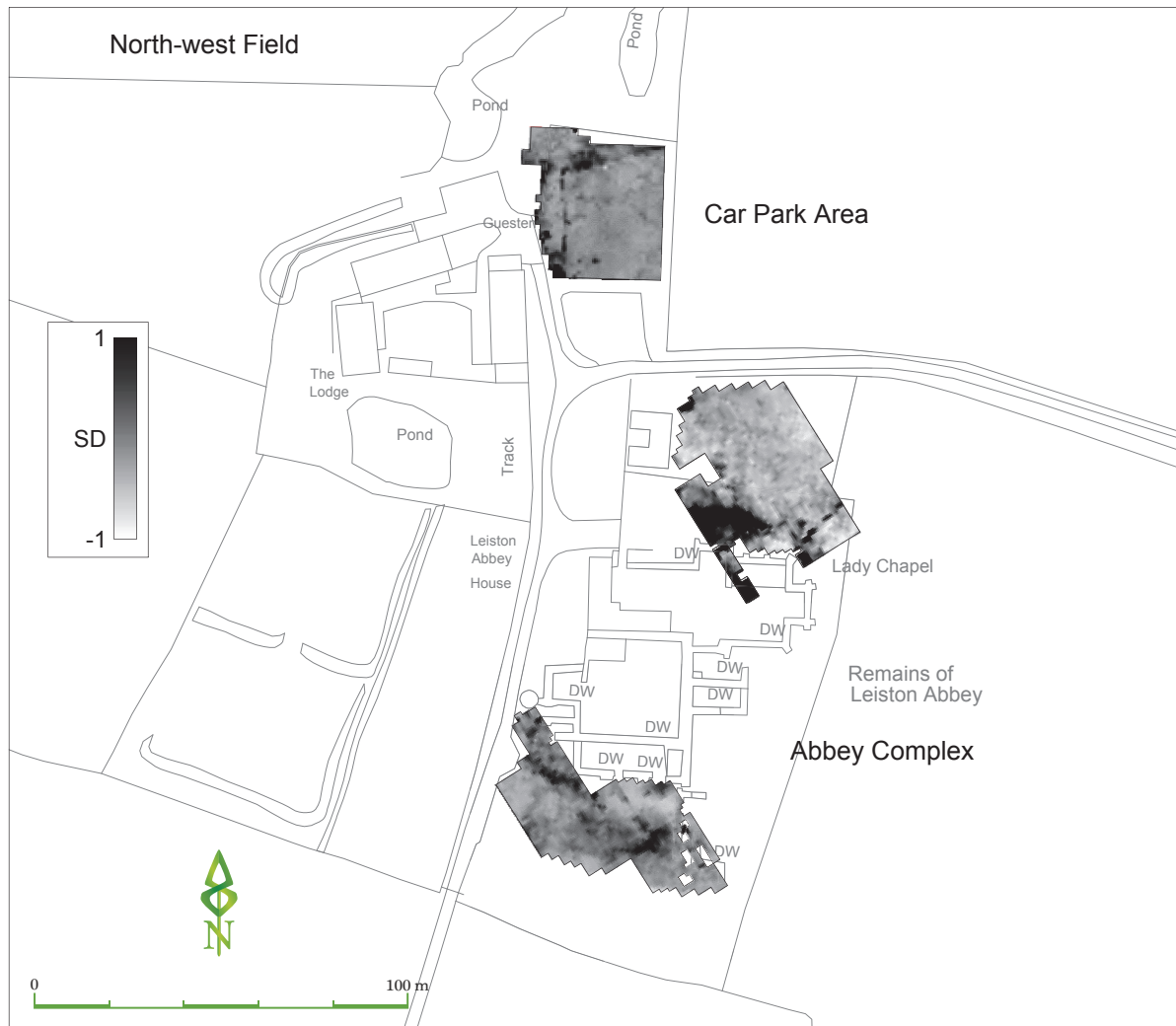


Figure 6 - Summary Resistance Greyscales.

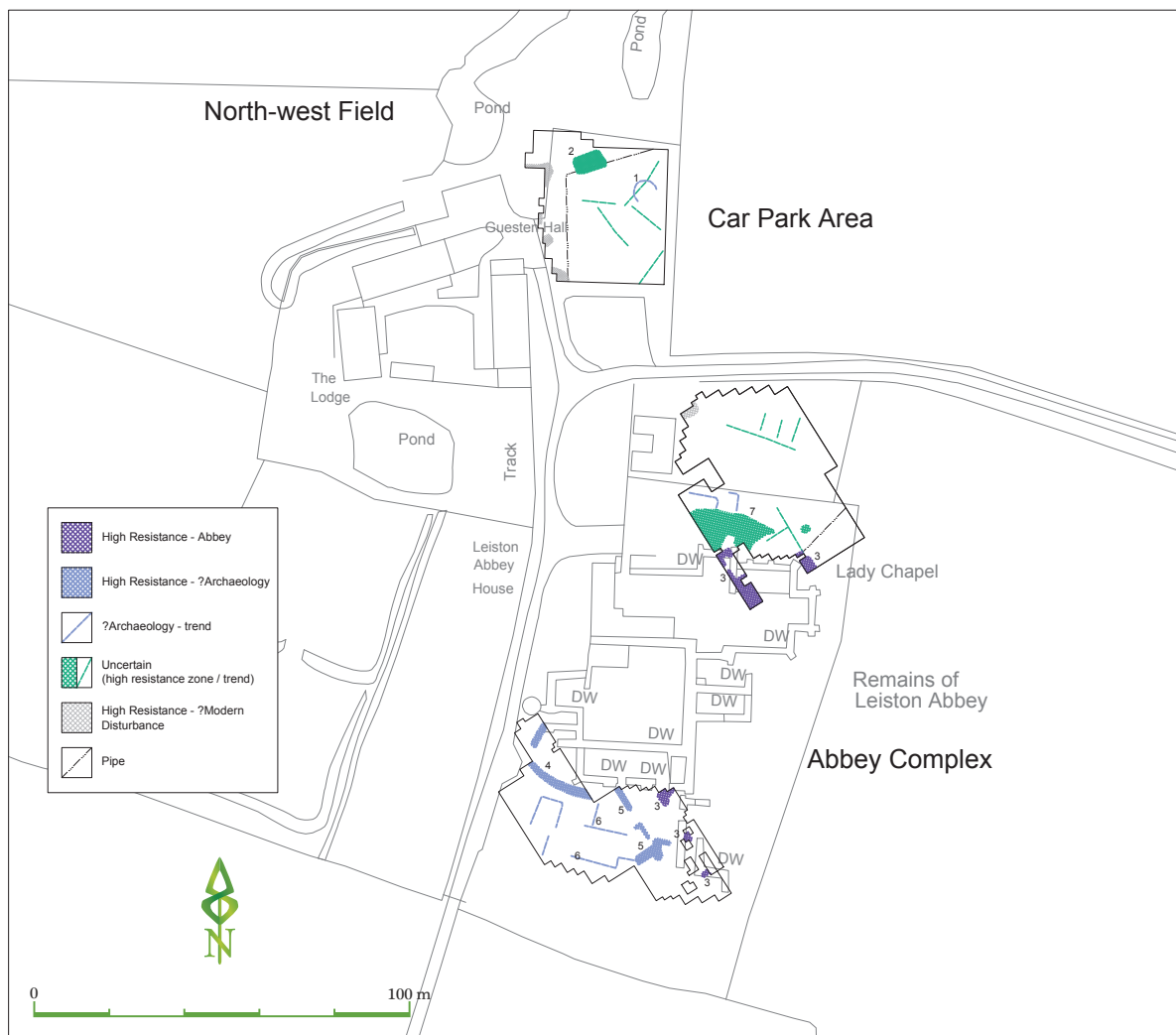


Figure 7 - Summary Resistance Interpretations.

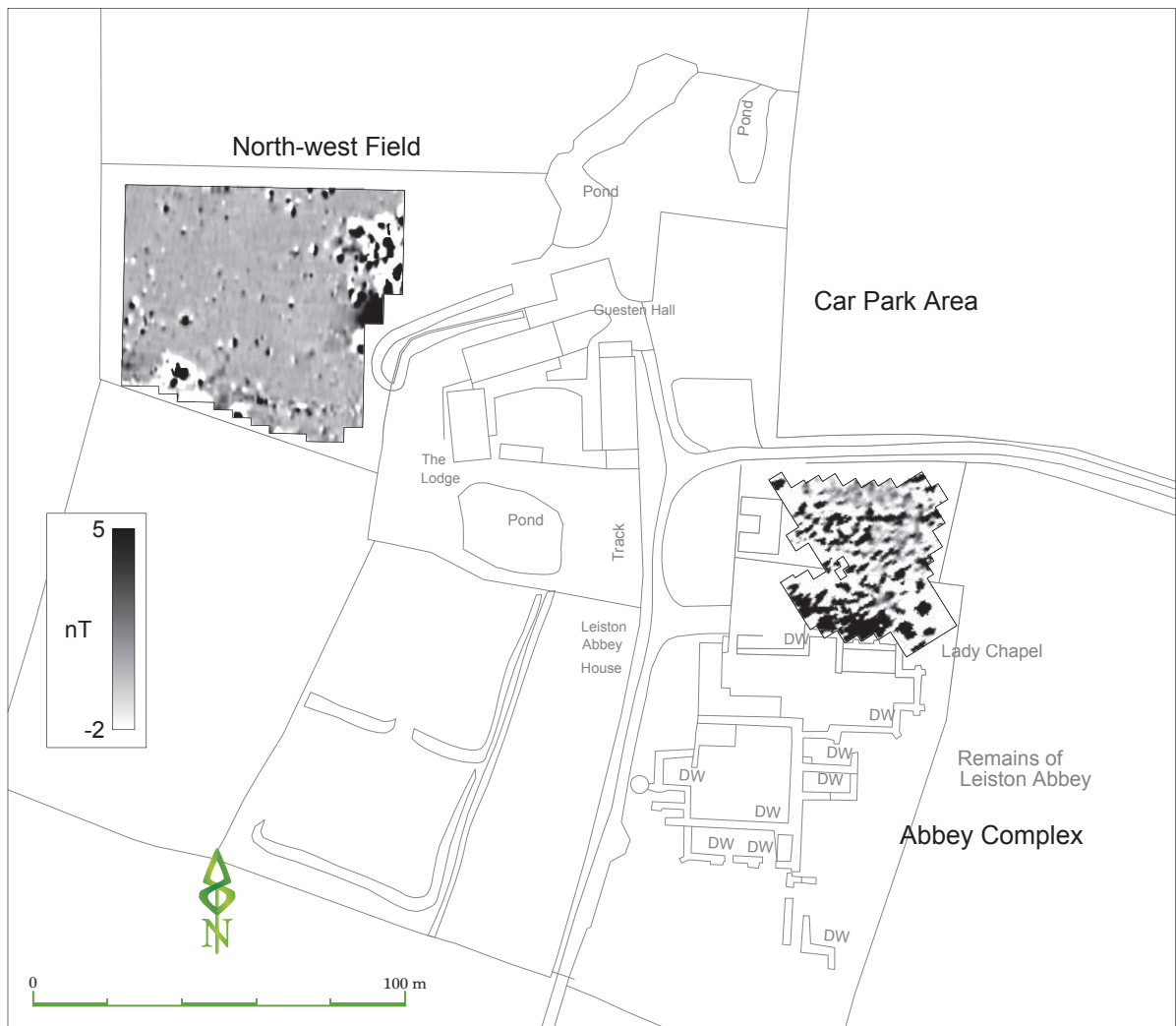
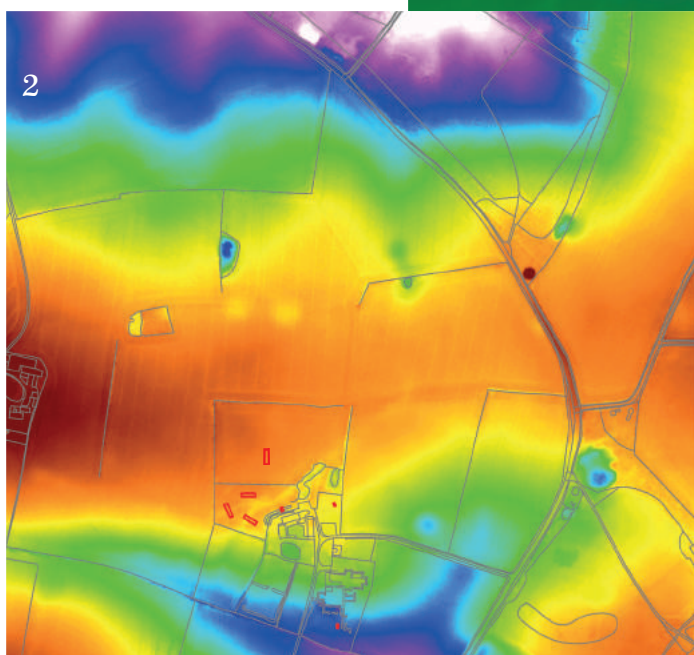
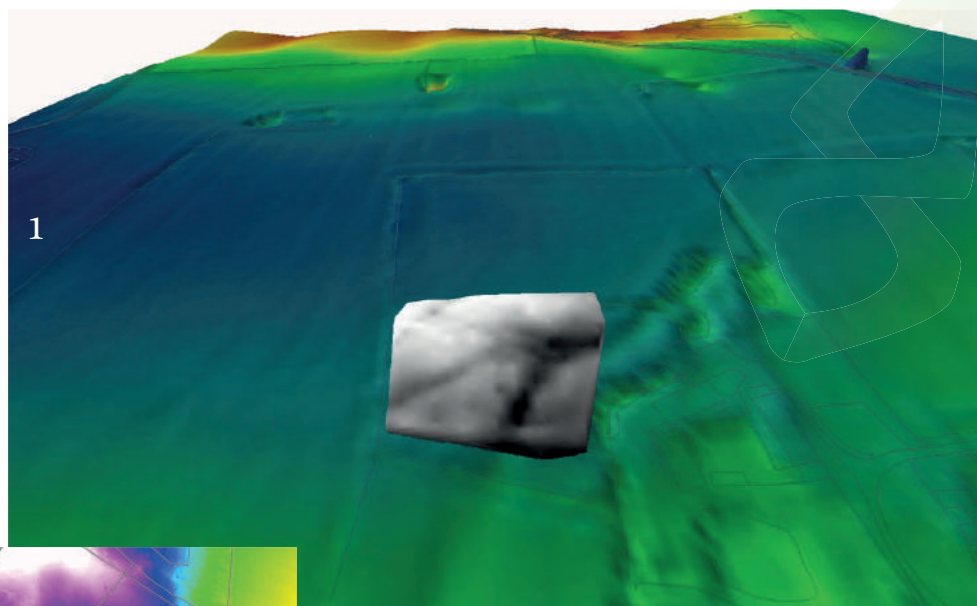


Figure 8 - Summary Gradiometer Greyscales.



Figure 9 - Summary Gradiometer Interpretations.



1. Local Relief Model derived from Lidar data with the topographic survey of the north-west field overlaid, including local map data. The two extant ponds in the north of the site can here be seen running into a series of channels between the 'platforms' in the north-west field, before flowing down to the valley beneath.

2. Lidar Model with trenches overlaid, indicating position of Abbey on south facing slope overlooking a shallow valley.

3. Low-level aerial photograph using kite mounted camera. Facing north, with crop marks indicating a structure in the fields to the east of the Abbey.

4. Low-level aerial photograph facing south, with crop mark structure to the east. The well established hedge to the north of Trench 7 (middle distance) has been interpreted as the precinct boundary ditch, with the return faintly recognisable as a crop mark.



Figure 10 - LiDAR and Low-Level Aerial Photography.

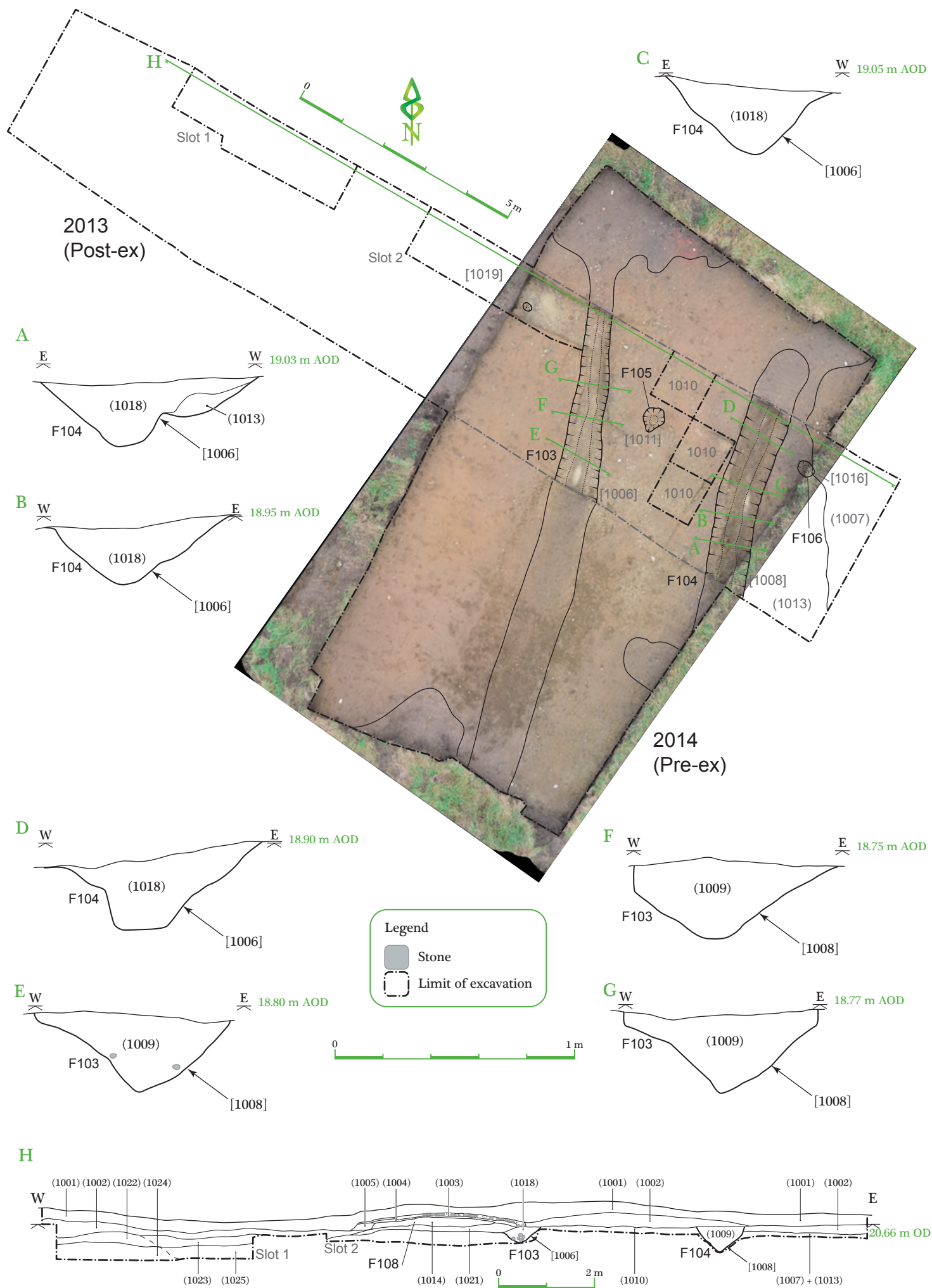


Figure 11 - Trench 1 excavation results.

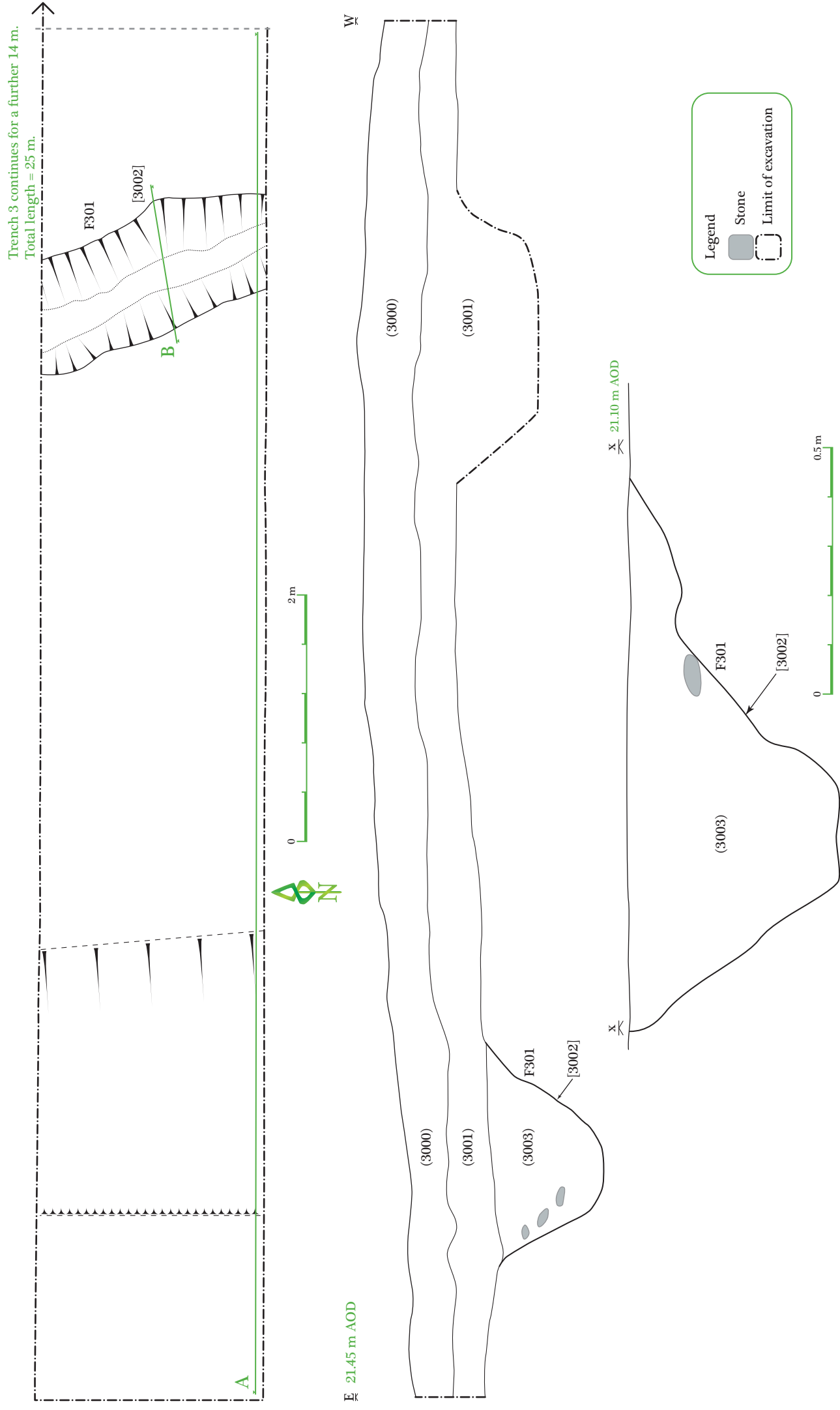


Figure 12 - Trench 3 excavation results.



