Leiston Abbey

2015 Field Season

Interim Archaeological Assessment Report

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With contributions by Hugo Anderson-Whymark, Paul Blinkhorn, Raksha Dave, Hugh Fiske, Lisa Gray, Poppy Hodkinson, Matt Juddery, Richard Madgwick, Shelby Millard, Phil Mills, Stuart Noon, Maiya Pina-Dacier, Glen Rose and Adam Stanford

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Leiston Abbey

Archaeological Assessment Report

And

Updated Project Design

Project Number: LA15/LCS 217/ESF23096

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Purpose of Document

This document has been prepared as an Evaluation Assessment Report for Pro Corda (the Client), Historic England (Custodian), and DigVentures' global crowdfunding community (Stakeholder Sponsors). The purpose of this document is to provide a comprehensive account of the 2015 field season, with specialist assessment of finds and samples, and recommendations for further investigation and analysis. It is supported by an easily accessible online database of all written, drawn, photographic and digital data, and an Updated Project Design detailing recommendations for the 2016 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'). This report details the results of the third field season of a five-year multi-staged project, encompassing an evaluation and assessment stage (Years 1 – 4), followed by final analysis and publication (Year 5).

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 10th July 2015 (reference number S00112793), issued on the basis of a Project Design for an Archaeological Evaluation (Wilkins et al 2015), following consultation with Will Fletcher, Ancient Monuments Inspector, pursuant to wider consultation with Historic England's specialist archaeological and scientific advisors. Consent for a photogrammetry survey of building remains and geophysics survey under a Section 42 licence (case number SL00108492) was issued on the 9th July 2015.

Fieldwork took place between 13th July and 26th July 2015 (Project Number: LA15/LCS 217/ESF23096). The project was designed to build upon the work undertaken during 2013 and 2014, with a programme of remote sensing including a Magnetometry survey of the Eastern and Earthwork field, and a low-level aerial photography survey of the entire inner and outer precinct area using UAV mounted cameras. The results of this work were used to target ten small-scale excavation trenches aiming to characterise settlement evidence indicated by geophysical and topographical anomalies and to extend into areas of the site that were unavailable in 2013 and 2014. The proposed auger survey targeting the moat/pond feature on the Site's northern boundary could not be completed during this phase of works due to unforeseen complications with project partners at University Campus Suffolk.

The results presented in this report comprise those of the third Execution Stage of the project, and have been circulated for peer review and consultation with the wider specialist team (Review Point 7). The potential of these results to achieve the Aims and Objectives of the project are discussed in the final section of this report, followed by an Updated Project Design (bound separately) detailing recommendations for further work, analysis and publication (Review Point 8).

Results Summary

Ten small-scale evaluation trenches were excavated over the course of the 2015 field season, located to address specific questions relating to different parts of the site. This included one trench in the Abbey Precinct (Trench 14), four trenches in the Eastern field (Trenches 15, 16, 19 and 23), three trenches at the southern edge of the site in an area previously used as allotments (Trenches 20, 21 and 22) and two trenches at the present entrance and driveway into the Abbey complex (Trenches 17 and 18). In keeping with

the work of previous seasons, all data has been recorded by community participants into a web accessible relational database. This can be explored by following the links throughout the report (and in Appendix 1), and is navigable through a series of nested 3D models, from the landscape level down to the Abbey structure, individual trenches, features and artefacts found within.

Trench 14 was a small hand dug trench within the refectory building, set against the northwest wall of the undercroft in a pronounced area of rabbit burrowing. Results indicate that bioturbation is confined to superficial deposits, and evidence for an internal drain feature linking the Lavatorium with a culvert in the Refectory's southeast wall was also investigated.

Trenches 20, 21 and 22 were located along the southern boundary of the site, investigating the potential evidence for a secondary gatehouse adjoining the north-south site access road in a low lying area used recently as domestic allotments. Numerous mixed finds, including CBM, animal bone, oyster shell, metal, lead, glass, slag and pottery, were recovered from topsoil and subsoil deposits in this area, the probable result of recent spoil heaps and dumping at the edge of site. An east-west orientated Medieval wall was exposed in Trench 20, though it was not clear whether the wall comprised part of a larger roof bearing gatehouse structure or was part of a longer boundary wall aligned with the adjacent precinct ditch.

Trenches 15, 16, 19 and 23 were located in a partially characterised area to the east of the Abbey, previously excavated in 1985 by English Heritage and interpreted as the location of the infirmary buildings (Kerr, forthcoming). The former monastic structures were observed in Trenches 16, 19 and 23; these had been substantially damaged by an agricultural 'subsoiler', with modern plough furrows dragging archaeological material downslope. Trench 15 was located in the adjacent non-ploughed area, designed to baseline the impacts on the adjacent field, but unfortunately no archaeological features or structures extended into this area with which to provide a comparative study.

Trenches 17 and 18 comprised two parallel and overlapping trenches positioned on opposite sides of the field boundary along the main east-west driveway into the site. In addition to investigating the potential location of an inner gatehouse, these trenches were also designed to assess whether the precinct boundary ditch identified in the eastern field also continued into this area. The precinct ditch, large set limestone blocks, and a cobbled area were observed, though the excavated area was not sufficient to characterise a potential gatehouse within the confines of the trench.

Remote sensing results were mixed, with magnetometry survey revealing the clear line of the precinct boundary ditch in the Eastern field, but offering little further resolution of the ground plan of previously excavated structural remains in either this field or the earthworks field. Low level aerial survey of the site was much more successful, with a full digital model of a 70-Hectare area created using quad-copter mounted cameras to build a georeferenced digital terrain model. This has been used to develop a publicly accessible animated visualisation film of the site and its ongoing archaeological investigations, and will form the basis of further analysis of the Abbey and its landscape context.

As the project moves into the fourth of the proposed five-year plan, an Updated Project Design has been produced (bound separately) distilling these results into proposals for a final year of fieldwork in advance of analysis and publication. A short assessment was carried out at Chapel Hill Field, Minsmere during the 2015 field season, sieving and recording medieval building debris from the WW2 pillbox spoil heaps. Further work is proposed in this area in 2016, aiming to elucidate connections between Leiston's first and second sites and the wider landscape setting. This will entail a non invasive survey of Chapel Hill Field and Cow Marsh Hill, a 3D photogrammetry survey of the remaining building in Chapel Hill Field, an auger survey of a potentially navigable 'dock' feature and five targeted evaluation trenches designed to ground truth geophysical results.

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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. Thanks are also extended to Will Fletcher, Historic England Inspector of Ancient Monuments, and to Nick Carter, Assistant Inspector, for helpful advice and direction throughout the project.

The project was managed for DigVentures by Brendon Wilkins, with Lisa Westcott Wilkins in the role of Project Executive, supported by Nigel Steel, Raksha Dave, Maiya Pina-Dacier, Shelby Millard, Ben Bazeley, Hugh Fiske