Plate 13.1 - Trench 2 looking north-west



Plate 13.2 - Trench 6 looking north-west



Plate 13.3 - Trench 6 looking south-east

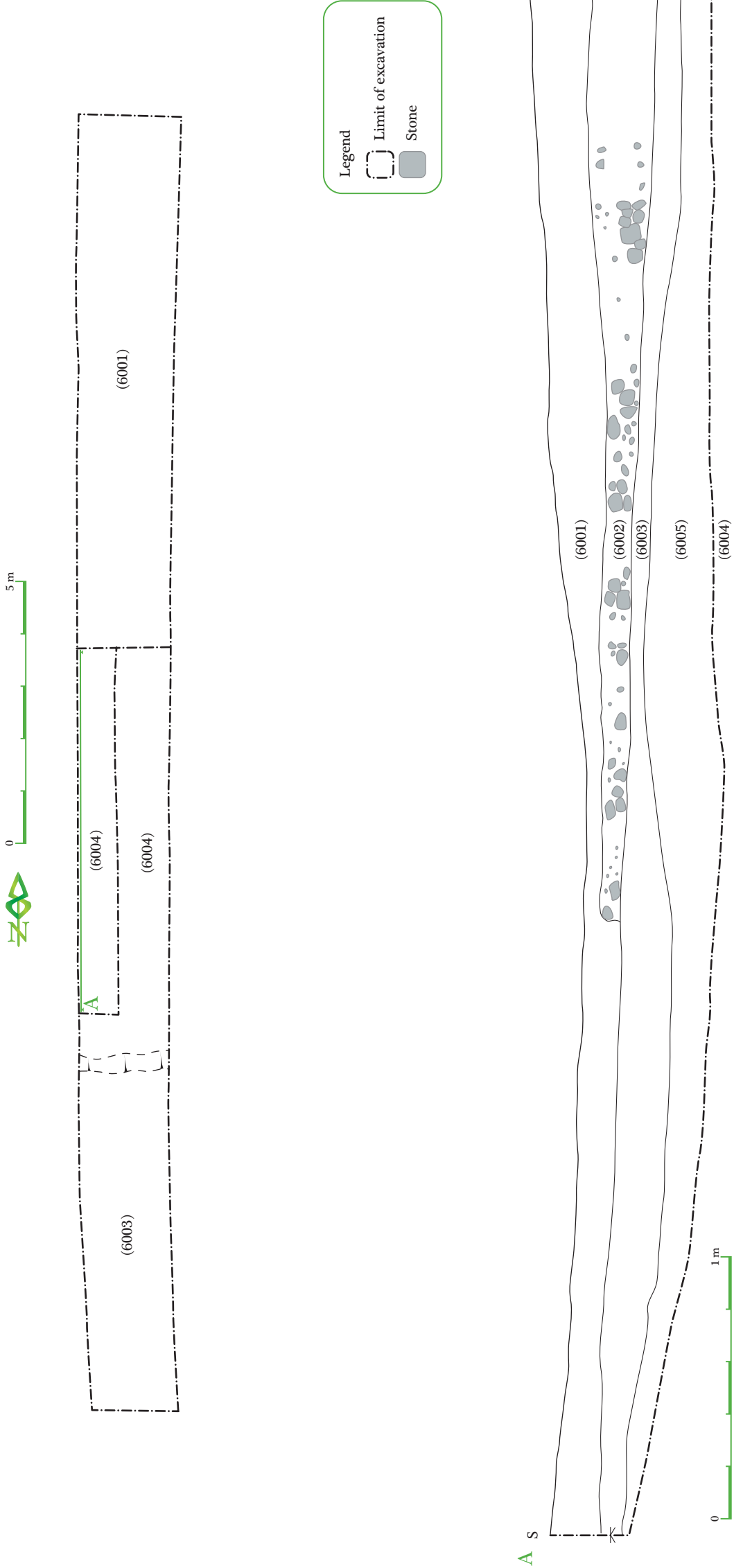


Figure 13 - Trench 6 excavation results.

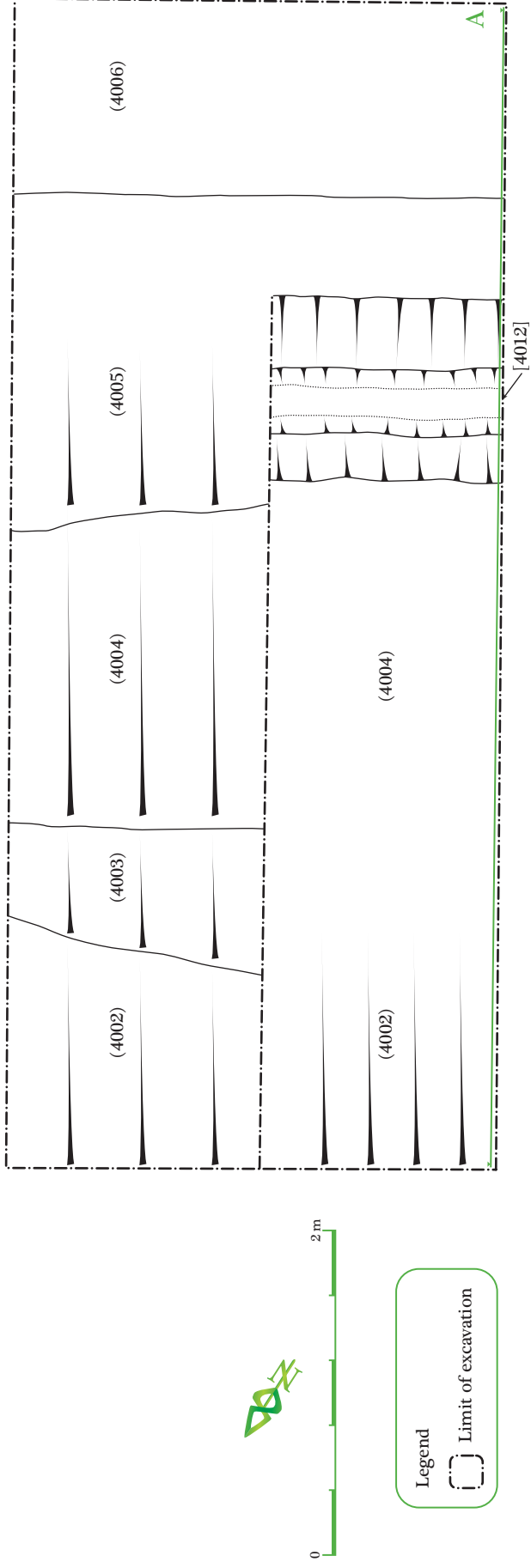


Plate 14.1 - Trench 4 Mid-Excavation facing north-west



Plate 14.2 - Deposit (4020) with natural wood fragment in section

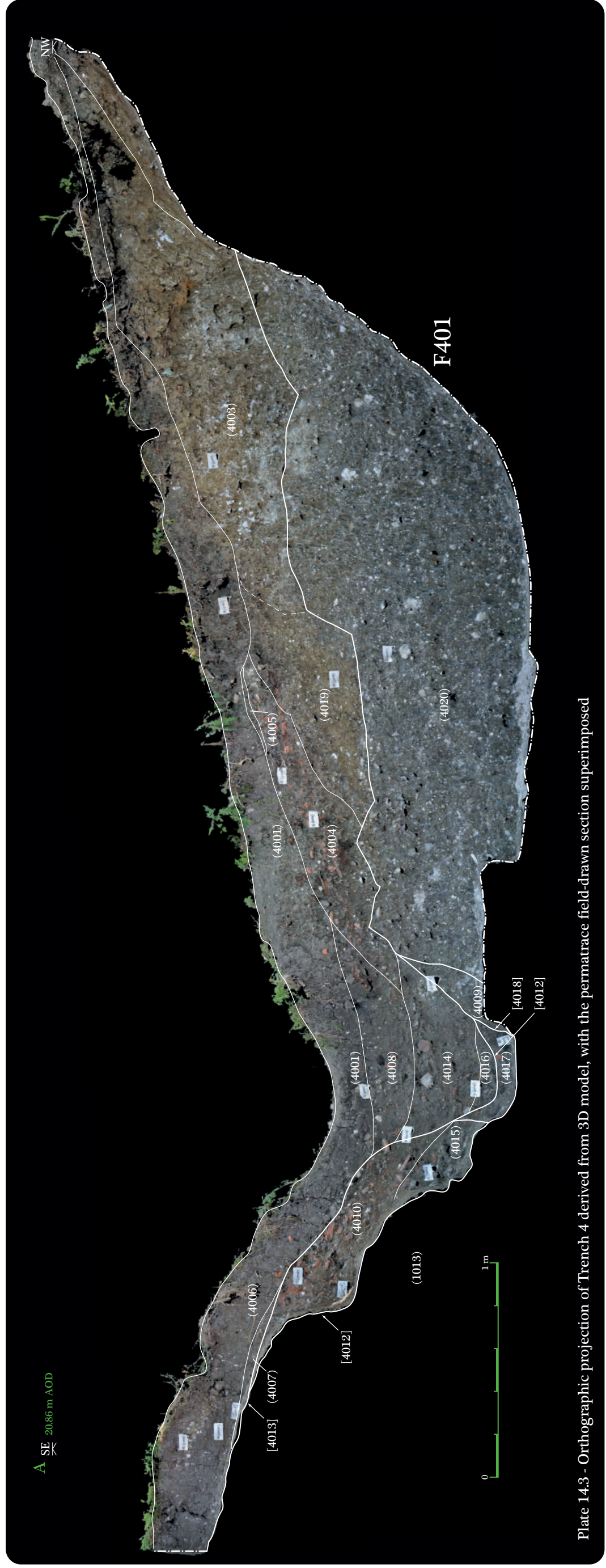


Plate 14.3 - Orthographic projection of Trench 4 derived from 3D model, with the permatrace field-drawn section superimposed

Figure 14 - Trench 4 excavation results.



Plate 15.1 - Trench 5 aerial working shot, facing south-east



Plate 15.2 - Structure feature [5006] Mid-Excavation, facing east



Plate 15.3 - Feature [5012], facing east



Plate 15.4 - Trench 5 Post-Excavation shot facing south-east



Plate 15.5 - Trench 5 Post-Excavation shot, facing north-west

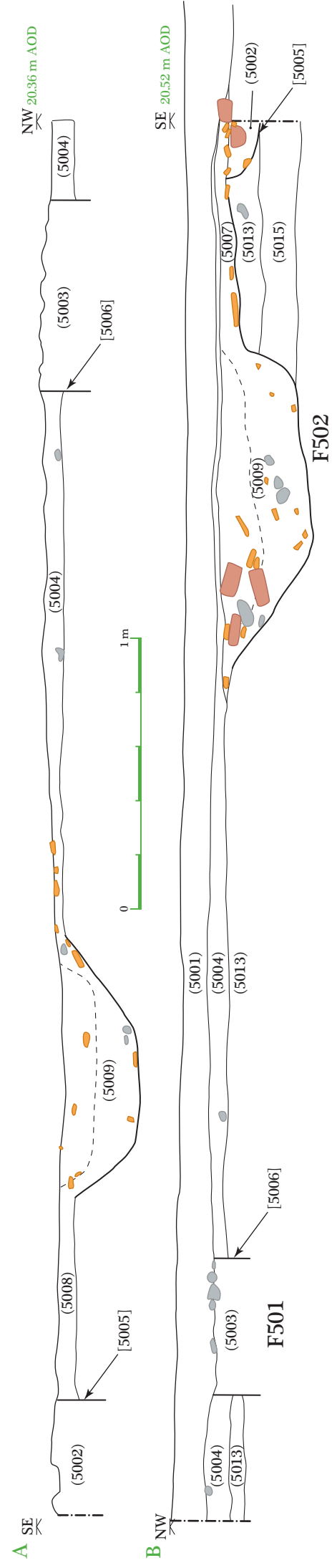


Figure 15 - Trench 5 excavation results.



Plate 16.1 - Trench 7 Pre-Excavation shot looking north

Plate 16.2 - Trench 7, east-facing section

Plate 16.3 - Large canine burial, facing east

Plate 16.4 - Trench 7 Post-Excavation shot, with canine burial in-situ

Plate 16.5 - Trench 7 Post-Excavation, facing east

Figure 16 - Trench 7 excavation results.

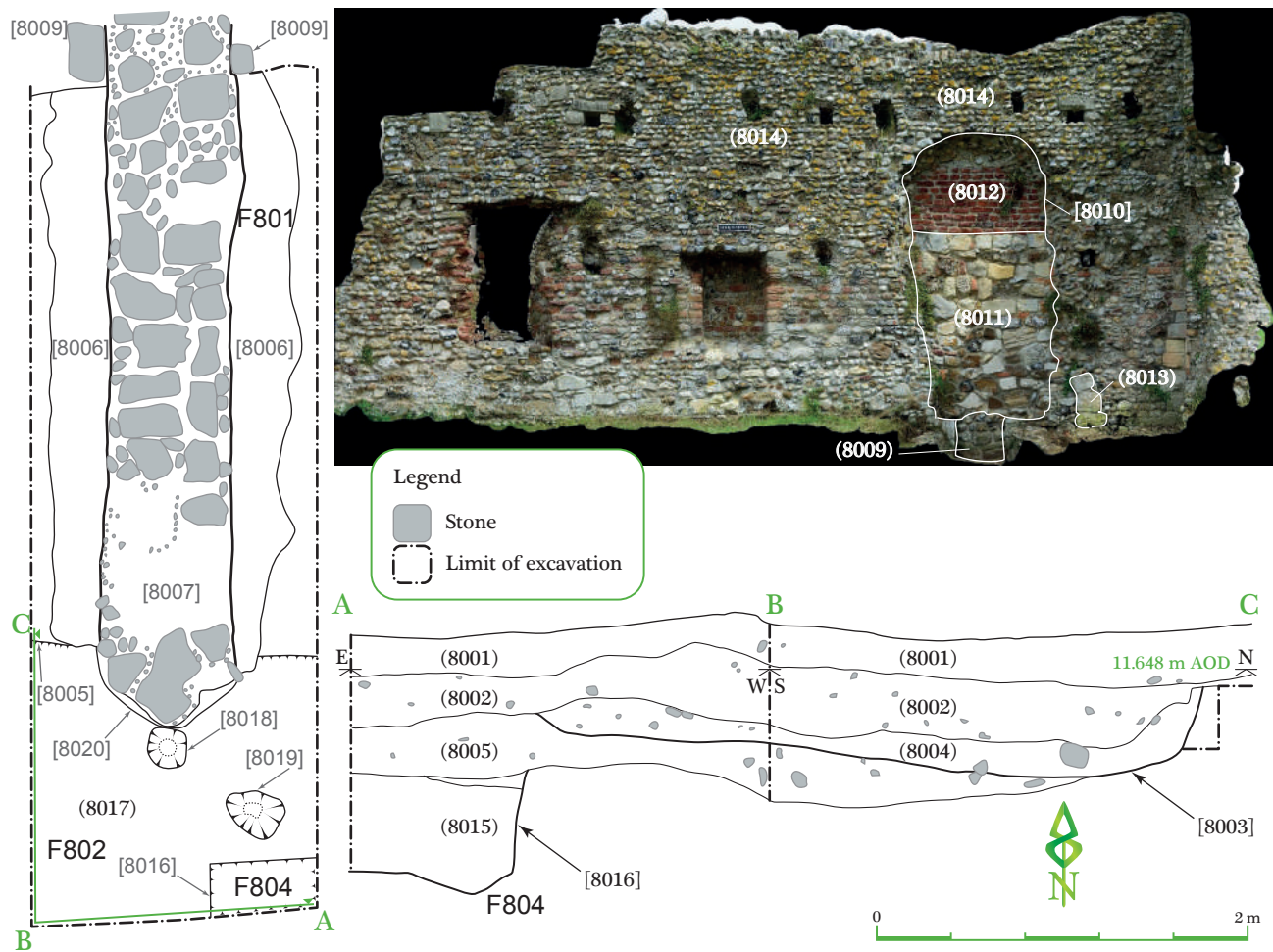


Figure 17 - Trench 8 excavation results.

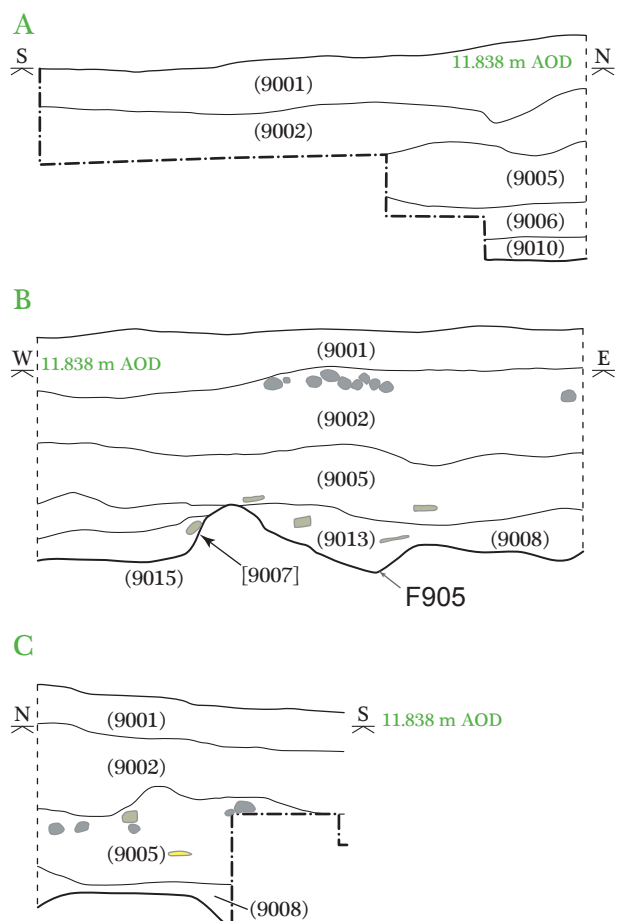
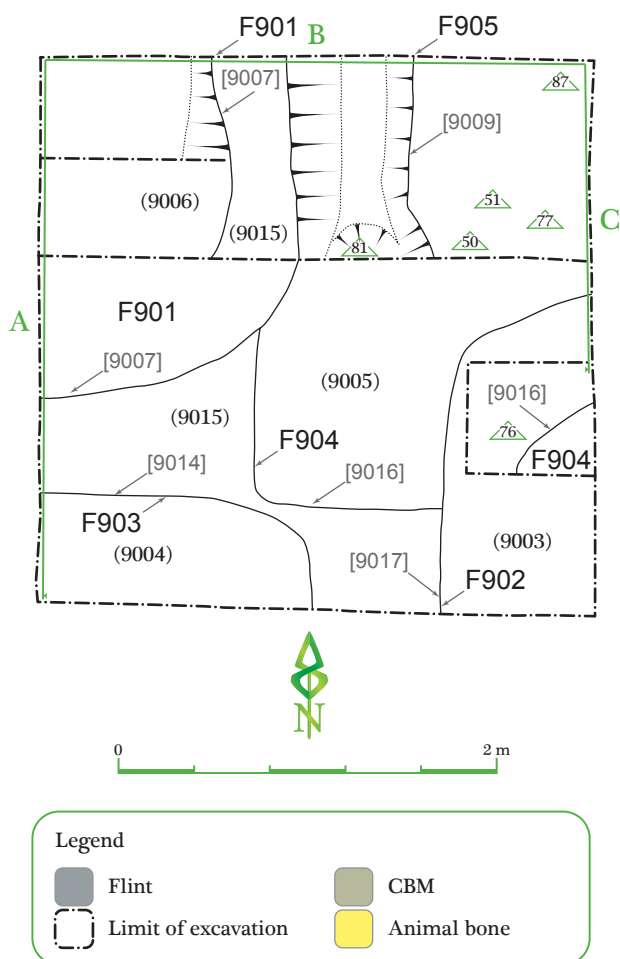


Figure 18 - Trench 9 excavation results.

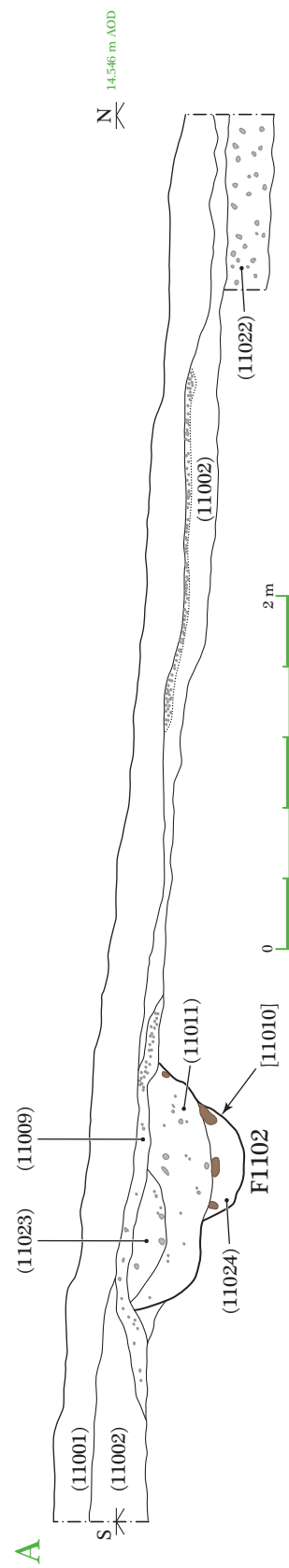
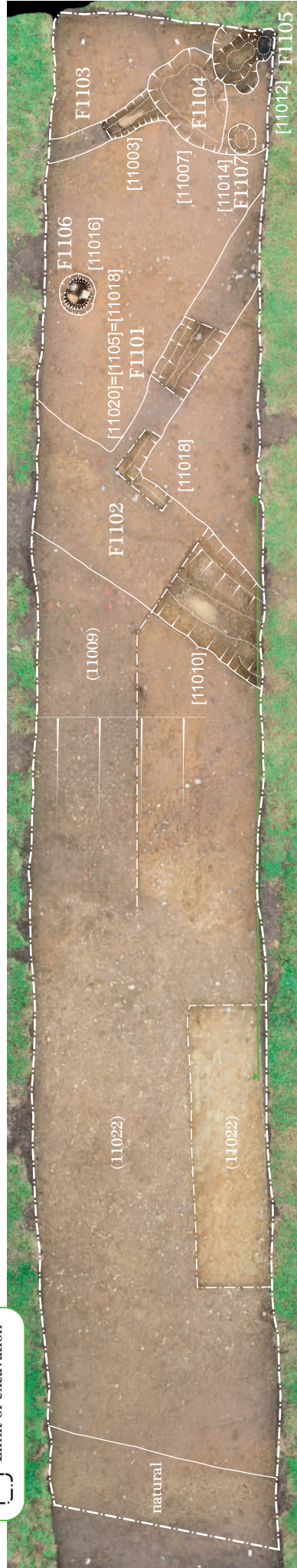
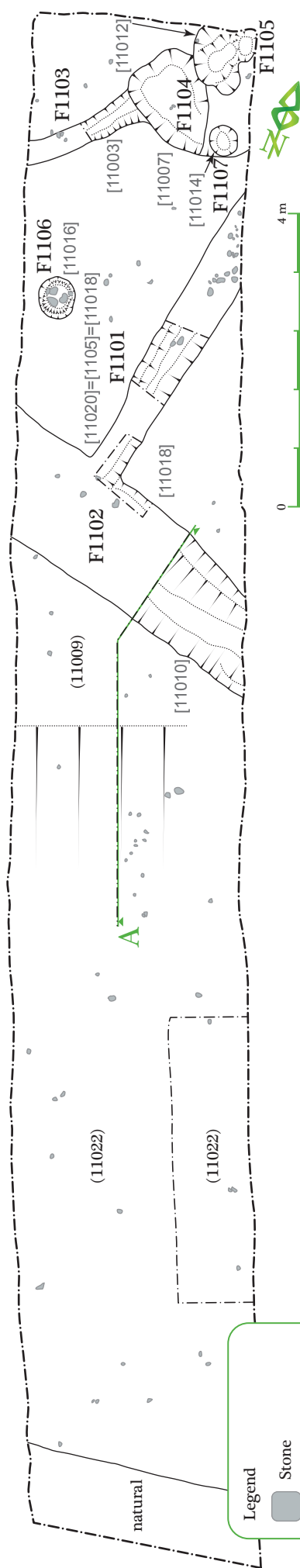


Figure 20 - Trench 11 excavation results.



Figure 21 - Trench 12 excavation results.

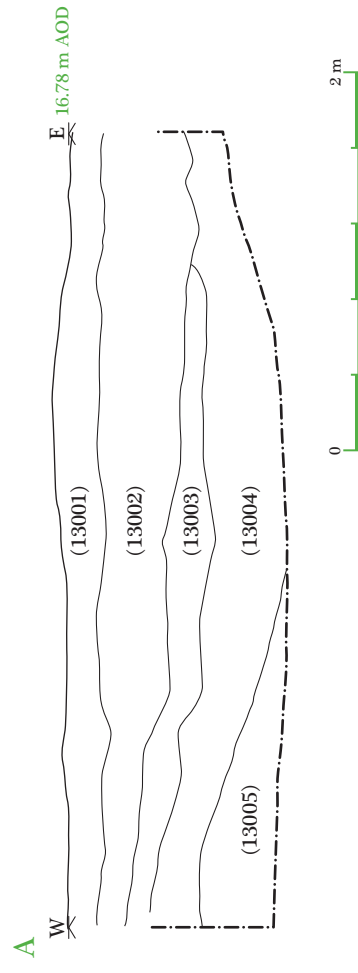
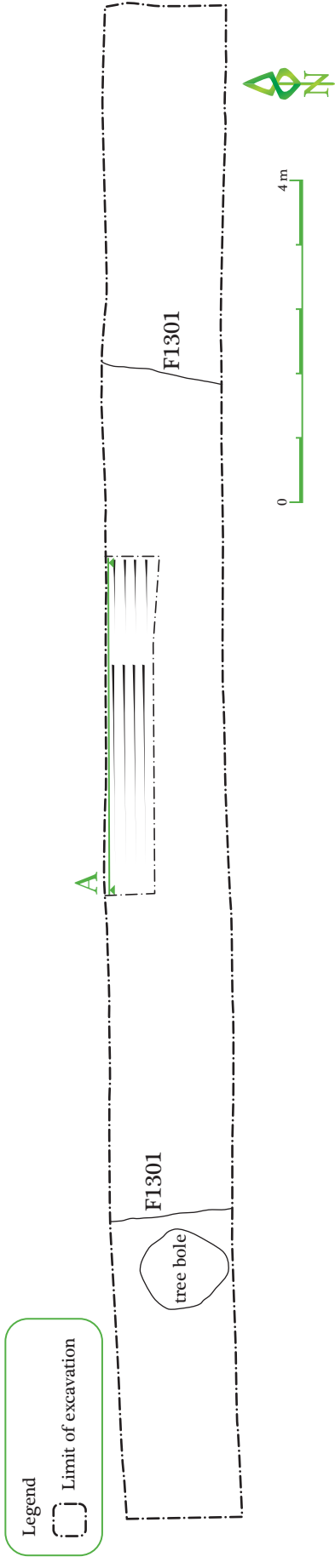


Figure 22 - Trench 13 excavation results.



Figure 23 - 3D Survey results montage.



Figure 24 - 3D Survey, extracted building elevations.

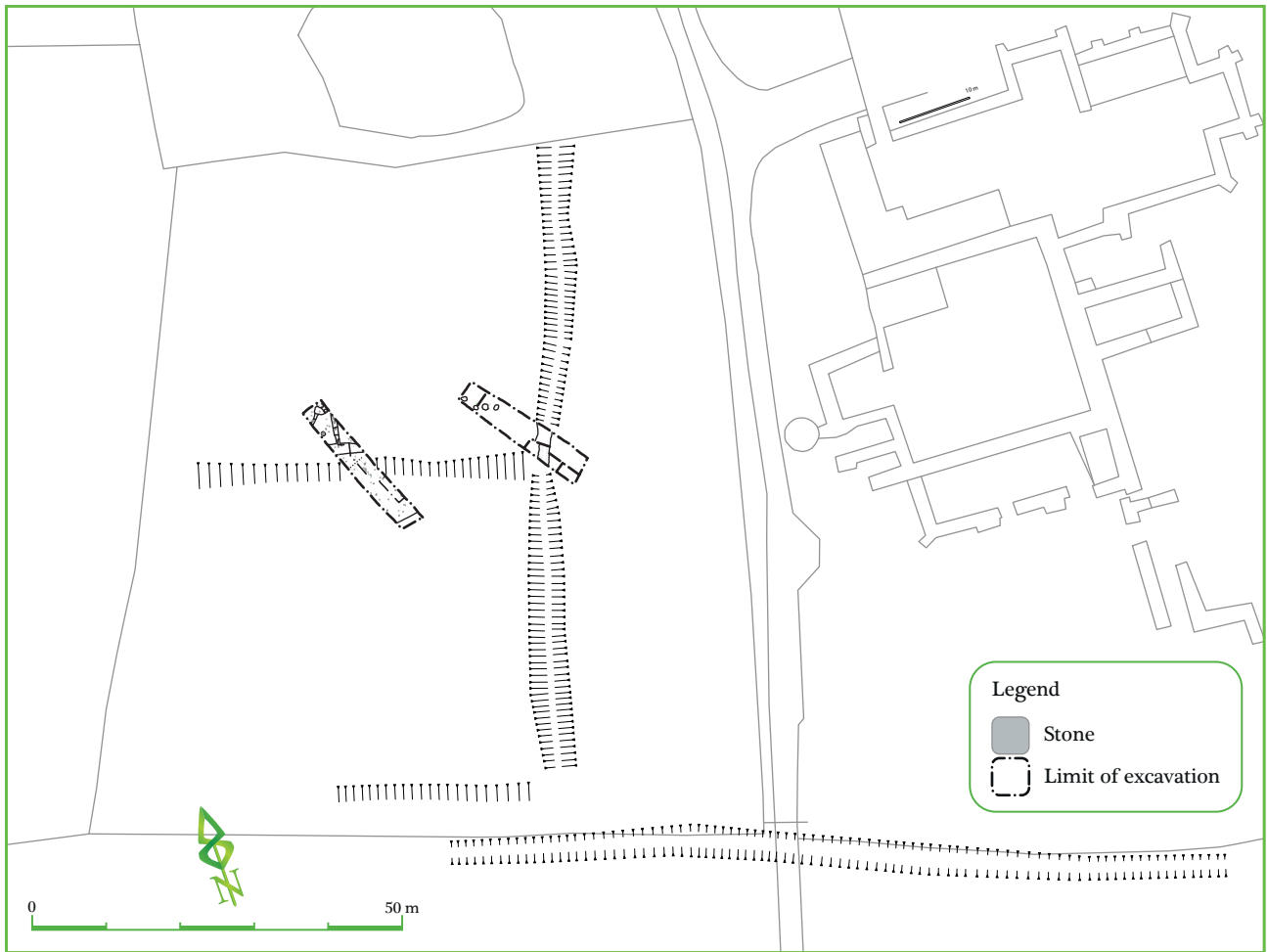


Figure 25 - Topographic Survey - Earthwork Area.



Plate 11.1 - Pre-excavation of Trench 1 extension, exposing previous year's trench and backfilled features, facing WSW.



Plate 11.2 - General shot of Trench 1 facing ESE, post-excavation



Plate 11.3 - Terminus of ditch cut [1037], post-excavation



Plate 11.4 - Post hole cut [1030], post-excavation



Plate 17.1 - Reconstructed Reredorter drain, mid-excavation working shot facing N



Plate 17.2 - Reconstructed Reredorter drain showing association with original monastic wall, post-excavation, facing NW



Plate 17.3 -Previous 1980s excavation trench cut and reconstructed drain, facing N



Plate 17.4 - Showing relationship of drain to filled-in arch in Reredorter wall, post-excavation, facing N



Plate 18.1 - Pre-excavation, hand dug, removing vegetation to first layer of subsoil, facing N.



Plate 18.2 - Trench section facing N, also shows pot (Small Find 87) exposed prior to removal



Plate 18.3 - Trench section facing S, shows drain cut [9009]



Plate 18.4 - General shot of sondage, facing E, post-excavation showing drain cut [9009] in base.



Plate 19.1 - General view facing NNW, pre-excitation



Plate 19.2 - Showing ditch feature [10023], pre-excitation, facing NNW



Plate 19.3 - Ditch cut [10023], mid-excavation, facing NE



Plate 19.4 - Ditch cut [10023], mid-excavation, facing SW



Plate 19.5 - Ditch cut [10023], mid-excavation, facing N, with post hole cuts in background



Plate 19.6 - Post hole cuts [10007, 10013, 10023] post-excavation, facing S



Plate 20.1 - General view facing NNW, pre-excitation



Plate 20.2 - Gully cut profile [11005] facing NE



Plate 20.3 - Gully and associated pits profile [11003, 11007, 11012] facing SW



Plate 20.4 - General view facing SSE, mid-excavation working shot



Plate 20.5 - Post-hole cut [11016], post-excavation, facing N



Plate 20.6 - Ditch cut [11010] facing NE



Plate 21.1 - General view facing W, pre-excitation



Plate 21.2 -Sondage excavated through waterlain deposit into natural subsoil, facing NW



Plate 22.1 - General view facing W, pre-excavation



Plate 22.2 - Sondage through water channel [13006], post-excavation



Plate 25.1 – Bone Comb (Small Find 77) Before Conservation



Plate 25.2 – Bone Comb (Small Find 77) After Conservation



Plate 25.3 – Gold Button (Small Find 44) Before Conservation



Plate 25.4 – Gold Button (Small Find 44) After Conservation

16 APPENDICIES

Appendix 1 – Trench and context descriptions

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1001	Mid grey-brown sandy silt with occasional small sub-rounded/sub-angular stones. Flecks of charcoal, undiagnostic roof tile and metal fragments from recent farming debris.	Deposit – topsoil	0.00-0.24	–
1002	Mid brown yellow sandy silt, with occasional small, sub-rounded pebbles.	Deposit – subsoil	0.24-0.30	–
1003	Mid-dark yellow brown sandy clay, with occasional chalk flecks. Localised at the east end of the trench as a layer, likely upcast as part of the bank construction, and immediately below topsoil (excavated in slot 2).	Deposit – earthwork	Width 3.50m Length 3.90m+ Depth 0.12m	F108
1004	Mid dark brown clay, with chalk flecks, CBM dated to the 18 th – 19 th centuries and pottery, observed in Slot 2 immediately below (1003), and approximately 0.09 thick. Deposit contained flint, chert and pottery (fitting with sherd from abutting context 1021), pan tile and daub fragments.	Deposit – earthwork	Width 3.50m Length 3.90m+ Depth 0.09m	F108
1005	Light reddish brown fine medium silt. Shallow, localised deposit forming western edge	Deposit – earthwork	Width 0.40m Depth 0.20m Length 4m+	F108

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	of bank.			
1006	Cut of ditch, extending beyond the trench edge NNW – SSE sharp sides and slightly irregular base. Excavated initially in three slots, then rest of feature removed. Filled by (1018).	Cut of a Ditch	Width 0.65m Length 3.90m+ Depth 0.35m	F104
1007	Light yellow brown sandy clay, with occasional chalk flecks. Localised between ditches [1006 & 1008] and in the eastern part of the trench.	Deposit – natural subsoil	Width 3.40m Length 2.90m+	–
1008	Cut of ditch, extending beyond the trench edge NNW – SSE sharp sides and slightly irregular base. Excavated initially in three slots, then rest of feature removed. Filled by (1009).	Cut of a Ditch	Width 0.86m Length 3.90m+ Depth 0.37m	F103
1009	Fill of Ditch [1008]. Mid grey brown sandy clay with occasional sub-rounded flint pebble inclusions. 5 fragments of poor quality long bone;	Fill of Ditch [1009]	Width 0.86m Length 3.90m+ Depth 0.30m	F103
1010	Mid grey brown sandy clay with frequent flint pebble inclusions and occasional chalk. Deposit recorded between twin ditches [1006 & 1008] as an interleaving layer, probably comprising part of the adjacent bank.	Deposit – earthwork	Width 2.19m Length 1.40m Depth 0.08m	F108

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1011	Cut of Posthole filled by (1012) Sub-circular shape in plan with gradual sloping sides, and a shallow tapered base.	Cut of Posthole	Width 0.44 Length 0.49m Depth 0.19m	F105
1012	Fill of Posthole [1011] Dark brown black, clayey – silt with occasional small sub angular pebbles.	Fill of Posthole	Width 0.44 Length 0.49m Depth 0.19m	F105
1013	Light grey sandy clay natural.	Deposit – natural	Width 0.48m Length 3.20 Depth 0.19m	–
1014	Deposit observed in bank (Slot 2) below (1004) and above (1021). Light red brown silty clay.	Deposit – earthwork	Width 2.60m Length 3.90m+ Depth 0.28m	F108
1015	Mid yellow brown sandy clay, with occasional chalk flecks. Localised between in the western part of the trench.	Deposit - natural	Width 1.20m+ Length 0.90m+	–
1016	Cut of Posthole sub-circular in shape with rounded corners, gradual concave sides and tapered to a rounded point at the base. Filled with (1017).	Cut of Posthole	Width 0.38m Length 0.39m Depth 0.12m	F106
1017	Fill of Posthole [1017]. Filled with mid grey brown, clay with small sub-angular pebble inclusions.	Fill of Posthole [1017]	Width 0.18m Length 0.20m Depth 0.40m	F106
1018	Fill of Ditch [1006]. Mid grey yellow sandy clay, containing occasion sub-angular pebbles. 1 small fragment of pottery, and 2 small fragments of animal bone recovered from	Fill of Ditch [1006]	Width 0.65m Length 3.90m+ Depth 0.35m	F104

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	this context during wet sieving (Sample 3).			
1019	Cut of Posthole circular shape in plan with vertical sides, possible later fence post on top of bank. Filled with (1020).	Cut of Posthole	Width 0.18m Length 0.22m Depth 0.15m	F107
1020	Mid grey black silty clay. Fill of Posthole [1019]. Filled with Brown-grey, clay silt.	Fill of Posthole [1021]	Width 0.18m Length 0.22m Depth 0.15m	F107
1021	Mid yellow brown silty clay, containing small fragments of CBM, animal bone and pottery. Excavated in Slot 2, this forms part of the earthwork bank feature. 1 large rim sherd was recovered from this context, fitting the same coarseware jar recovered from abutting context (1004).	Deposit – earthwork	Width 3.40m Length 0.11m Depth 0.25m	F108
1022	Mid yellow brown sandy clay with chalk fragments and occasional sub-angular chalk pebbles. Excavated in Slot 1.	Deposit – earthwork	Width 2.00m Length 3.90m+ Depth 0.20m	F108
1023	Mid orange grey sandy clay, with occasional chalk fragments. Excavated in Slot 1.	Deposit – earthwork/channel	Width 2.20m Length 3.90m+ Depth 0.60m	F108
1024	Mid grey orange clay, with occasional flint and chalk fragments. Excavated in Slot 1.	Deposit – earthwork	Width 2.20m Length 3.90m+ Depth 0.38m+	F108
1025	Light grey clay, with orange flecks, excavated in Slot 1, forming base of channel between two earthworks.	Deposit – earthwork/channel	Width: 1.90m Length: 3.9m+ Depth: 0.33m+	F108

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1026	Cut - oval in shape but truncated by edge of trench. No corners, edges, sides as too shallow but flat base. Orientation E-W	Cut - base of very shallow spread	Width: 0.8 Length: 1.2+ Depth: 0.03	
1027	Fill of [1026]. Filled with medium soft to hard grey brown clay with flint and charcoal inclusions.	Fill of [1026]	Width: 0.76 Length: 0.89 Depth: 0.05	
1028	Base of a burned layer. Roughly circular in shape with imperceptible break of slope at top, concave sides rounding to a flat base. Orientated E-W, [1028] continues into the trench section.	Base of burned layer - May not be a cut	Width: 0.42 Length: 0.49 Depth: 0.05	
1029	Burned layer. Filled with loose, mid-reddish grey soil with small inclusions of chalk and charcoal and small to medium sized pieces of flint. Spread of in situ burning	Burned layer	Width: 0.75 Length: 2.25 Depth: 0.04	
1030	Cut of a posthole. Oval in shape with rounded corners. Sharp break of slope, steep sides sharply leading to a blunt base. Orientation N-S and inclination 0.31m in 0.17m.	Cut of a posthole	Width: 0.28 Length: 0.31 Depth: 0.17	F101
1031	Fill of posthole [1031]. Filled with firm, light brown clayey-silt with occasional charcoal and chalk fleck inclusions.	Fill of posthole [1031]	Width: 0.28 Length: 0.31 Depth: 0.17	F101

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1032	Cut of ditch. Linear in shape with gradual break of slope at top gradually leading to a concave base. Orientation is SSE-NNW. Ditch continues into southern edge of trench and is possibly a continuation of [1037].	Cut of ditch	Width: 0.65 Length: 3.90+ Depth: 0.20+	F104
1033	Fill of ditch [1032]. Filled with firm mid-greyish brown sandy silt with rare chalk inclusions.	Fill of ditch [1032]	Width: 1.60 Length: unknown Depth: 0.25	F104
1034	Bank material. Filled with firm, light yellowish-brown sandy silt with frequent chalk and stone inclusions of varying size. Extent is unknown.	Layer of bank material	Width: 3.00+ Length: 6.75+ Depth: 0.20+	F108
1035	Cut of posthole. Circular in shape with sharp break of slope, vertical sides sharply leading to a flat base.	Cut of a posthole	Width: 0.30 Length: 0.40 Depth: 0.20	F102
1036	Fill of posthole [1035]. Filled with firm mid-greyish brown sandy silt.	Fill of a posthole [1035]	Width: 0.30 Length: 0.40 Depth: 0.20	F102

Trench 1	Dimensions: 20m x 4m / Max. Depth 0.60m+			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
1037	Cut of a ditch. Linear shape with no corners, but terminus at northern end of the trench. Gradual break of slope at top with steep, concave sides (approximately 1 in 2), gradually leading to a concave base. [1037] continues into eastern trench section. Oriented SSE-NNW.	Cut of a ditch	Width: 1.00 Length: 0.50+ Depth: 0.37	F103
1038	Fill of ditch [1037]. Filled with firm mid-greyish brown sandy silt with occasional flint inclusions.	Fill of ditch [1037]	Width: 0.75 Length: 0.50+ Depth: 0.75	F103
1039	Fill of ditch [1032]. Filled with soft light bluish grey sandy silty clay with a few orange flecks.	Fill of ditch [1032]	Width: 0.60 Length: unknown Depth: 0.15	F104

Trench 2	Dimensions: 26m x 2m/Max. Depth 0.39m			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area: no archaeological finds or features recorded in this trench			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
2001	Mid grey-brown sandy silt with occasional small sub-rounded/sub-angular stones.	Deposit – Top Soil	0.00-0.29	

Trench 2	Dimensions: 26m x 2m/Max. Depth 0.39m			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW Area: no archaeological finds or features recorded in this trench			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
2002	Mid brown yellow sandy silt, with occasional small, sub-rounded pebbles. Containing occasional ferrous objects associated with modern farming debris.	Deposit – Subsoil	Width: 2.00+ Length: 26.00+ Depth: 0.10	–
2003	Light yellow brown sandy clay, with occasional chalk flecks.	Deposit – Natural Subsoil	Width: 2.00+ Length: 26.00+ Depth: 0.39+	–
2004	Mid brown grey fill of channel, constructed for drainage purposes.	Fill of channel [2005]	Width 1.50m Length 1.90m+ Depth 0.28m+	
2005	Irregular cut for drainage channel, similar to those associated with earthwork banks (this is much less pronounced). Filled by (2004)	Cut of channel	Width 1.50m Length 1.90m+ Depth 0.28m+	

Trench 3	Dimensions: 1.9m x 25m/Max. Depth 0.93m			
	Orientation: E-W			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Depth (m)	
3000	Mid grey-brown sandy silt with occasional small sub-rounded/sub-angular stones.	Deposit – Top Soil	Width: 25.00+ Length: 1.90+ Depth: 0.18m	–
3001	Mid brown sandy clay, containing moderate small chalk inclusions and occasional sub-angular flint pebbles.	Deposit – Subsoil	Width: 25.00+ Length: 1.90+ Depth: 0.10	–

Trench 3	Dimensions: 1.9m x 25m/Max. Depth 0.93m			
	Orientation: E-W			
	Reason for Trench: To assess earthworks in NW Area			
Context	Description	Interpretation/ Process of deposition	Depth (m)	
3002	Cut of ditch, extending beyond the trench edge NNW – SSE, sharp sides and slightly irregular base. Excavated initially in slots, then rest of feature removed. Filled by (3003) .	Cut of ditch	Width 1.0m Length 1.9m+ Depth 0.48m	F301
3003	Fill of ditch [3002] containing mid grey brown sandy clay, with occasional small fragments of chalk and sub-angular flint pebbles.	Fill of Ditch [3002]	Width 1.0m Length 1.9m+ Depth: 0.38	F301

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4001	Mid brown silty clay comprising a thin layer of compact topsoil with little organic matter, extending across the whole feature. Finds included mixed modern debris, white porcelain, plastic, slate, slag and various modern nails and other material associated with adjacent kitchen garden. A small fragment of medieval glazed roof tile was also recovered from this context.	Deposit – Top Soil	0.00-0.22m	–

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4002	Light yellow clay layer, unmodified natural subsoil, only observed in the northern part of the trench as the rest of the feature was too deep to safely excavate.	Deposit – Natural Subsoil	0.22-0.70m+	–
4003	Mid yellow clay layer, similar to, and abutting (4002) with a higher frequency of chalk fragments and suggesting root disturbance and human deposition, possibly as a result of clearing out of the ditch at some point.	Deposit – Natural Subsoil	Width 4.0m Length 1.90m+ Depth 1.00m+	–
4004	Mid brown silty clay, containing a large quantity of tiles dumped, probably as a consequence of renovation or demolition of the adjacent Guesten Hall. Finds included slag, glass bottle stopper, iron (modern corroded nails), oyster shell, a post-medieval roof tile fragment and fragments of limestone.	Deposit	Width 2.80m Length 1.90m+ Depth 0.60m	F401
4005	Dark brown black silty clay, observed in the south end of the trench (same context as 4007)	Deposit - Subsoil	Width 1.80m Length 1.90m+ Depth 0.19m	F401

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4006	Mid brown silty clay, poorly sorted mix with redeposited clay, interpreted as topsoil on the southern side of the trench disturbed during cleaning out of the ditch.	Deposit – Top Soil Mix	0.00-0.40m	–
4007	Dark brown black silty clay, observed in the south end of the trench (same context as 4005). Finds included a small fragment of worked limestone, originally part of a door or window surround.	Deposit - Subsoil	Width 1.80m Length 1.90m+ Depth 0.19m	–
4008	Dark brown silty clay, soft and damp, comprising an active drainage ditch. Tertiary deposit of recently recut ditch [4012] likely to have silted post-development of adjacent Guesten Hall.	Fill of recut Ditch [4012]	Width 1.30m Length 1.90m+ Depth 0.52m	F401
4009	Soft blue grey clay, similar context as deposit (4015) , had likely formed as water settled in the moat as standing water on the north side of the ditch. Occasional tile found impressed into context edge and charcoal, and a small quantity of modern porcelain also recovered. Truncated by later recut [4012] .	Deposit	Width 0.40m Length 1.90m+ Depth 0.60m	F401

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4010	Mid orange brown silty clay in the south end of the trench with a large quantity of roof tile, including some that dated to the early post-medieval period and other building debris, including occasional fragments of limestone and mortar.	Deposit	Width 2.00m Length 1.90m+ Depth 0.60m	F401
4011	Main cut of moat, Likely to be same as 4013 (cut on southern side). Feature boundary was extremely diffuse, identified only at the northern end of the feature, it became evident through excavation that the feature was too deep to fully excavate within the logistics of the trench.	Cut of Moat	Width 12m+ Length 1.90m+ Depth 4.40m+	F401
4012	Result of cleaning out of ditch to create drainage feature during redevelopment of the Guesten Hall. Machine cut, probably in the 1980s. Characterised by a sharp break of slope, with a gradual base and concave sides. Filled by (4014 and 4008)	Cut of Ditch	Width 12m+ Length 1.90m+ Depth 4.40m+	F401

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4013	Main cut of moat on south side of trench, likely to be same as [4011] (cut on northern side).	Cut of Moat	Width 12m+ Length 1.90m+ Depth 4.40m+	F401
4014	Dark grey brown silty clay, with organic content, comprising the secondary deposit within the recut ditch. Undressed limestone fragment found in this context.	Fill of recut Ditch [4012]	Width 1.30m Length 1.90m+ Depth 0.60m	F401
4015	Soft blue grey clay, similar context as deposit (4009) , had likely formed as water settled in the moat as standing water on the south side of the ditch. Occasional tile found impressed into context edge dated to the early post-medieval period and charcoal. Truncated by later recut [4012 & 4015] .	Deposit	Width 0.40m Length 1.90m+ Depth 0.40m	F401
4016	Soft blue yellow sandy clay, containing occasional brick and tile. Primary deposit within recut ditch.	Fill of recut Ditch [4012]	Width 0.60m Length 1.90m+ Depth 0.20m	F401
4017	Mid grey silty clay, with occasional tile.	Fill of recut Ditch [4018]	Width 0.80m Length 1.90m+ Depth 0.20m	F401

Trench 4	Dimensions: 12m x 1.9m X m/Max. Depth 4.5m+			
	Orientation: N-S			
	Reason for Trench: to characterise and recover dating evidence from the moat feature to the rear of the Guesten Hall			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
4018	The first visible recut of the moat, also likely to be the result of cleaning out of ditch to create drainage similar to [4012] . Machine cut, with straight, vertical sides, characterised by a sharp break of slope, with a gradual base and concave sides. Filled by (4017) and truncated by later ditch cut [4012] .	Cut of Ditch	Width 0.80m Length 1.90m+ Depth 0.20m	F401
4019	Mid yellow brown clay, identified on the northern side of the ditch, containing tile and chalk fragments.	Deposit	Width 2.00m Length 1.90m+ Depth 0.60m	F401
4020	Blue grey deposit, with fine chalk and flint inclusions, originally forming as a water lain deposit as part of the main moat feature. A small piece of natural wood was identified at the base, indicating that it was not natural. This deposit was not fully excavated to the depth and logistical constraints of the trench.	Deposit	Width 6.00m Length 1.90m+ Depth 1.60m+	F401

Trench 5	Dimensions: 5.5m x 3m/Max. Depth 1.1m+			
	Orientation: N-S			
	Reason for Trench: to assess geophysical anomaly in car park			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
5001	Topsoil deposit. Mid Grey-Brown, sandy silt with occasional small sub- rounded pebbles. Relatively shallow deposit, barely thicker than the turf, coming straight down on to archaeology with no subsoil. Finds included white porcelain, occasional pieces of slag, oyster shell, and a modern nail.	Deposit – Top Soil	Width: 5.50+ Length: 3.00+ Depth: 0.15	–
5002	Compact, mid yellow brown silty clay with frequent cobbles predominantly on the western side of the feature), broken bricks and mortar inclusions (predominantly on the west of the feature). This was interpreted as a yard or outdoor working surface, set into cut [5013] .	Deposit	Width 3.00m Length 0.60m+ Depth 0.12m+	F501

Trench 5	Dimensions: 5.5m x 3m/Max. Depth 1.1m+			
	Orientation: N-S			
	Reason for Trench: to assess geophysical anomaly in car park			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
5003	Mid yellow brown silty clay, 75% of which was formed by angular flint cobbles, set into a circular foundation trench for a later post-medieval agricultural building. No bonding was observed between the cobbles, though post-medieval pottery and fragments of slate were recovered from the surface of this deposit, a horseshoe and blue and white glaze pottery.	Deposit	Width 3.00m Length 0.60m+ Depth 0.12m+	F501
5004	Mid yellow brown clay silt with frequent chalk flecks, forming the internal surface of the circular structure. Finds included a small quantity of slag, white porcelain, and modern glass and corroded nails.	Deposit	Width 3.00m Length 0.60m+ Depth 0.09m+	F501
5005	Irregular and shallow linear cut into which floor surface (5002) had been set. As this feature was not excavated the full depth and profile is unknown. Filled by (5002) .	Cut of yard surface	Width 3.00m Length 0.60m+ Depth 0.12m+	F501

Trench 5	Dimensions: 5.5m x 3m/Max. Depth 1.1m+			
	Orientation: N-S			
	Reason for Trench: to assess geophysical anomaly in car park			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
5006	Cut for a circular foundation trench for a later post-medieval agricultural building. As this feature was not excavated the full depth and profile is unknown. Filled by (5003) .	Cut of foundation trench	Width 3.00m Length 0.60m+ Depth 0.12m+	F501
5007	Mid yellow brown clay silt layer of rubble, extending across the trench, with moderate charcoal flecks and chalk fragments. Deposit forms diffuse boundary with (5009 & 5008) and was numbered differently due to the higher concentration of broken bricks in this area. Small quantity of shell and slag recovered.	Deposit	Width 3.00m+ Length 0.80m Depth 0.12m	F501
5008	Mid brown clay layer, predominantly composed of broken and crushed CBM, including brick and roof tile fragments dating to the late medieval to early post-medieval periods, concentrated in the eastern part of the trench, with diffuse boundaries into adjacent deposits (5009 & 5007) . Slag, modern glass and a small piece of oyster shell also recovered.	Deposit	Width 0.60m+ Length 0.80m Depth 0.09m	F501

Trench 5	Dimensions: 5.5m x 3m/Max. Depth 1.1m+			
	Orientation: N-S			
	Reason for Trench: to assess geophysical anomaly in car park			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
5009	Mid yellow brown sandy silt, comprising the fill of linear ditch feature [5012] extending East-West across the trench. Deposit contained large quantity of debris with no obvious origin, including slag, charcoal, and corroded nails. Two body sherds, (green glazed) and 1 unglazed rim sherd recovered from this context.	Fill of Ditch [5012]	Width 1.00m Length 3.00m+ Depth 0.36m	F502
5010	Mid brown sandy silt deposit, predominantly broken tile, concentrated in centre of trench, with diffuse boundary with adjacent deposits (5007) . Deposit only observed in plan, so full extent and depth unknown.	Deposit	Width 1.00m Length 3.00m+	F501
5011	Mid yellow brown silty clay, with frequent fragments of mortar and CBM. This deposit was localized in the western edge of the trench and only observed in plan, so full extent and depth unknown.	Deposit	Width 0.80m Length 1.00m+	

Trench 5	Dimensions: 5.5m x 3m/Max. Depth 1.1m+			
	Orientation: N-S			
	Reason for Trench: to assess geophysical anomaly in car park			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
5012	Ditch feature running east-west across trench, with steep sides, a rounded base and a sharp break of slope at the top of the feature. Feature appeared to truncate the floor surface and centre of the main structure, probably a later drainage feature.	Cut of Ditch	Width 1.00m Length 3.00m+ Depth 0.36m	F502
5013	Light yellow brown sandy clay, containing occasional small sub rounded pebbles and flint. This is likely to be the original natural surface, levelled in advance of constructing the main circular identified in this trench. Deposit observed in section and plan. 1 body sherd recovered from this context.	Deposit	Width 1.00m+ Length 3.00m+ Depth 0.14	F501
5014	Mid orange brown clay - unmodified natural subsoil. Deposit was identified in small sondage extended from section exposing feature [5012] .	Deposit – Natural Subsoil	Width 1.00m+ Length 3.00m+	–

Trench 6	Dimensions: 25m x 1.7m/Max. Depth 0.39m			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW field: no archaeological finds or features recorded in this trench			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
6001	Mid grey-brown sandy silt with occasional small sub-rounded/sub-angular stones. A small quantity of modern pottery including 1 blue glaze, 1 stoneware and 1 'pan yan' lid recovered from this context, and a post medieval pipe stem.	Deposit – Top Soil	0.00-0.22	–
6002	Mid brown yellow sandy silt, with frequent chalk, sub-rounded pebbles and building debris, comprising modern dump deposit associate with recent building or clearance.	Deposit	Width 1.70m+ Length 4.68m+ Depth 0.30m+	–
6003	Grey brown sandy silt deposit, underlying dump deposit (6002) including small, sub angular pebbles and occasional charcoal flecks. Recent buried topsoil layer.	Deposit	Width 1.70m+ Length 7.00m+ Depth 0.20m+	–
6004	Mid yellow/orange brown sandy clay, with small sub-rounded pebbles. Deposit identified in section, and observed throughout trench.	Deposit – Natural Subsoil	Width 1.70m+ Length 7.00m+ Depth 0.45m+	–

Trench 6	Dimensions: 25m x 1.7m/Max. Depth 0.39m			
	Orientation: NE-SW			
	Reason for Trench: To assess earthworks in NW field: no archaeological finds or features recorded in this trench			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
6005	Mottled grey green silty clay, with occasional charcoal flecks, possibly the result of standing water forming in situ, and associated with the water movement from adjacent earthworks excavated in Trenches 1, 2 and 3.	Deposit	Width 1.70m Length 7.00m+ Depth 0.26§m+	—

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7000	Mid grey-brown sandy silt with occasional small sub-rounded/sub-angular stones, encompassing the entire trench. Vegetation in this area was fairly rough, positioned at the edge of the main visitor attraction. Pottery dating to the 16 th to 17 th centuries (4 mixed body sherds) and 21 small fragments of animal bone were recovered from this context. A small pendant, likely to be early modern was also recovered (SF98). Deposit also included CBM, mortar, and occasional small fragments of dressed limestone, probably from window surrounds.	Deposit – Top Soil	0.00-0.12	

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7001	Light grey brown sandy silt, firm and compact, encompassing the entire trench. Subsoil deposit, with a mix of rubble, clinker, slag, modern glass, corroded ferrous objects (predominantly nails), slate, CBM ranging in date from early post-medieval to 18 th to 19 th Century, mortar and flint cobbles, porcelain, modern bottle tops, small oyster shells, buttons, small glass medicine bottle, and 22 small potsherds recovered from this context. A small early modern pendant was also recovered (small find 5).	Deposit – Subsoil	Width 5.00+ Length 2.70+ Depth 0.12-0.23	–
7002	Mid to Dark grey brown clay sand, with frequent charcoal, and frequent fragments of CBM and clinker. Deposit localised to the northeastern part of the trench (step 3), and extending beyond the limit of excavation. Overlies Deposit (7004). A lead alloy Papal Bulla (SF97) of Pope Clement VI dating between 1342 and 1352 was recovered from this context.	Deposit	Width 1.80m+ Length 0.9m+	–

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7003	Mid yellow brown grey fill of channel, constructed for drainage purposes. Recorded in plan in the north west of the trench (step 1 & 2), including large quantities of building rubble, cobbles, slate and CBM. Overlies Deposit (7004) . 7 fragments of animal bone & 2 tooth fragments recovered from this context.	Deposit	Width 1.25m+ Length 2.30m+ Depth 0.10m+	—
7004	Mid black/brown fine clay sand with frequent inclusions of modern brick and poorly sorted rubble with frequent air pockets. Finds included heavily corroded metal, modern glass, unidentifiable rubber, porcelain, and occasional shell. One of a number of interleaving dump layers in this part of the site, this deposit extends across whole trench. Overlies Deposit (7005) .	Deposit	Width 2.7m Length 5.0m+ Depth 0.20m+	—

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7005	Mid yellow brown fine clay sand, with frequent mortar, CBM, slate, limestone fragments, modern glass, porcelain, corroded ferrous objects (nails and modern garden tools), roof tile dating between the 16 th and 17 th centuries, 3 clay pipe steps and general debris inclusions. Deposit exposed in section, and is thought to extend across much of the trench. 3 animal bone pieces and 1 tooth were recovered from this context.	Deposit	Width 0.60m+ Length 4.40m+ Depth 0.20m+	—
7006	Mid yellow silty clay, with frequent chalk flecks and rubble inclusions. Same deposit as (7012) , deposit exposed in section at south end of trench (step 1 & 2).	Deposit	Width 0.70m+ Length 2.40m+ Depth 0.20m	—
7007	Mid brown yellow sandy clay, with frequent chalk inclusions. Layer localised in central part of section (step 2), and exposed in plan.	Deposit	Width 0.60m+ Length 0.65m Depth 0.10m	—

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7008	Mid grey brown sandy clay, with frequent mortar, rubble, CBM in a 'dumped' concentration in the centre of the trench (step 2). Deposit observed in plan, but depth unknown.	Deposit	Width 0.40m+ Length 1.15m Depth 0.10m	—
7009	Light yellow brown with a high concentration of lime mortar, overlain by deposit (7011), similar composition to deposit (7015). 5 mixed pottery sherds and multiple animal bone pieces, teeth and smaller fragments recovered from this context. Deposit identified in step 3, and was truncated by canine grave.	Deposit	Width 0.75m+ Length 1.15m+ Depth 0.20m+	—
7010	Mid black brown silty clay demolition dump layer, overlying (7011) and below (7005). Contains frequent CBM and mortar.	Deposit	Width 0.75m+ Length 2.50m+ Depth 0.20m+	—

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7011	Mid grey brown clay sand, overlain by deposit (7010) . Multiple animal bone pieces, teeth and smaller fragments, a floor tire piece dating to the 17 th to 18 th Centuries and mixed pottery sherds were recovered, in addition to a Jetton (SF95) – continental, probably 15 th Century (Tounai).	Deposit	Width 0.65m+ Length 3.10m+ Depth 0.30m	–
7012	Mid yellow clay silt, compact, with frequent mortar and clay inclusions. Abuts deposits (7008 & 7006) , overlies (7010) band is similar in composition to deposit (7007) .	Deposit	Width 1.40m+ Length 2.40m+ Depth 0.20m	–
7013	Mid orange brown clayey sand, poorly sorted, containing articulated canine skeleton with grave cut edged with large cobbles. Recorded in step 3.	Fill of Pit [7014]	Width 0.60m Length 0.87m Depth 0.26m	F701
7014	Oval shaped grave cut, with vertical sides and a sharp break of slope to the top and bottom. Feature appeared to truncate all earlier dump deposits. Filled by deposit (7013) and recorded in step 3.	Cut of Pit	Width 0.60m Length 0.87m Depth 0.26m	F701

Trench 7	Dimensions: 5m x 2.7m/Max. Depth 0.45m			
	Orientation: N-S			
	Reason for Trench: To assess geophysical anomalies, and evidence for former building			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
7015	Mid grey black grey black clay, with lime mortar inclusions, localized in the eastern section (step 3) and is probably a dump deposit. Above deposit (7016) and below (7011) . 1 glazed body sherd 10 (approx.) bone fragments. Medieval Coin – sterling silver penny, hammered, probably Edward I-III (1272-1377)	Deposit	Width 0.90m Length 0.52m Depth 0.16m	–
7016	Light yellow brown sandy clay, with lime mortar inclusions, levelled surface, likely to be part of the original construction cut for the building. A diffuse boundary was observed with the underlying natural subsoil, suggesting a degree of trample. Deposit was observed in section and plan in the northeastern part of the trench, and was presumed to extend across the entire trench.	Deposit	Width 0.65m+ Length 3.60m+ Depth 0.08m	–
7017	Mid yellow brown sandy clay, observed in 'Step 3' and presumed to extend across the entire trench.	Deposit – Natural Subsoil	Width 0.65m+ Length 3.60m+	–

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8001	Topsoil layer of loose mid grey-black topsoil.	Top soil deposit	Width: 1.60+ Length: 4.40+ Depth: 0.15	–
8002	Back fill of a possible previous trench [8003] . Filled with fairly loose mid black-brown clayey silt with occasional mortar fragments, rounded sub-angular small-medium pebbles and occasional charcoal fleck inclusions. Ceramic tiles recovered were of a mix of dates from Medieval to 18 th – 19 th Centuries.	Back Fill of previous trench [8003]	Width: 1.60+ Length: 4.40+ Depth: 0.21	F802
8003	Cut of previous excavation trench in 1980s. Shape and corners unknown as not fully revealed. Break of slope at top is sharp with vertical sides, sharply leading to a flat base.	Cut of previous trench	Width: u/k Length: u/k Depth: u/k	F802
8004	Back fill from previous excavation trench in 1980s [8003] . Filled with firm dark black-brown clayey silt with moderate sub-angular chalk clast inclusions.	Backfill of previous trench [8003]	Width: 0.40+ Length: 1.40+ Depth: 0.10	F802

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8005	Backfill from 1980s excavation trench [8003]. Filled with firm light brown-grey silty clay with frequent mortar and chalk inclusions.	Backfill of previous trench [8003]	Width: 0.80+ Length: 1.00+ Depth: 0.21	F802
8006	Side course of a reconstructed drain. Materials are flint nodules and occasional brick of variable size - 0.10 x 0.07m. Stones are whole and roughly faced, randomly uncoursed and bonded with concrete (mid brown-grey sand and occasional small rounded pebble). Faces E-W	Side course of drain - Masonry	Width: 0.36 Length: 3.22 Depth: 0.25	F801
8007	Floor of a reconstructed drain. Material is stone of variable size - 0.30 x 0.26 m, 0.23 x 0.13m with roughly faced/hewn stones, random uncoursed and bonded with mid-brown grey, sand, occasionally small rounded stone, concrete.	Stone floor of drain - Masonry	Width: 0.66 Length: 3.86 Depth: n/a	F801

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8008	Post-medieval/modern opening for a drain. Made of stone of 0.20 x 0.20m and 0.16 x 0.19 m with square and faced finished, bonded by cement, mid brown-grey, sand.	Stone plinths - Masonry	Width: 0.83 Length: 0.40 Depth: n/a	F801
8009	Blocking of drain opening [8008], as part of the construction of F801 . Materials are stone and flint nodules of variable sizes - 0.17 x 0.17 m, 0.09 x 0.09m and variable finish - fair faced, square and whole. Random and uncoursed, south facing and bonded with cement, mid brown-grey, sand.	Ministry of Works blocking feature - Masonry	Width: 0.68 Length: 0.40 Depth: n/a	F801
8010	Post medieval door outline cut into the wall after the dissolution. Filled with two phases of blocking (8011 & 8012).	Post medieval door - Masonry	Width: 1.60 Length: 2.50 Depth: n/a	F803

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8011	Primary blocking masonry of post-medieval door cut [8010] with stone, flint nodule and CBM materials of variable sizes - 0.34 x 0.15m, 0.20 x 0.12m, and 0.12 x 0.05m. Finish of stones is variable - squared, faced, roughly hewn, random coursing and bonded with lime mortar, yellow grey, frequent sub-angular grit. Faces are N and S.	Blocking masonry of door 8010	Width: 1.27 Length: 1.86 Depth: n/a	F803
8012	Secondary blocking masonry of door [8010] - made of brick sized 0.06 x 0.21 x 0.09m. Square finish with English coursing and bonded with cement (grey-yellow, frequent sub-angular grit). Facing North and South.	Blocking masonry of door 8010	Width: 1.34 Length: 0.68 Depth: n/a	F803
8013	Supporting arch associated with the latrines during the monastic phase of the building. Material is stone of variable size - 0.25 x 0.20m, 0.31 x 0.15m. Squared finish. Bonding material could not be determined. Facing south.	Arch of medieval drain (?) - masonry	Width: 0.31 Length: 0.61 Depth: n/a	F805

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8014	Wall of monastic latrine. Materials - flint nodules, stone and brick. Flint nodules are variable size c. 0.10 x 0.10m. Stone is 0.20 x 0.12 and brick is 0.21 x 0.06 x 0.09. Stones unfinished, whole and fair faced with random coursing. Bonding material is mortar - yellow-grey, frequent sub-angular grit and chalk.	Wall of monastery - masonry	Width: Length: 7.50 Depth: n/a	F805
8015	Fill of cut [8016]. Filled with soft mid brown-grey clayey silt with frequent sub-angular mortar fragments and chalk clast inclusions.	Fill of [8016] - possibly associated with construction of wall or drain	Width: 0.22 Length: 0.60 Depth: 0.33	F804
8016	Cut of footing. Shape unknown - not fully revealed in trench but probably rectangular with rounded corners. Sharp break of top of slope with vertical sides sharply leading to a flat base. Orientation unknown with no inclination. Could be associated with wall crossing. Possibly associated with construction of wall or drain.	Cut of footing	Width: 0.22 Length: 0.60 Depth: 0.33	F804
8017	Natural layer of compact mid brown-yellow clay brickearth.	Natural layer	Width: 1.60+ Length: 4.40+ Depth: n/a	

Trench 8	Dimensions: 1.60 x 4.40 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
8018	Cut for possible stone relating to drain. Circular in shape with rounded corners. Break at top of the slope is gentle on south-west side and sharp on east and north. Sides are vertical on all sides but gently sloping on SW side to a flat base. Orientation is roughly E-W.	Cut for possible stone relating to drain	Width: 0.33 Length: 0.33 Depth: 0.11	—
8019	Cut for stone. Circular in shape with round corners. Fairly gentle top of slope on north side and sharp on all others, sides are gently sloping on north side and vertical on all others. Base has a gentle slope up to the north side. Orientation is E-W with vertical inclination.	Cut for stone	Width: 0.40 Length: 0.40 Depth: 0.22	—
8020	Construction cut for reconstructed drain feature F801 . Linear in shape with a sharp break of slope at the top, gradual sides imperceptibly leading to a rounded point. Oriented N-S with no inclination.	Construction cut for reconstructed drain feature (F801)	Width: Length: Depth:	F801

Trench 9	Dimensions: 3.00 x 3.00 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			

Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
9001	Layer of loose mid grey-black topsoil.	Topsoil deposit	Width: 3.00+ Length: 3.00+ Depth: 0.27	—
9002	Firm mid brown-yellow mottled layer with chalk fleck inclusions. Fragments of Medieval ceramic tile were recovered from this layer	Mottled back fill layer	Width: 3.00+ Length: 3.00+ Depth: 0.42	—
9003	Layer of backfill filling [9017] . Filled with soft to firm mid black-brown clayey silt with occasional sub-angular chalk clast inclusions. Fragments of floor and roof tile dating to Medieval and early post-medieval periods were recovered.	Back fill layer , fill of [9017]	Width: 1.63+ Length: 0.8+ Depth: n/a	F902
9004	Layer of backfill filling post-medieval midden pit [9014]. Filled with firm dark black-brown clayey silt with moderate to small sub-angular chalk clast inclusions.	Backfill layer - Fill of post medieval midden pit [9014]	Width: 0.80 Length: 1.40 Depth: n/a	F903
9005	Fill of pit [9016] . Filled with firm mid yellow-brown silty clay with moderate inclusions of small-medium CBM flecks and sub-angular chalk clasts. Floor and roof tile fragments recovered from this context dated between medieval and early post medieval periods.	Backfill - Fill of post-medieval rubbish pit [9016]	Width: 1.80+ Length: 1.40+ Depth: 0.80	F904

Trench 9	Dimensions: 3.00 x 3.00 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
9006	Fill of pit [9007] . Filled with firm mottled yellow-brown silty clay with occasional small rounded pebble inclusions. Roof tile fragments recovered from this context dated between medieval and early post medieval periods.	Fill of pit [9007] . Slump of pit edge.	Width: 1.40+ Length: 1.70+ Depth: 0.50	F901
9007	Cut of post-medieval midden pit, unknown shape, likely circular with a gradual break of slope at the top, gradual sides leading sharply to a flat base. Orientation is unknown. [9007] truncates pit [9017] . Not fully excavated.	Cut of post-medieval midden pit	Width: 1.40+ Length: 1.70+ Depth: 0.50	F901
9008	Fill of post-medieval midden pit [9009] . Filled with firm dark brown-black clayey silt with occasional inclusions of charcoal flecks. (9008) is equal to (9013) . A range of floor and roof tile fragments were recovered which dated to both the 13 th – 15 th centuries and between the late medieval and early post-medieval periods.	Fill of post-medieval midden pit [9009]	Width: 0.85+ Length: 1.30+ Depth: 0.16	F905

Trench 9	Dimensions: 3.00 x 3.00 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
9009	Cut of gully, linear in shape with no corners. Break of slope at the top is gradual, with gradual sides sharply leading to a rounded base. Oriented N-S. It was not possible to see truncation on eastern side, with the cut starting to bowl out suggesting widening of the channel. The cut is in line with the reconstructed drain in Trench 8 F801 . The drain is filled with post medieval fill suggesting it was open. Large amount of tile was found at the bottom of the drain and pit [9016] suggesting the drain may have been lined.	Cut of gully. Possible cut for drain associated with monastic phase of the site.	Width: 0.74+ Length: 1.06+ Depth: 0.31	F905
9010	Fill of pit [9007] . Filled with soft dark brown-black clayey sit with moderate inclusions of charcoal flecks.	Fill of post-medieval midden pit [9007]	Width: 0.28+ Length: 0.47+ Depth: n/a	F901
9013	Fill of gully [9009] . Filled with soft, dark black-brown clayey silt with occasional inclusions of charcoal flecks. (9013) is equal to (9008) .	Fill of gully [9009]	Width: 0.74+ Length: 1.06+ Depth: 0.15	F905
9014	Cut of pit (unexcavated). Shape not fully revealed in trench, probably sub-rectangular with rounded right-angle	Cut of unexcavated pit - probably post-medieval	Width: 0.58 Length: 1.44 Depth: n/a	F903

Trench 9	Dimensions: 3.00 x 3.00 metres			
	Orientation: N-S			
	Reason for Trench: To re-record previously unpublished trenches from excavations in the 1980s			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	corners.			
9015	Natural layer filled with compact mid brown-yellow to light brown-yellow brickearth clay and concreted sands with moderate to frequent inclusions of sub-angular chalk clasts.	Natural layer	Width: 1.05+ Length: 0.6+ Depth: n/a	–
9016	Cut of post-medieval rubbish pit. Shape is not fully revealed in trench, probably sub-rectangular with rounded right-angle corners. Profile and extent of pit are unknown due to trench size and time. Orientation and inclination are also unknown. [9016] is truncated on the west by pit [9007] and on the east by pit [9017].	Cut of post-medieval rubbish pit	Width: 1.74+ Length: 1.40+ Depth: n/a	F904
9017	Cut of pit. Shape not fully revealed in plan, but probably sub-rectangular. Cut was not excavated. [9017] truncates pit [9016] but the relationship has not been confirmed.	Cut of pit (not excavated)	Width: 0.74 Length: 1.06 Depth: 0.31	F902

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
10001	Topsoil of loose to moderate mid-brown to dark grey sandy silt with inclusions of moderate charcoal flakes, occasional small sub-angular and sub-rounded pebbles, CBM flecks and chalk fragments.	Topsoil Deposit - Trench 10	Width: 4.00+ Length: 19.46+ Depth: 0.50	—
10002	Subsoil deposit filled with firm mid-brownish grey silty clay-brickearth with frequent small to medium stone inclusions.	Subsoil deposit	Width: 4.00+ Length: 19.46+ Depth: 0.12	—
10003	Ditch deposit filled with loose, mid-greyish brown clayey sand with inclusions of animal bone, charcoal, flint nodules, pebbles, oyster shell, clay pipe stem, chalk nodules, vegetation and CBM including a roof tile dating between the 13 th and 15 th Century. Not fully excavated.	Ditch Deposit	Width: 1.70 Length: 1.56 Depth: 0.05	F1005
10004	Bank deposit filled with firm, mid-yellow brown sandy clay with inclusions of moderate charcoal flecks, occasional small sub-angular pebbles and occasional chalk fragments. A number of ceramic tile fragments were recovered dating between the 13 th and	Bank deposit associated with the formation of ditch [10023]	Width: 1.80 Length: 1.90 Depth: 0.30	F1005

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	15 th Centuries.			
10005	Cut of posthole sub-circular in shape with rounded corners, a steep break of slope at the top, vertical sides and tapering to a pointed base.	Cut of posthole	Width: 0.63 Length: 0.79 Depth: 0.53	F1001
10006	Fill of posthole [10005] . Filled with loose, dark brown silty clay with small pebbles.	Fill of posthole [10005]	Width: 0.56 Length: 0.79 Depth: 0.53	F1001
10007	Cut of posthole. Square in shape with fairly sharp corners, a sharp break of the top of the slope, vertical sides and gently sloping at the break of the slope to the base. Its orientation is NW to SE and it has a vertical inclination.	Cut of posthole	Width: 0.43 Length: 0.56 Depth: 0.32	F1002
10008	Fill of posthole [10007] . Filled with loose, mid-grey/brown silty clay with a small number of small flint stones.	Fill of posthole [10007]	Width: 0.26 Length: 0.26 Depth: 0.32	F1002

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
10009	Bank deposit filled with firm, mid-yellow brown sandy clay with inclusions of moderate charcoal flecks, occasional small sub-angular pebbles and occasional chalk fragments. A great amount of CBM was recovered tile fragments with dates ranging from medieval to post-medieval.	Bank deposit associated with the formation of ditch [10023]	Width: 2.37 Length: 4.00+ Depth: 0.27+	F1005
10010	Fill of posthole [10007] and surrounding (10008) . Filled with hard yellow/brown clay with flint stones and a small amount of charcoal, bone and CBM.	Fill of posthole [10007] - packing deposit surrounding post slot (10008)	Width: 0.60 Length: 0.67 Depth: 0.30	F1002
10013	Cut of a posthole, oval in shape with rounded corners, a sharp break of slope at the top. The slope is vertical on the NE side, with the rest of the sides at an angle of c. 60 degrees. Shallow break of slope to a flat base with a small indentation in it to the south side. The posthole is oriented East-West on length and is shallow and wide.	Cut of posthole	Width: 0.56 Length: 0.77 Depth: 0.30	F1003

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
10014	Fill of posthole [10013] . Filled with slightly compacted but reasonably loose mid-brownish yellow sandy clay with inclusions of flint nodules and a large iron nail.	Fill of posthole [10013]	Width: 0.44 Length: 0.55 Depth: 0.23	F1003
10015	Fill of posthole [10013] . Filled with hard yellow clay with flint nodules, one large animal tooth and two small charcoal flakes.	Fill of posthole [10013]	Width: 0.56 Length: 0.77 Depth: 0.30	F1003
10016	Cut of a posthole, oval in shape with irregular corners. Gradual break of slope at the top with concave sides that round out to a rounded base.	Cut of posthole	Width: 0.90 Length: 0.78 Depth: 0.40	F1004
10017	Fill of posthole [10016] . Filled with hard, dark brown silty clay with small pebbles and flint pieces.	Fill of [10016] - posthole fill	Width: 0.24 Length: 0.37 Depth: 0.39	F1004
10018	Fill of posthole [10016] . Filled with hard yellow/brown clay with flint stone inclusions and a small amount of charcoal, bone and CBM. This fill surrounds (10017) .	Fill of [10016] - posthole packing	Width: 0.91 Length: 0.81 Depth: 0.38	F1004

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
10019	Fill of ditch [10023] below (10004) . Filled with loose, soft mid-yellow greyish brown clayey sand with chalk, flint nodules, pebbles, shell, bone and charcoal inclusions of 15% ranging from angular to well rounded.	Fill of ditch [10023]	Width: 1.00 Length: 2.25 Depth: 0.55	F1005
10020	Fairly compact mid yellow-brown silty clay with CBM, bone, pot and flint inclusions.	Silty clay layer	Width: Length: Depth:	
10021	Cut of a posthole, circular in shape with rounded corners and a sharp break of slope at the top, vertical sides, a sharp break at the base leading to a pointed base. Inclination is NW/SE.	Cut of small posthole.	Width: Length: Depth:	
10022	Fill of posthole [10021] . Filled with loose, mid-yellowish brown silty sand with occasional flint nodules.	Fill of posthole [10021] .	Width: Length: Depth: 0.15	
10023	Rectangular ditch cut with no corners, a gradual break of slope at the top with a sharp break of slope to a blunt base. Oriented NE to SW.	Drainage ditch cut .	Width: 0.67 Length: 4.20+ Depth: 0.75	F1005
10024	Chalky layer south of ditch. Moderate mid-grey brown chalky clay mottled with white.	Chalky layer south of ditch (unexcavated).	Width: Length: Depth:	

Trench 10	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	Occasional sub-angular and rounded pebbles. Unexcavated. Possibly the same as (11022) .			

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
11001	Topsoil layer of loose to moderate mid-dark brownish grey sandy silt with flecks of charcoal and occasional sub angular and small sub rounded pebbles.	Topsoil Deposit - Trench 11	Width: 4.00 Length: 20.00 Depth: 0.27	—
11002	Subsoil layer of firm mid brownish grey silty brickearth with frequent small to medium stone inclusions	Subsoil deposit	Width: 4.00 Length: 20.00 Depth: 0.32	—
11003	Gully cut. Linear shape with no corners. Break of slope is sharp at top with vertical sides and a gradual slope to a rounded base. Orientated NE-SW.	Cut of Gully	Width: 0.27 Length: 0.46+ Depth: 0.25	F1103
11004	Fill of gully [11003] . Filled with coarse grained loose dark grey-black silt with 20% charcoal and occasional small stone inclusions.	Fill of Gully [11003]	Width: 0.25 Length: 0.46+ Depth: 0.25	F1103

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
11005	Cut of Gully. Linear in shape with no corners. Fairly steep break of slope at the top with straight, steep sides and a steep break of slope to a rounded base. Orientation is NE-SW.	Cut of gully	Width: 0.55 Length: 1.07+ Depth: 0.35	F1101
11006	Fill of gully [11005] . Filled with firm-plastic mid-dark brownish grey sandy clay. Inclusions include occasional small pieces of charcoal, lots of variously sized flint and occasional small chalk pieces. Roof and floor tile fragments (including SF3) recovered from this fill were dated to the 13 th – 15 th Centuries.	Fill of Gully [11005]	Width: 0.55 Length: 1.07+ Depth: 0.35	F1101
11007	Cut of pit. Oval in shape with rounded corners and a sharp break of slope at the top, concave sides, leading to a concave base. Oriented along long axis NW. Truncates deposit (11004) of gully [11003].	Cut of pit	Width: 0.74 Length: 0.89 Depth: 0.27	F1104
11008	Fill of pit [11007] . Filled with friable mid-yellowish brown-grey clayey silt with occasional to frequent charcoal and occasional flint inclusions.	Fill of Pit [11007]	Width: 0.74 Length: 0.89 Depth: 0.27	F1104
11009	Layer of upcast	Layer of upcast	Width: 5.00+	F1102

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
	material from ditch [11010] defined by firm-compact mixed mid-brownish grey to light greyish-brown silty clay. Inclusions of frequent charcoal flecks, chalk and CBM fragments dating to the medieval and post-medieval periods. Slumped on southern edge and now overlaying top fill of ditch [11010] due to ploughing.	material from [11010] creating bank to south of ditch.	Length: 4.00+ Depth: 0.90+	
11010	Linear cut with no corners, a sharp break of slope at the top with steep sides, gradually leading to a rounded base. Orientated NW-SE with a slight inclination.	Cut of NW-SE ditch.	Width: 1.23 Length: 1.20+ Depth: 0.57	F1102
11011	Fill of ditch [11010] . Filled with firm mid-greyish brown silty clay with occasional charcoal flecks, frequent medium sub-angular stone and sub-rounded stone. Very occasional chalk flecks. Ceramic tiles recovered were dated from 13 th -15 th Century to early post-medieval period.	Fill of gully [11010]	Width: 1.14 Length: 4.00+ Depth: 0.39	F1102

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
11012	Pit cutting (11008) . Sub ovular in shape with no corners. Sharp break of slope at top with steep sides and sharp break of slope to rounded base. Truncates deposit (11008) in pit [11007] .	Cut of small pit cutting (11008) and (11004) of gully [11003]	Width: 0.65 Length: 0.37 Depth: 0.36	F1105
11013	Fill of pit [11012] . Filled with friable greyish brown silty clay with occasional flint pebble and charcoal inclusions. Ceramic tiles recovered dated to the medieval and post-medieval periods.	Fill of pit [11012]	Width: 0.65 Length: 0.37 Depth: 0.36	F1105
11014	Cut of posthole. Oval in shape with no corners and a sharp break of slope at top to vertical sides, gradually leading to a flat base. Orientated with long axis North.	Cut of posthole contained within pit [11003] .	Width: 0.37 Length: 0.42 Depth: 0.18	F1107
11015	Fill of possible posthole [11014] . Filled with soft greyish brown silty clay with occasional flint inclusions. The bottom is densely packed with large stones, flint and CBM, including a floor tile (SF9) dating to the 13 th Century.	Fill of Posthole [11014]	Width: 0.37 Length: 0.42 Depth: 0.18	F1107

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
11016	Posthole, ovalish shape with no corners. Sharp break of slope at top leading to vertical sides gradually leading into a rounded base.	Cut of Posthole	Width: 0.50 Length: 0.53 Depth: 0.35	F1106
11017	Fill of posthole [11016] . Filled with loose mid-brownish grey silty clay with stone and flint inclusions. Roof tile fragments were dated to the medieval period.	Fill of posthole [11016]	Width: 0.50 Length: 0.53 Depth: 0.35	F1106
11018	Gully cut. Linear shape with no corners. Sharp break at top of slope with concave sides leading gradually to a rounded base. Orientation is NW-SE.	Gully cut	Width: 0.26 Length: 0.50 Depth: 0.12	F1102
11019	Fill of Gully [11018] . Filled with firm mid-brownish grey silty clay with occasional flecks of chalk, medium flint and broken tile fragments.	Fill of gully [11018]	Width: 0.27 Length: 0.27 Depth: 0.12	F1102
11020	Linear gully cut with gradual break of slope, moderately sloped sides leading gradually to a rounded base. Orientation SW-NE. Inclination 200mm on SW side to 160mm at NE end.	Gully cut	Width: 0.23 Length: 0.76 Depth: 0.16	F1101

Trench 11	Dimensions: 4.00 x 20.00 metres			
	Orientation: NW-SE			
	Reason for Trench: To investigate how the earthworks to the West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
11021	Fill of gully [11020] . Filled with friable, dark brownish grey sandy silt with moderate flecks of small chalk, occasional flecks of charcoal and pieces of small-medium flint, moderate amounts of variously sized tile & brick fragments.	Fill of gully [11020]	Width: 0.23 Length: 0.76 Depth: 0.16	F1101
11022	Chalk and clay layer. Firm-plastic, light-brownish grey silty clay with very frequent chalk inclusions.	Chalk and clay layer . Possible layer of packing for track way/entrance.	Width: 4.00 Length: 8.00 Depth: 0.27	
11023	Fill of ditch [11010] . Filled with firm light, light brownish grey silty clay with c. 30% chalk inclusions.	Fill of ditch [11010]	Width: 0.87 Length: 4.00+ Depth: 0.13	F1102
11024	Fill of ditch [11010] . Filled with friable mid-brownish grey silty clay with occasional small stones.	Fill of ditch [11010]	Width: 0.42 Length: 4.00+ Depth: 0.09	F1102

Trench 12	Dimensions: 19.00 x 1.80 metres			
	Orientation: E-W			
	Reason for Trench: To investigate how the earthworks to the North West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
12001	Topsoil deposit. Filled with loose to moderate mid brownish-grey sandy silt with moderate small sub-angular stones and some chalk flecks. Archaeologically sterile. (12001) goes directly onto natural layer.	Topsoil Deposit	Width: 1.80 Length: 19.00 Depth: 0.34	

Trench 13	Dimensions: 19.00 x 1.80 metres			
	Orientation: E-W			
	Reason for Trench: To investigate how the earthworks to the North West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
13001	Topsoil deposit filled with loose to moderate mid brown-grey sandy silt with inclusions of large and medium sub-angular stones and chalk flecks.	Topsoil deposit	Width: 3.30 Length: 5.50 Depth: 0.23	–
13002	Subsoil filled with loose mid greyish-brown sandy clay with a few chalk fleck and flint inclusions.	Subsoil deposit	Width: 3.00+ Length: 1.60+ Depth: 0.34	–

Trench 13	Dimensions: 19.00 x 1.80 metres			
	Orientation: E-W			
	Reason for Trench: To investigate how the earthworks to the North West of the scheduled area were used and what functions and activities took place			
Context	Description	Interpretation/ Process of deposition	Dimensions (m)	Feature
13003	Fill of natural water channel [13006] . Filled with fairly loose mid-brown grey sandy clay with occasional chalk and charcoal and med. Frequent flint, pot, iron nail and slag inclusions.	Fill of natural water channel [13006]	Width: 3.00+ Length: 1.60+ Depth: 0.22	F1301
13004	Fill of water channel [13006] . Filled with fairly compact mid-orange brown silty clay with occasional chalk flakes and med flint.	Fill of water channel [13006]	Width: 3.00+ Length: 1.60+ Depth: 0.35	F1301
13005	Fill of water channel [13006] . Filled with fairly compact mid-bluish grey silty clay with frequent chalk and occasional flint inclusions.	Fill of water channel [13006]	Width: 3.00+ Length: 1.60+ Depth: 0.40	F1301
13006	Cut of water channel. Rectangular in shape with no corners. Break of slop is gently sloping to a fairly flat base. Orientation NNW-SSE with no inclination or trunking.	Cut of water channel	Width: 10.00+ Length: 1.60+ Depth: 0.57	F1301

Appendix 2 – Palaeoenvironmental Quantification Table

Sample	Context	Feature type	Provisional dates	Charred plant remains									Uncharred/ Unmineralised plant remains									Significant taxa
				grains			Identifiable charcoal			Charcoal flecks			seed			Rootlets/ rhizomes			Wood fragments			
				a	d	p	a	d	p	a	d	p	a	d	p	a	d	p	a	d	p	
1	1007	Ditch	Med	-	-	-	1	-	2	-	-	-	1	1	1	3	1	1	-	-	-	identifiable charcoal
2	1012	Posthole	Med	-	-	-	3	-	2	-	-	-	-	-	-	3	1	1	-	-	-	identifiable charcoal
3	1018	Ditch	Med	1	1	3	2	-	2	-	-	-	-	-	-	3	1	1	-	-	-	charred grains and identifiable charcoal
6	1009	Ditch	Med	-	-	-	3	-	-	-	-	-	1	1	1	3	1	1	-	-	-	identifiable charcoal
18	11006	Gully	?	1	1	3	1	-	2	-	-	-	1	1	2	3	1	1	-	-	-	charred grain and identifiable charcoal
24	10015	Posthole	?Post-Med	1	1	3	1	-	2	-	-	-	-	-	-	3	1	1	-	-	-	charred grain and identifiable charcoal
25	10017	Posthole	?Post-Med	-	-	-	1	-	-	-	-	-	-	-	-	3	1	1	-	-	-	identifiable charcoal
26	10014	Posthole	?Post-Med	-	-	-	3	-	2	3	-	-	1	1	1	2	3	1	1	-	-	identifiable charcoal
33	11004	Gully	?	-	-	-	2	-	2	-	-	-	-	-	-	3	1	1	3	1	1	identifiable charcoal
34	11008	Pit	?	1	1	3	3	-	2	3	-	-	1	1	1	3	3	1	1	-	-	charred grains
36	10019	Ditch	?	1	1	3	2	-	2	3	-	-	1	1	1	2	3	1	1	-	-	charred grain and identifiable charcoal
41	8015	Part of wall or drain	?	1	1	3	1	1	2	3	-	-	1	1	1	3	2	1	1	-	-	charred grain and identifiable charcoal
42	1029	Burned layer	?	1	1	2	2	-	2	-	-	-	1	1	3	1	1	1	-	-	-	charred grain and identifiable charcoal
45	9013	Midden pit	Post-Med	-	-	-	2	-	-	3	-	-	-	-	-	3	-	-	-	-	-	identifiable charcoal -several large fragments
46	9008	Midden pit [9009]	Post-Med	1	1	1	-	-	-	1	-	-	1	1	3	3	-	-	-	-	-	1 detached grain embryo
48	1037	Ditch	prehist	-	-	-	-	-	-	1	-	-	1	1	3	3	-	-	-	-	-	
49	9008	Fill of pot from midden pit [9009]	Post-Med	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	identifiable charcoal

Appendix 3 – CBM Quantification Tables

Context	Type	Small find #	Comments	Count	Date range	Provenance
(1001)	Roof tile		Undiagnostic roof tile fragment	1	Unknown	Suffolk
(1004)	Pantile		Pink/orange fabric with small to medium gritty inclusions. Hand made	1	C18-19th	Suffolk
(4001)	Roof tile		Early post-medieval roof tile – pale pinkish orange fabric with occasional small-large inclusions.	2	C16th/17th?	Suffolk
(4001)	Roof tile		Medieval glazed roof tile	1	C13-15th approx.	Suffolk
(4001)	Brick		Brick fragment	1	Medieval	Suffolk
(4004)	Roof tile		Mid orange oxidised with a fine sand temper. Contains a square/rectangular hole suggesting a late medieval/early post medieval date.	1	Late medieval /early post-medieval (post 1480)	Suffolk
(4004)	Tile		Pale orangeish pink fabric with sparse gritty inclusions	1	Post-medieval ?	Suffolk
(4010)	Roof tile		Oxidised streaky pink/buff fabric. Undiagnostic.	1		Suffolk
(4010)	Roof tile		Partially reduced pinkish-brown fabric with a reduced red core	1	Early post-medieval ?	Suffolk
(4015)	Roof tile		Streaky buff/pink fabric with small-large inclusions. One sherd has the remains of an oblong nail hole	2	Early post-medieval (post 1480)	Suffolk
(4015)	Roof tile		Pinkish-orange oxidised roof tile with small-large gritty inclusions and remains of an oblong shaped nail hole	1	Early post-medieval (post 1480)	Suffolk
(5001)	Roof tile		Undiagnostic oxidised fabric with frequent gritty inclusions	1	Post-medieval ?	Suffolk
(5001)	Roof tile		Undiagnostic pale orange sandy/micaceous fabric with occasional ferrous inclusions. Smooth upper surface	1	Late medieval /early post-medieval	Suffolk
(5008)	Brick		Mortared brick fragment – with burning evident	1	Late medieval	Suffolk

Context	Type	Small find #	Comments	Count	Date range	Provenance
			externally. Possibly re-used?		/ early post-medieval ?	
(5008)	Roof tile		Red partially reduced roof tile with fine sandy inclusions and frequent mica. 4 of the 6 roof tiles display signs of burning or sooting.	6	Late medieval /early post medieval ?	Suffolk
(6003)	Roof tile		Pale buff sandy fabric. Oxidised.	2	Late medieval /early post medieval ?	Suffolk
(6003)	Air brick		Pinkish-buff oxidised fabric	1	Early post-medieval ?	Suffolk
(7000)	Ridge tile		Light to mid pinkish orange sandy oxidised fabric	1	C16th-17th?	Suffolk
(7000)	Roof tile		Mid orange-red roof tile	1	C16th-17th	Suffolk
(7001)	Pan tile		Light to mid sandy pinkish-orange fabric	4	C18-19th?	Suffolk
(7001)	Floor tile		Buff/pink – very fine sand tempered oxidised fabric with a smooth surface and sanded underside.	1	Early post-medieval	Suffolk
(7005)	Roof tile		Mid pinkish orange sandy oxidised fabric.	3	C16th-17th?	Suffolk
(7011)	Floor tile		Pinkish red oxidised fabric with a black glaze.	1	C17-18th century	Suffolk
8002	Pantile?		Fragment. Hard fired orange/red sandy fabric.	1	C18th-19th	Suffolk/E. Anglia
8002	Pantile?		Fragment. Light pinkish buff fabric typical to Suffolk.	1	Post-Medieval	W. Suffolk
8002	Floor tile		Fragment. Green glazed floor tile. Red/orange coarse fabric. Same fabric as in (9003).	1	Medieval	Suffolk/E. Anglia
8002	Roof tile		Fragment – pinkish orange sandy fabric with white or clear quartz inclusions.	1	Medieval /Early Post-Medieval	Suffolk/E. Anglia
8002	Roof		Mortared roof tile	3	Medieval	Suffolk/E.

Context	Type	Small find #	Comments	Count	Date range	Provenance
	tile		fragments. Red/brown coarsely sanded oxidised fabric. 9mm thick.			Anglia
8002	Roof tile - glazed		Red/Orange finer sandy fabric with a partially reduced core and occasional large inclusions. Green/brown glaze.	2	Medieval	Suffolk/E. Anglia
8002	Floor tile		Mortared floor tile. Same fabric as the above with a reduced core.	1	Medieval	Suffolk/E. Anglia
8004	Floor tile		Green glazed medieval floor tile. Pink/orange finer sandy fabric.	1	Late Medieval / Early Post-Medieval	Suffolk/E. Anglia
8004	Roof tile		Fragment. Darker oxidised orange/red fabric with sparse other inclusions.	1	Early Post-Medieval ?	Suffolk/E. Anglia
8004	Roof tile - glazed		Fragment. Similar fabric to the above with yellowish brown glaze.	1	Medieval	Suffolk/E. Anglia
9001	Roof tile		Fragments. Pink/orange sandy fabric.	4	Medieval / Post-Medieval	Suffolk/E. Anglia
9001	Roof tile		Splash glazed and mortared. Probably re-used in the abbey building.	1	Medieval	Suffolk/E. Anglia
9001	Floor tile		Oxidised coarse red sandy fabric with a copper yellow glaze and white slip.	1	C13-15 th ?	Suffolk/E. Anglia
9002	?		Burnt ceramic fragment.	1	?	Suffolk/E. Anglia
9002	Floor tile		Fragment. Orange/pink sandy fabric with a splash glaze.	1	Medieval	Suffolk/E. Anglia
9002	Tile		Green glazed red fabric with a reduced grey core. One fragment may have been used/re-used in the flooring.	2	Medieval	Suffolk/E. Anglia
9002	Floor tile		Fragments. Dark red coarsely sanded fabric with a dark green glaze. 122X27mm. Same fabric	2	C13 th ?	Suffolk/E. Anglia

Context	Type	Small find #	Comments	Count	Date range	Provenance
			as SF9.			
9003	Roof tile		Red/orange sandy/micaceous fabric. Some white quartz inclusions. 15mm thick.	1	C13-15th	Suffolk/E. Anglia
9003	Floor tile		Above red/orange sandy fabric with a bright copper green glaze.	1	Medieval /Early Post-Medieval	Suffolk/E. Anglia
9005	Floor tile		Red/orange reduced fine sandy fabric with the remains of some slip decoration (possibly a rope design).	1	C13-14th	Suffolk/E. Anglia
9005	Floor tile		Brown/red oxidised micaceous sandy fabric and occasional white quartz/iron inclusions. Lead brown glaze. 31mm thick.	1	Early Post-Medieval	Suffolk/E. Anglia
9005	Roof tile		Fine deep red oxidised finely sanded fabric with rare white quartz and blackened surfaces.	1	Early Post-Medieval	Suffolk/E. Anglia
9005	Roof tile		Sandy red fabric with frequent quartz inclusions and a partially reduced core.	1	C13-15th	Suffolk/E. Anglia
9006	Roof tile		Upper profile. Orange-red sandy fabric and occasional large flint inclusions.	1	Late Medieval /Early Post-Medieval	Suffolk/E. Anglia
9006	Roof tile		Fragment. Red-brown sandy fabric with occasional flint inclusions. Square peg hole.	1	Late Medieval ?	Suffolk/E. Anglia
9006	Roof tile		Pink/grey coarsely sanded fabric. Burnt along one surface suggesting later re-use?	1	C13-15th	Suffolk?
9008	Roof tile		Pinkish/buff gritty fabric with external sooting on one of the fragments.	2	C13-15th	Suffolk
9008	Roof tile		Orange-red fabric with a finer sand temper.	1	Late Medieval /Early Post-Medieval	Suffolk/E. Anglia

Context	Type	Small find #	Comments	Count	Date range	Provenance
9008	Roof tile		Fragments. Red/brown coarsely sanded fabric with an unevenly sanded white surface. One fragment measures 9x113mm (thickness/width). Square peg holes.	2	Late Medieval /Early Post-Medieval	Suffolk/E. Anglia
9008	Floor tile	SF81	Red oxidised sandy fabric with a white slip covering some of the surface then overglazed.	1	Late Medieval /Early Post-Medieval ?	Suffolk/E. Anglia
9008	Tile	SF82	Burnt/sooted fragment. Buff/white fabric. Some possible graffito decoration (C14-15th?).	1	C14-15th	Suffolk/E. Anglia
9008	Floor tile		Red/orange sandy fabric with quartz inclusions. Copper green glaze and slip decoration.	1	C13-15th	Suffolk/E. Anglia
10003	Roof tile		Red/orange sandy fabric with quartz inclusions. Copper yellow/green glaze.	1	C13-15th	Suffolk/E. Anglia
10004	Floor tile		Dark red sandy floor tile with frequent quartz inclusions, occasional chalk and a dark green lead glaze.	1	C13-15th	Suffolk/E. Anglia
10004	Roof tile		Red/orange sandy fabric with occasional large flint inclusions. Sanded on both upper and lower surfaces.	1	C13-15th	Suffolk/E. Anglia
10004	Tile		Sand tempered fully reduced (grey) and a dark glaze.	1	C13-15th	Suffolk/E. Anglia
10009	Floor tile		Orange/red sandy oxidised fabric. Copper green glazed.	3	Late Medieval /Early Post-Medieval	Suffolk/E. Anglia
10009	Floor tile		Red/orange sandy oxidised fabric. Mortared over the glaze (re-used).	1	Medieval ?	Suffolk/E. Anglia
10009	Floor tile		Red/orange fabric with an abraded yellow/brown	1	C15th	Suffolk/E. Anglia

Context	Type	Small find #	Comments	Count	Date range	Provenance
			glaze and ?inlaid white slip.			
10009	Floor tile		Fully reduced sandy grey fabric. Splash glazed.	1	C13-15th	Suffolk/E. Anglia
10009	Floor tile		Pink/orange oxidised sandy floor tile. Mortared.	1	Medieval / Post-Medieval	Suffolk/E. Anglia
10009	Roof tile		Fragment – glazed.	1	Medieval / Post-Medieval	Suffolk/E. Anglia
10009	Roof tile?		Dark red sandy oxidised fabric with moderate small quartz and occasional large inclusions. Dark green splash glaze.	1	Medieval	Suffolk/E. Anglia
11001	Roof tile		Fragments. Dark red sandy fabric with a reduced grey core. Dark green splash glaze.	2	Medieval	Suffolk/E. Anglia
11001	Roof tile		Orange/red sandy fabric with a brown glaze.	4	Medieval	Suffolk/E. Anglia
11004	Tile?		Fragment. Pink/buff fabric.	1	?	W. Suffolk
11006	Roof tile		Sandy fabric with occasional gritty inclusions, rare chalk. Orange surfaces and a reduced grey core. Coppery green splash glaze. 11-15mm thick.	3	C13-15th	Suffolk/E. Anglia
11006	Floor tile	SF3	Pink/buff 'chalky' fabric with occasional red inclusions.	1	C13-15th	W. Suffolk
11009	Floor tile		Fragment. Red oxidised sandy fabric with small white quartz inclusions and a white slip. Same type of tile as SF40 and SF81.	1	Medieval	Suffolk/E. Anglia
11009	Floor tile		Fully reduced (grey) gritty floor tile.	1	Medieval	Suffolk/E. Anglia
11009	Roof tile		Pink/orange sandy fabric with a yellow brown/green glaze.	8	C13-15th	Suffolk/E. Anglia
11009	Roof tile		Sandy pink/orange fabric varying from oxidised to reduced. Lead green glaze.	8	C13-15th	Suffolk/E. Anglia
11009	Floor		Fragment. Sandy	2	Medieval	Suffolk/E.

Context	Type	Small find #	Comments	Count	Date range	Provenance
	tile		red/orange fabric. Glazed along one edge.		/ Post-Medieval	Anglia
11011	Roof tile		Fragments. Pink/orange sandy fabric with reduced grey core.	10	C13-15 th	Suffolk/E. Anglia
11011	Floor tile?		Same fabric as above.	1	C13-15 th	Suffolk/E. Anglia
11011	Roof tile - glazed		Pink/red coarse sandy fabric.	3	Medieval	Suffolk/E. Anglia
11011	Floor tile		Same fabric as the above. Smoothed on one surface.	2	Late Medieval / Early Post-Medieval	Suffolk/E. Anglia
11011	Floor tile?		Red sandy oxidised porous fabric and large flint inclusions. 92mm width, thickness 54 mm.	1	Late Medieval / Early Post-Medieval	Suffolk/E. Anglia
11011	Roof/flo or tile		Sandy, with a reduced core and orange surfaces. Occasional gritty inclusions (same fabric as in 11006).	1	Medieval	Suffolk/E. Anglia
11011	Roof/flo or tile		Finer sandy pink/white fabric.	3	Late Medieval / Early Post-Medieval	W. Suffolk
11011	Roof tile		Pink/orange sandy fabric with a yellow brown/green glaze. Same as those in (11009).	1	Medieval	Suffolk/E. Anglia
11013	Floor tile		Pinkish orange sandy fabric with moderate quartz inclusions. Copper yellow/green glaze.	1	C13-15 th	Suffolk/E. Anglia
11013	Floor tile		Same fabric etc. as SF81 and SF16 with graffito decoration.	1	Medieval / Post-Medieval	
11015	Floor tile	SF9	Red sandy fabric with a reduced grey core and a leaf and tendril design standing out in relief. Green glazed. 32mm thick.	1	C13 th	Suffolk/E. Anglia
11017	Roof tile		Pink/red coarsely tempered oxidised sandy	2	Medieval	Suffolk/E. Anglia

Context	Type	Small find #	Comments	Count	Date range	Provenance
			fabric. Yellow/brown splash glaze.			
11019	Roof tile?		Sandy fragment.	1	Medieval ?	Suffolk/E. Anglia
11023	Roof tile		Deep red/orange sandy fabric with quartz inclusions and a splash glaze. One fragment is fully reduced.	2	C13-15 th	Suffolk/E. Anglia
11024	Roof tile		As above with a full reduced core.	1	C13th-15th	Suffolk/E. Anglia

Appendix 4 – Small Finds Tables

Find Number: 1	Medieval Jetton	Context: 10004
Description	This find was discovered in bank deposit associated with the formation of ditch [10023] in trench 10. Evidence of the maintenance of the bank was indicated by a high density of artefacts ranging from medieval to post-medieval in date. The date of the jetton would fit with this interpretation. This is a 'rose/orb' jetton of Hans Krauwinckel II, Nuremberg, Germany. Master 1586, died 1635. Obverse legend: HANNIS KRAUWINCKEL IN NV - Hans Krauwinckel in Nuremberg. Reverse legend: GOTES SEGEN MACHT REICH - God's blessing maketh rich. On the obverse are three crowns, alternately with three lis arranged around a central rose, on the reverse is an imperial orb within a double tressure of three arches and three angles.	
Chronology	Broad Period: Post Medieval Sub period from: Late Medieval Sub period to: Early Post-Medieval Date from: 1580 Date to: 1650	
Dimensions & Weight	Diameter: 17mm Weight: 0.62g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Complete	
Find Number: 2	Musket Ball	Context: 11006
Description	A complete post-Medieval cast lead musket ball dating to c.1600-c.1800 recovered in the fill of Gully [11005]. The ball is spherical and pitted with no impact marks and has a light grey patina. The weight suggests that it was used in a pistol (Harding 2012). The musket ball is similar to IOW-FEC537, SUSS-3F4264 and WMID-DBB8F9 on the portable antiquities database.	
Chronology	Broad Period: Post-Medieval Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: c. 1600 AD Date to: c. 1800 AD	
Dimensions & Weight	Diameter: 15mm Weight: 14.23g Quantity: 1	
Materials & Construction	Primary material: lead Completeness: complete	
Find Number: 8	Horse Fitting	Context: 10009
Description	The object was discovered in a bank deposit (100009). This find may well be invasive or earlier than indicated. Iron horse fitting probably a curbed suited for more mature horse (4 to 5 years old) with the capacity of accepting more pressure from the bit and more pressure on their face. Curb Bits have shanks that add leverage to the reins, enhancing the chin pressure that magnifies the bar pressure in the horse's mouth. They were used primarily for working horses could be dated anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD	

Chronology	Broad Period: Post-Medieval Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: 1700 Date to: 1950	
Dimensions & Weight	Length: 185mm Width: 72mm Weight: 106.32g Quantity: 1	
Materials & Construction	Primary material: Iron Completeness: incomplete	
Find Number: 14	Copper Pin	Context: 11011
Description	This object was discovered in the fill of gully [11010]. This would be contemporary with the other finds retrieved from this fill. A copper pin originally with another pin inserted in which is now detached. The pin is hollow and round sectioned and unlikely to be a pin, needle or bodkin which would be expected to be solid and needles and indeed bodkins with elongated sub-oval threading-holes. No parallels have been found for this object and the identification remains unknown and a period is not extent. It is perhaps part of some kind of mechanism later Medieval to Early Modern 1400 to 1900 AD	
Chronology	Broad Period: Post-Medieval Sub period from: Late Medieval Sub period to: Early Modern Date from: 1400 AD Date to: 1900 AD	
Dimensions & Weight	Length: 15mm Width: 3mm Weight: 0.16g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Incomplete	
Find Number: 19	Iron Socketed Object	Context: 11022
Description	This object was discovered in a chalk and clay layer (11022). This find may well be invasive or earlier than indicated. An iron socketed object that could be a socketed tool or a functional object like a door hinge. No parallels were found for this object could be dated anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD.	
Chronology	Broad Period: Post-Medieval to Modern Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: 1700 AD Date to: 1950 AD	
Dimensions & Weight	Length: 102mm Width: 25mm Weight: 53.36g Quantity: 1	
Materials & Construction	Primary material: Iron Completeness: Incomplete	

Find Number: 20	Single-loop buckle	Context: 11022
Description	This find was discovered in a chalk and clay layer provisionally dated to the mid-16th Century through the pottery finds. This would suggest the date of this object is on the late side of the date range assigned. A Medieval to Early Post-Medieval cast copper alloy single-loop buckle. The buckle is D-shaped with a worn and broken ring; the spindle has broken off at the weakest points, the corners of where frame and spindle meet. The buckle is similar to sword belt buckles dating 1250 – 1400 but this example is larger and the metal appears to be later. The buckle shares similarities to buckles shown in Whitehead, 2003, p 29; Nos.157-159 which are dated to circa 1500-1650 AD and LANCUM-18F5A3 on the Portable Antiquities database. However, this example is more irregular and similar irregular buckles of roughly D-shape have been published by Griffiths, Philpott and Egan 2007, Pl. 13 and 14. It is also similar to NCL-8DC51B, IOW-B875A7 and NARC-FCDB5E dated 1250 – 1500 AD. It may well be transitional therefore it has been dated 1250 – 1500 AD.	
Chronology	Broad Period: Medieval Sub period from: Medieval Sub period to: Early Post-Medieval Date from: 1250 AD Date to: 1500 AD	
Dimensions & Weight	Length: 32mm Width: 25mm Weight: 3.90g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Incomplete	
Find Number: 36	Bone carved knife handle	Context: 11019
Description	This object was discovered in the fill of a drainage ditch [10023] and this is how this find may have found its way into the context. This object is an intricately bone carved knife handle. It has been decorated with an incised geometrical pattern designated as cross hatching. MacGregor (1985, 170) notes that such cross-hatching design is commonly encountered in knife handles from the Post Medieval period (c. 1500-1700 AD), as it serves both a decorative purpose and a functional one, as it improves the grip of the handle. The handle is oval in section and is hollow to secure the tang of the blade. The handle expands to the top with to drilled holes and diagonal cuts and then to a pointed knop. The handle shares similarities on the portable antiquities database to LON-A2DDE5, LVPL-088561 and LON-0F1E28 all dated 1550 to 1600 AD. It has been noted that the handle has been given a provisional date of 1570-1600 and shows similarities with handles found on the Mary Rose.	
Chronology	Broad Period: Post-Medieval Sub period from: Early Post-Medieval Sub period to: Early Post-Medieval Date from: 1550 AD	

	Date to: 1600 AD	
Dimensions & Weight	Length: 68mm Width: 19mm Thickness: 12mm Weight: 8.75g Quantity: 1	
Materials & Construction	Primary material: Bone Completeness: Incomplete	
Find Number: 37	Iron ring	Context: 11011
Description	This object was discovered in the fill of gully [11010]. This find may well be invasive or earlier than indicated. An iron attachment or clasp ring that could be anywhere from the Late Post-Medieval to Early Modern 1700 to 1950 AD.	
Chronology	Broad Period: Post Medieval - Modern Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: 1700 AD Date to: 1950 AD	
Dimensions & Weight	Diameter: 34mm Weight: 5.04g Quantity: 1	
Materials & Construction	Primary material: Iron Completeness: Complete	
Find Number: 41	Rolled lead strip	Context: 11001
Description	This find was discovered in a topsoil deposit in Trench 11.as a result of metal detecting and may well be re-deposited. The object is a rolled strip of lead that could be a Roman curse tablet, medieval net sinker, a weight or offcut. This rolled strip of sheet lead has been deliberately folded with what appears to be three and a half turns. The outer face bears a series of shallow pits across the length. The object has a light-white patina and is dark grey where damaged. During the Roman period the production of curse tablets consisting of written curses on small sheets of lead which were then rolled and offered to the gods was a common practice. The use of such objects as weights has also been posited. As a stray find, out of context and still rolled up it is difficult to say whether this rolled lead sheet is in fact a Roman curse tablet, a Medieval net sinker weight, or just a piece of waste lead from some sort of manufacture. Tubular weights were made from rolling cast lead sheet. This technique appears on Early Medieval net weights, where such weights were attached to the selvedge of nets used for fishing and wildfowling. The distinction between a curse tablet and a fishing net sinker of Early Medieval form resides in the careful cutting and rolling of the former, which contrasts with the casual rolling or clenching of a weight of similar construction. Both classes of objects may come from watery or riparian contexts, though for different reasons Those objects identified as curse tablets are generally of cast sheet a little thinner than that assigned to structural uses and are	

	usually tightly rolled in contrast to Early Medieval net sinkers that are usually loosely rolled. I Prehistoric and Romano-British cults had a particular respect for watery locations as did Monks of the medieval period. The Early Medieval use of net sinkers is most clearly demonstrated at Flixborough, North Lincolnshire (Wastling, in Evans and Loveluck [eds] 2009), where parallels from Anglian Fishergate are also cited. They are among a range of weights considered by Steane and Foreman (1988). The type continues into the High Medieval period, as with the numerous examples found in the Blackfriars Boat, London. The object is similar to LVPL-D4EC01, NLM-C0D686 and NLM-92F452 on the Portable Antiquities website. Interpretation of this object is problematic. The fact that it appears to be deliberately folded makes the interpretation as a weight or off-cut unlikely. Curse tablets tend to be tightly folded and this example is somewhat baggy and net sinkers are loosely rolled with a smooth rounded tubular section. It could be a Roman curse tablet, medieval net sinker or offcut for some other unknown purpose. While there may be an interest value in unwrapping the tablet and this would help to establish the date of the piece, this is a difficult and problematic exercise that may well cause damage to the object. Archaeologically, in contextual terms, if it is unwrapped it is unlikely to add anything substantive in textual terms; if there is indeed anything written on it and it is from an unstratified context. The object in itself may well have a greater significance in terms that it might be a Roman curse tablet than potentially discovering for definite that it is not.	
Chronology	Broad Period: Roman to Medieval Sub period from: Roman Sub period to: Late Medieval Date from: 43 AD Date to: 1400 AD	
Dimensions & Weight	Length: 36mm Width: 9mm Weight: 10g Quantity: 1	
Materials & Construction	Primary material: Lead Completeness: Complete	
Find Number: 42	Cu-alloy strap fitting	Context: u/s
Description	This find was discovered in a topsoil deposit in Trench 11 by a metal detector. This find may be residual and associated with the formation of that deposit. An incomplete small decorative copper alloy strap fitting, it has a rounded knob with two transverse indentations flaring to a narrow tapering body. The front is convex and the reverse is hollow. There are two integrally cast copper alloy spikes on the reverse that are bent and slightly broken that would have secured the fitting to the strap. Opinions on these types of belt mounts vary as to dating. Noel Hume (1972: 240, 242) suggests that small mounts of this form with double pointed prongs were	

	used on horse harness and suggests they can be attributed to c.AD 1690-1770, such as BUC-EF5A01. Read (2001, p.27) also dates similar mounts with integral lugs to the 17th century. But in Britain they have also been dated earlier like LVPL-560D43 dated 1550 – 1700. In some cases there is an earlier assignation of the 14th and 15th centuries like BERK-8607D4 The form of this find suggests an early date range even though it has the integrally cast spikes. Therefore a date range of 1550 – 1750 AD has been assigned	
Chronology	Broad Period: Medieval to Post-Medieval Sub period from: Late Medieval Sub period to: Early Post-Medieval Date from: 1550 AD Date to: 1750 AD	
Dimensions & Weight	Length: 28mm Width: 9mm Thickness: 7mm Weight: 2.39g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Incomplete	
Find Number: 43	Buckle	Context: 10001
Description	This object was found in the spoil heap deposit by metal detector in Trench 10. A small cast copper alloy double looped asymmetrical buckle. The buckle has one trapezoidal and one 'D' shaped loop with a rectangular knob projecting outwards from the centre of the 'D' shaped loop. The strap bar has iron corrosion around the pin rest and buckle frame, indicating that there was a forked pin and that it would have been made from iron. The buckle is bevelled on the inside and outside of the edges with lobed protrusions at either side and is flat and undecorated on the reverse. Similar examples can be seen in No. 570 and 573 page 91. in Whitehead. R. 2003. Similar to KENT-64C32D, LANCUM-BCEB9C and SOM-A98596.	
Chronology	Broad Period: Medieval to Post-Medieval Sub period from: Late Medieval Sub period to: Early Post-Medieval Date from: 1575 AD Date to: 1700 AD	
Dimensions & Weight	Length: 31mm Width: 23mm Weight: 3.82g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Incomplete	
Find Number: 44	18th Century Button	Context: 10004
Description	This object was discovered in a bank deposit associated with the formation of ditch [10023]. There is a range of finds from the Medieval through to the Post-medieval periods in this ditch and this find is in the later range.	

	It is a discoid slightly plano-convex section button. The convex surface bears the low relief motif of an equal armed cross in the style of a Greek cross. It has been noted that the V&A have a very similar one on display, which is an 18th century button from a ladies riding habit. It is not shown in their online collections but there are silver wire buttons on the database dated 1790 to 1810 AD. There is a button with a similar design on the portable antiquities database made of lead alloy and it is pelleted NLM-E611E3 dated 1600 to 1700 AD. Therefore the date of 18th century has been assigned to this object.	
Conservation Report	Condition Upon examination the button appears to have been constructed from two 4 mm metal strips of gold secured and bound by gold wire. This gold wire is constructed from twisted bundles of metal wire with fine gold strips coiled around each bundle that, to the naked eye gives the appearance of solid gold wire. The button itself has soil and other contaminants from the burial environment adhered to the all surfaces. Additionally, soil etc. has ingressed between the ornate gold and where areas of the gold wire have been severed the exposed ends of the bundles of metal wire are misshapen. No analysis has been undertaken by the Conservator to identify the composition of the metallic elements as these have been assessed pre-treatment by a finds specialist. Additional, identification may be clearer post-treatment. Treatment Proposal Burial material will be removed as far as is practicably possible using soft brushes and solvent cleaning. Where more mechanical action is required, wooden tools may also be employed. Loose elements of metallic wires will be secured in situ with Paraloid B72. Paraloid B72 is a clear, stable adhesive that provides a strong bond and remains reversible post treatment.	
Chronology	Broad Period: Post-Medieval Sub period from: Post-Medieval Sub period to: Late Post-Medieval Date from: 1600 AD Date to: 1700 AD	
Dimensions & Weight	Diameter: 22mm Quantity: 1	
Materials & Construction	Completeness: Incomplete	
Find Number: 45	Cu-alloy object (poss. pair tweezers)	Context: 10009
Description	The object was discovered in a bank deposit interpreted as a drainage ditch. The find may well be residual. Possibly a pair of tweezers possibly from a chatelaine set but they could be a copper sheet offcut. The object is made from a copper alloy folded sheet. The object appears to have two leaves that meet with an oval intersection and are parallel sided for half of the length flaring out to turn and form a 5.8mm pinch. The edges are square and sharply defined suggesting that they have been cut from sheet metal and they are undecorated. The object could be a pair of tweezers and could be Roman to	

	early Medieval in date, but could conceivably be much later even up to the Post-medieval if they are an offcut. Similar to LIN-ECDB6C , NMS-5E1544 and KENT-9D23E8 on the portable antiquities.	
Chronology	Broad Period: Roman - Medieval Sub period from: Late Roman Sub period to: Early Medieval Date from: 200 AD Date to: 700 AD	
Dimensions & Weight	Length: 50mm Width: 6mm Weight: 3.38g Quantity: 1	
Materials & Construction	Primary material: Copper alloy Completeness: Complete	
Find Number: 49	Jetton	Context: 9005
Description	This find was discovered in the fill of a post-medieval rubbish pit [9016], which is conducive to the deposition of this find. This object is probably a copper alloy French jetton of the ship/shield type with four lis in a lozenge within a tressure of four arches struck in Paris in the reign of Charles VIII (1483-1497). Obverse: French galleon ship and four fleur de lis within a diamond. Reverse: Profile view of a sailing ship. Both sides appear to be surrounded by different legends in a nonsense Lombardic script. In the late 15th century the four fleur de lis in a lozenge became the principal royal design on jetton and is the only 15th century official design documented in the records of the Paris mint from 1488 (Mitchiner, 1988, pp.206-209, No.596). Nonsense (or fictitious) legends on jetton generally indicate that this jetton is an early type. Towards the end of the 16th century and throughout the 17th century, jetton legends featured the master's name on the obverse and a motto or religious phrase on the reverse. Throughout the 15th century, France dominated the jetton market in this country, but its position was already being challenged before the century reached its end. Nuremberg had established itself as the prime supply-centre for cheap, mass-produced stock jetton, with which France was unable to compete. Nuremberg jetton masters copied the original French design such as Iorg Schultes: Ship/French shield type, dated 1553. This jetton is likely to be an original French jetton similar to the VOLBVS:LA:GALLEE. But the possibility exists that it might be a Nuremberg copy like DENO-F526C1 on the Portable Antiquities database. Therefore the date range is set at 1483 – 1550 AD.	
Chronology	Broad Period: Medieval Sub period from: Late Medieval Sub period to: Late Medieval Date from: 1483 AD Date to: 1550 AD	
Dimensions &	Diameter:	

Weight	Weight: Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Incomplete	
Find Number: 50	Cu-alloy fragments	Context: 9005
Description	This find was discovered in fill of pit [9016] interpreted as the fill of a Post-medieval rubbish pit. The date assigned would be conducive to this interpretation. Fragment 1: Copper alloy fragment part of fragment 2. The fragment semi-circular almost cup shaped. The form and function of this fragment is unknown. The metal construction could be anywhere from the Late Medieval to the Late Post-medieval therefore 1500 to 1800 AD has been assigned but it could easily be earlier or later. Fragment 2: Part of fragment 1.	
Chronology	Broad Period: Medieval to Post-Medieval Sub period from: Late Medieval Sub period to: Late Post-Medieval Date from: 1500 AD Date to: 1800 AD	
Dimensions & Weight	Fragment 1 Length: 16mm Width: 14mm Weight: 0.84g Fragment 2 Length: 11mm Width: 8mm Weight: 0.44g Total Quantity: 2	
Materials & Construction	Primary material: Copper alloy Completeness: Incomplete	
Find Number: 51	Cosmetic spoon	Context: 9006
Description	This was discovered in the fill of pit in Trench 9 [9007] interpreted as the fill of a Post-medieval midden pit. If this interpretation is secure the find may well be 14th to 16th century in date. An incomplete cast copper-alloy spoon that could be an ear scoop, hoof or medical instrument probably from a chatelaine set. The implement has a small rounded scoop at one end that appears to be complete. The shank below is narrower with an S-twisted (barley twist) handle and tapers out to the break. Toilet spoons were used throughout the Roman period. Theories as to their function range from ear-scoops, spoons for the removal of small quantities of cosmetics, or "hoofs" - implements used to push back the cuticle of nails. Several such artefacts were found in excavations in Colchester (N. Crummy; 1983; pp. 59-60). They are believed to have been used throughout the Roman period. Theories as to their function range from ear-scoops, spoons for the removal of small quantities of cosmetics, or "hoofs" - implements used to push back the cuticle of nails. Crummy and Eckardt (2007) mention that these scoops were	

	often used as ear scoops or probes as well as being used for the removal of cosmetics from long-necked bottles. Twisted handles are to be found on Roman cosmetic implements, although distinguishing them from medical implements is difficult, as is often acknowledged. A toilet implement with an S-twisted handle and pinnate extant terminal can be found illustrated in Bishop (1996, 39; ref. 214). Spoon-probes with S-twisted or barley twist handles can be found illustrated in Crummy (1983, 61; refs. 1926, 1927). However the twisted style of handle for toilet implements returned to fashion during the late Medieval Period (14th to 16th Centuries AD). Three similar ear scoops (Pritchard, 1991, 379, #1758-1760) were recovered from the Baynard House and the Billingsgate sites in London, dated to Ceramic Phases 10 & 11 (c.1300 to c.1400). Each of these three were made from sheet metal, hammered into a scoop at one end and a flat pointed tip at the other, with an S-twisted shank. This object is could be Roman to early Medieval in date 200 to 700AD, though a 14th to 16th century date is more probable. The length is 47mm; the width is 6mm, thickness 2mm and the weight 1.18g. Similar to LIN-630B51 SWYOR-600E88 and SF-768551.	
Chronology	Broad Period: Post Medieval Sub period from: Early Post-Medieval Sub period to: Late Post-Medieval Date from: 14th Century Date to: 16th Century	
Dimensions & Weight	Length: 47mm Width: 6mm Thickness: 2mm Weight: 1.18g Quantity: 1	
Materials & Construction	Primary material: Copper alloy Completeness: Incomplete	
Find Number: 75	Jetton	Context: 10001
Description	This find was discovered in a topsoil deposit in Trench 10 and may well be redeposited especially given the wear and corrosion on the jetton. A heavily worn and corroded copper alloy rose orb jetton of the master in Nuremburg Hans Krauwinkel II. Mitchener type 1553 – 1577 (1988: pp. 443-4).	
Chronology	Broad Period: Medieval Sub period from: Late Medieval Sub period to: Late Medieval Date from: 1553 AD Date to: 1577 AD	
Materials & Construction	Primary material: Copper alloy Completeness: Complete	
Find Number: 77	Bone comb	Context: 9008
Description	This find was discovered in fill of [9009] provisionally interpreted as the fill of post-medieval midden pit and this find is in this range.	

	This object is a bone comb dating to the 16/18th century. The comb is mostly complete and has teeth on both sides. There is a central solid band from which the teeth come. One side is more delicate, with thinner teeth. The comb has broken at one end. At each there is a section that finishes the comb off although one end is broken. Similar combs are illustrated in MacGregor (1985) p. 80, 81; he dates a slender cross-section to the post-medieval period, 16th to 18th century and double-sided combs with thicker cross-sections to the medieval period 15th to 17th centuries. The measurements not supplied and the photos were downloaded from web site therefore it is difficult to date but would appear to possibly have a slender cross section and so the 16th to 18th century has been assigned. Similar to LVPL-D97777 on the portable antiquities website and there are other similar examples made of ivory LON-E40EF3 and a medieval wooden example LON-81F5E1.
Conservation Report	Condition The comb is covered in soil and other foreign contaminants from the burial environment. These will be removed during conservation. Further, the comb has an almost consistent orange patina over its surface presumed to have been caused by the presence of iron ions in the burial environment. Part of the body of the comb is missing and, as shown in Figure 2 there is a crack in the bone that will require consolidating. Further, under microscopic examination the surface of the comb is showing early signs of delamination and will additionally require consolidation. An acrylic polymer dispersion which is frequently used on archaeological bone; Primal WS24 is to be used as a consolidant. The structure of the comb appears to be largely stable. With reference to the crack shown in Figure 2, it is unclear if cracking occurred prior to deposition or during burial. It can be said that this deterioration has not occurred post-excavation as soil has ingressed into the crack during burial. Additionally, it should be noted that as bone is a very porous material, during burial it will have been subjected to capillary forces as moisture levels rise and penetrate the microstructure and surface tension and levels fall and water recedes. Due to this action, some evidence of surface delamination and cracking is not wholly unexpected from a bone object that has been excavated from a waterlogged/damp context. The bone has been carved into a comb with two sets of teeth. The thicker set has a diameter of between 1.5-2 mm. There are 7 teeth present with evidence of at least 8 having been lost either pre-deposition or during burial. The thinner set of teeth have an approximate diameter of 0.5 mm. 10 teeth are present with evidence of a further 19 which have been lost. Treatment Proposal Controlled air drying to ensure the bone is stabilised for dry storage Solvent cleaning to remove soil (1:1 ethanol/water solution) Consolidation (Primal WS24)

Chronology	Broad Period: Post-Medieval Sub period from: Early Post-Medieval Sub period to: Late Post-Medieval Date from: 1500 AD Date to: 1700 AD	
Materials & Construction	Primary material: Bone Completeness: Incomplete	
Find Number: 78	Fe fragment	Context: 8002
Description	This find was discovered in backfill of possible previous trench [8003]. A probably cast Fe (iron) fragment. The metal construction could be anywhere from the Late Post-Medieval to Early Modern. Form and function unknown, possibly a machine part.	
Chronology	Broad Period: Post Medieval - Modern Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: 1700 AD Date to: 1950 AD	
Dimensions & Weight	Diameter: Weight: Quantity: 1	
Materials & Construction	Primary material: Iron Completeness: Incomplete	
Find Number: 79	Jet bead	Context: 9008
Description	This find was discovered in the fill of gully [9009] interpreted as possibly a drain associated with monastic phase. It appears to have the same construction and material as SF83 and even though the diameters and weights are slightly different it is conceivable that they could be parts of the same necklace. This find may well be residual or later than indicated into the 19th Century AD. Jet sub-spherical bead with a centrally drilled circular hole. The ends are slightly flatter than the rest of the bead and the body exhibits turning lines from lathe finishing. There are very few beads recorded on the PAS database and few in reference books. This bead does share similarities with the shape of ceramic rosary beads already listed in this report. NLM-CE3427, NLM-CE3DC2, which are paternoster rosary beads dated to the Late Medieval, 1350-1500. The bead is also very similar to one made of jet on the portable antiquities database NLM-03DF95 which has been dated 1250 – 1500 AD. Jet is comprised of a heterogeneous mixture of organic carbonaceous materials and mineral matter. Its main component is the vitrinite, it is an organic compound derived from lignin, cellulose, etc. This may well be from a jet rosary bead. Devotion to the rosary developed through the later Middle Ages, and its dissemination was especially associated with the Dominican friars, who had established several houses in northern England by 1250. Therefore the suggested date for this object is medieval, 1250-1500 AD. Jewellery of jet, and its less costly mass-produced imitations in	

	black glass, became also became particularly popular in fashionable emulation of Queen Victoria's prolonged mourning for her Prince Consort, Albert, who died in 1861 and it is conceivable that this piece could relate to that date.	
Chronology	Broad Period: Medieval Sub period from: Early Medieval Sub period to: Late Medieval Date from: 1250 AD Date to: 1500 AD	
Dimensions & Weight	Diameter: 11mm Weight: 0.96g Quantity: 1	
Materials & Construction	Primary material: Jet Completeness: Complete	
Find Number: 80	Cu-alloy object	Context: 9008
Description	The object was discovered in the fill of a Post-medieval midden pit [9009]. The find may well be residual or a component of a later item. The copper alloy object is difficult to identify but could be a fragment of a pin. It is similar in profile to Roman pins such as SWYOR-A1E3C0, GNCL-618DA4 and GLO-A54AFD on the portable antiquities database. It is difficult to date as there are no clear parallels. The date range could be 40 to 700 AD but it could also be part of an object up to 1700AD. A similar pin is illustrated in Allason-Jones, L. and Miket, R., 1984 p. 183 number 3.541.	
Chronology	Broad Period: Roman to Medieval Sub period from: Early Roman Sub period to: Early Medieval Date from: 40 AD Date to: 700 AD	
Dimensions & Weight	Length: 20mm Width: 3mm Weight: 0.41g Quantity: 1	
Materials & Construction	Primary material: Copper alloy Completeness: Incomplete	
Find Number: 83	Jet bead	Context: 9013
Description	This find was discovered in the fill of gully [9009] found in wet sieve sample 55. It appears to have the same construction and material as SF79 and even though the diameters and weights are slightly different and even though the diameters and weights are slightly different it is conceivable that they could be parts of the same necklace. This find may well be residual or later than indicated into the 19th Century AD. A jet sub-spherical bead with a centrally drilled circular hole, the ends are slightly flatter than the rest of the bead and the body exhibits turning lines from lathe finishing. There are very few beads recorded on the PAS database and few in reference books. This bead does share similarities with the shape of ceramic rosary beads already listed in this report. NLM-CE3427, NLM-CE3DC2, which are paternoster rosary beads dated to the Late Medieval,	

	1350-1500. The bead is also very similar to one made of jet on the portable antiquities database NLM-03DF95 which has been dated 1250 – 1500 AD. Jet is comprised of a heterogeneous mixture of organic carbonaceous materials and mineral matter. Its main component is the vitrinite, it is an organic compound derived from lignin, cellulose, etc. This may well be from a jet rosary bead. Devotion to the rosary developed through the later Middle Ages, and its dissemination was especially associated with the Dominican friars, who had established several houses in northern England by 1250. Therefore the suggested date for this object is medieval, 1250-1500 AD. Jewellery of jet, and its less costly mass-produced imitations in black glass, became also became particularly popular in fashionable emulation of Queen Victoria's prolonged mourning for her Prince Consort, Albert, who died in 1861 and it is conceivable that this piece could relate to that date.	
Chronology	Broad Period: Medieval Sub period from: Early Medieval Sub period to: Late Medieval Date from: 1250 AD Date to: 1500 AD	
Dimensions & Weight	Diameter: 12mm Weight: 0.85g Quantity: 1	
Materials & Construction	Primary material: Jet Completeness: Complete	
Find Number: 88	Bead	Context: 9008
Description	This find was discovered in the fill of post-medieval midden pit [9009] associated with SF87 designated as a Post-Medieval ceramic jar. The bead is small, round and probably made of stone possibly sandstone with a centre hole drilled through the middle. The object is circular in plan with a large central perforation. This find shows similarities to LVPL-0624AD, LVPL-518055 and SUSS-56F2A4 which have been assigned an unknown date. It could be a fossil sponge of the type known as 'porosphaera'. They were sometimes used use a beads. Similar to KENT-38B7B6 although it is possibly too regular to be a fossil. Similar to STAFFS-290565 designated as Early Medieval. Also similar to CAM-E35F81 dated to the Iron Age, and to ESS-E98AC1 dated to the Roman period. The form and function of stone beads does not change much over the centuries and as with all things archaeological it all about the context and it most likely that the date of the Post-Medieval ceramic jar that it was discovered in will approximately date it.	
Chronology	Broad Period: Post-Medieval Sub period from: Early Post-Medieval Sub period to: Late Post-Medieval	
Dimensions & Weight	Diameter: 5mm Weight: 0.08g	

	Quantity: 1	
Materials & Construction	Primary material: Stone Completeness: Incomplete	
Find Number: 89	Lead sheet fragment	Context: 8015
Description	Lead sheet discovered in the fill relating to an Arch of a possible medieval drain. The arch was a supporting arch associated with the latrines during the monastic phase of the building. If this find was secure within the fill then it would suggest that it is on the earlier side of the date range assigned. An incomplete cast lead sheet lead fragment of a gauge likely to be structural related of probable Medieval to modern date. The main body of the fragment is sub-rectangular with and elongated projection extending from one corner. One face bears a series of knife-cut strokes and the sheet was likely to have been cut after these marks were made. The fragment has two straight bevelled edges with 3 broken edges and is patinated overall. There is no sign of rouletting that usually occurs on lead sheet of a more recent date, and the extent of patination may suggest this piece to be older. This object could represent a staged removal of lead sheet or flashing: the first stage was to cut around nails holding the lead down so as to remove a large area of sheeting at once; the second operation entailed the recovery of the smaller nailed fragments left behind. This process is recorded from contexts dated to the 13th century, though will have remained essentially unchanged whenever it was required - roofing lead requires recasting every hundred years or so. I am not sure that this has a heavy structural gauge. This activity is recorded in Medieval contexts, though the technique continued in later times. The fragment could be part of a window possibly for leaded glass. The object shares similarities with YORYM-D2DF18, NLM-6988E2 and NLM-897DA8 on the Portable Antiquities database.	
Chronology	Broad Period: Medieval to Post Medieval Sub period from: Late Medieval Sub period to: Late Post-Medieval Date from: 1200 AD Date to: 1800AD	
Dimensions & Weight	Length: 26mm Width: 18mm Thickness: 2mm Weight: 7.92g Quantity: 1	
Materials & Construction	Primary material: Lead Completeness: Incomplete	
Find Number: 91	Stone bead	Context: 9013
Description	This find was discovered in the fill of post-medieval midden pit [9009] found in wet sieve sample <55>. This find may well be residual or later than indicated dating 1700 to 2000 AD. A stone sub-spherical bead with possible mould line and a central aperture probably ceramic possibly. The form and	

	function of stone or ceramic beads does not change much over the centuries and as with all things archaeological it all about the context as illustrated by the below. Shares similarities with WAW-99DED5 dated as probably Roman owing to other Roman finds retrieved from nearby. However, beads of this style were used from the Iron Age to at least the medieval periods and cannot be dated with certainty. Comparable beads are recorded in Ellis: 2000, p185, fig 4.47. Also share similarities with NLM-CE3427, NLM-CE3DC2 which are paternoster rosary beads dated to the Late Medieval, 1350-1500. There are very few ceramic beads recorded on the PAS database and few in reference books this object is could be a paternoster ceramic rosary bead dated 1350 – 1500 AD. But few ceramic examples are found in archaeological contexts and beads of this style are still made today so it could be a Post Medieval to Modern date 1700 to 2000 like SWYOR-E1CD53. The form and function of ceramic beads does not change much over the centuries and as with all things archaeological it all about the context, if there are any other dateable finds from this context they may help to narrow down the date range.	
Chronology	Broad Period: Medieval Sub period from: Early Medieval Sub period to: Late Medieval Date from: 1350 AD Date to: 1500 AD	
Dimensions & Weight	Diameter: 9mm Weight: 0.41 Quantity: 1	
Materials & Construction	Primary material: Ceramic Completeness: Complete	
Find Number: 93	Iron sword belt hanger	Context: 10004
Description	Found in bank deposit associated with the formation of ditch [10023]. The find may well be residual. This object is an incomplete iron double looped sword belt hanger dating 1500 – 1650 AD. The buckle has a strap bar dividing the buckle into two loops with a circular suspension loop set perpendicular at a 90° angle at the top. The frame is complete and has rounded outer edges. The metal has lost most of its original surface and the metal is a mid-reddish-brown colour and is pitted. The only examples found are copper alloy not iron such as YORYM-A89412, LVPL-50EEA4 and NLM-D866B2 on the Portable Antiquities database and similar examples can be seen on p.72 of Whiteheads book (2003). Although this buckle is iron the form and the function fits with the typology and it would probably originally have been gilded. Therefore it has been assigned to the period early Post-medieval.	
Chronology	Broad Period: Medieval – Post-Medieval Sub period from: Late Medieval Sub period to: Early Post-Medieval Date from: 1500 AD Date to: 1650 AD	
Dimensions &	Length: 42mm	

Weight	Width: 48mm Weight: 0.41g Quantity: 1	
Materials & Construction	Primary material: Iron Completeness: Incomplete	
Find Number: 94	Cu-alloy ring	Context: 10020
Description	This object was discovered in a silty clay layer provisionally dated to the mid-16th Century by the presence of a glazed red earthenware pot sherd. This would suggest the date of this object is on the late side of the date range assigned. Copper alloy ring of uncertain date, though the angular section suggests Medieval 1200 – 1500 AD. These rings can be horse harness furniture rings or personal trappings like suspension loop/belt loops. It is heavily worn within the band. The ring shares similarities with one relating to the record for KENT-FC75D6 found in association with a number of Roman coins and artefacts. However it is more similar to KENT-BF9FB4 on the portable antiquities database which has been assigned as probably 13th to 20th century and very similar to NLM-6A6276 ascribed to between 1200 and 1500 AD. These types of rings are problematic as no thorough research is extent and they probably do not change much in form from the Roman to the medieval periods.	
Chronology	Broad Period: Medieval Sub period from: Mid Medieval Sub period to: Late Medieval Date from: 1200 AD Date to: 1500 AD	
Dimensions & Weight	Diameter: 30mm Weight: 6.17g Quantity: 1	
Materials & Construction	Primary material: Copper Completeness: Complete	
Find Number: 95	Jetton	Context: 7011
Description	Medieval copper alloy French Jetton introduced in 1340 by Philip VI (1328-50) probably dating 1340 – 1380AD. Obverse: Illegible probably either royal crown with large central <i>fleur de lis</i> with trefoil ornamentation across the body or shield of France type. Reverse: Triple stranded straight cross fleuretty within a four-arched tressure.	
Chronology	Broad Period: Medieval Sub period from: Middle Medieval Sub period to: Late Medieval Date from: 1340 AD Date to: 1380 AD	
Dimensions & Weight	Diameter: 25mm Weight: 1.90g Quantity: 1	
Materials & Construction	Primary material: Copper alloy Completeness: Complete	
Find Number: 96	Hammered silver penny	Context: 7015

Description	Medieval silver hammered penny Obverse: Illegible. Reverse: possibly from the London mint. Not closely dateable due to the absence of detail. Probably dates between Henry III 1247 to Richard III 1485AD	
Chronology	Broad Period: Medieval Sub period from: Early Medieval Sub period to: Late Medieval Date from: 1247 Date to: 1485	
Dimensions & Weight	Diameter: 17mm Weight: 1g Quantity: 1	
Materials & Construction	Primary material: Silver Completeness: Complete	
Find Number: 97	Papal Bulla	Context: 7002
Description	A Papal Bulla of Pope Clement VI that has been cut in half lengthways. The production of this object dates between 1342 and 1352 (the period of the papacy of Pope Clement VI). On the obverse of the object is the face of St Paul with the text 'SP'. A full papal bulla of this type would also show the face of St Peter, and the full text would be 'SPASPE' (abbreviation for St Paul and St Peter). The reverse shows the text 'CL//ME//PP', the full coin would have shown 'CLE//MENS//PP VI' with PP standing for 'Pastor Pastorem'.	
Chronology	Broad Period: Medieval Sub period from: Middle Medieval Sub period to: Middle Medieval Date from: 1342 Date to: 1352	
Dimensions & Weight	Length: 34mm Width: 20mm Weight: 22.14g Quantity: 1	
Materials & Construction	Primary material: Lead Completeness: Incomplete	
Find Number: 98	Pendant	Context: 7000
Description	Post-medieval to Early Modern pendant in the art deco style dating 1878 probably made in America and sold in England as it is not a British patent number. The pendant is silver plated, rectangular stamped with ENGLAND STERLING PI 202213 inset with cut glass rectangle, loop and one link of the chain.	
Chronology	Broad Period: Post-Medieval Sub period from: Late Post-Medieval Sub period to: Early Modern Date from: 1878	
Dimensions & Weight	Length: 28mm Width: 21mm Weight: 5.58g Quantity: 1	
Materials & Construction	Primary material: Silver and glass Completeness: Incomplete	

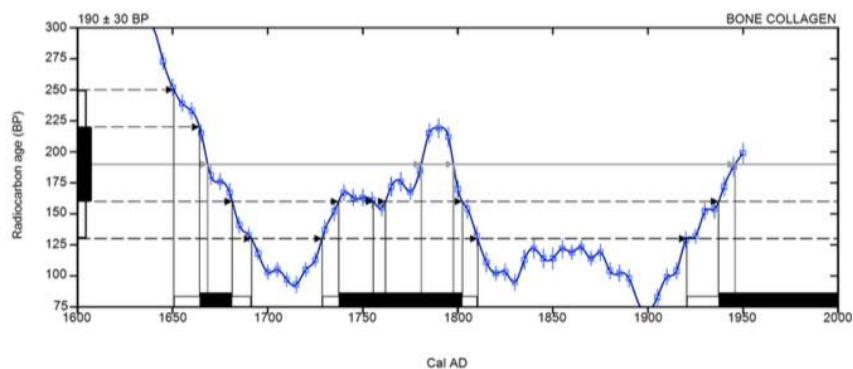
Find Number: 99	Pendant	Context: 7001
Description	Early Modern art nouveau pendant dating 1920 to 1930. Rectangular elongated tapered bale made of copper alloy setting with loop for a chain containing a blue polished stone possibly cobalt glass.	
Chronology	Broad Period: Modern Sub period from: Early Modern Sub period to: Early Modern Date from: 1920 – 1930	
Dimensions & Weight	Length: 21mm Width: 11mm Weight: 2.22g Quantity: 1	
Materials & Construction	Primary material: Copper alloy and paste plastic Completeness: Incomplete	

Appendix 5 – Radiocarbon Certificate

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -20.5 o/oo ; lab. mult = 1)

Laboratory number	Beta-383664
Conventional radiocarbon age	190 ± 30 BP
2 Sigma calibrated result 95% probability	Cal AD 1650 to 1690 (Cal BP 300 to 260) Cal AD 1730 to 1810 (Cal BP 220 to 140) Cal AD 1920 to Post 1950 (Cal BP 30 to Post 0)
Intercept of radiocarbon age with calibration curve	Cal AD 1670 (Cal BP 280) Cal AD 1780 (Cal BP 170) Cal AD 1800 (Cal BP 150) Cal AD 1945 (Cal BP 5) Post AD 1950 (Post BP 0)
1 Sigma calibrated results 68% probability	Cal AD 1665 to 1680 (Cal BP 285 to 270) Cal AD 1735 to 1800 (Cal BP 215 to 150) Cal AD 1935 to Post 1950 (Cal BP 15 to Post 0)



Database used
INTCAL13

References

Mathematics used for calibration scenario

A Simplified Approach to Calibrating C14 Dates, Taima, A. S., Vogel, J. C., 1993, Radiocarbon 35(2):317-322

References to INTCAL13 database

Reimer PJ et al. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55(4):1869–1887.

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74 Court Miami Florida 33155 USA • Tel: (305)-667-5167 • Fax: (305)-663-0964 • Email: beta@radiocarbon.com

Appendix 6 – Updated Project Design (Bound as Separate Document)

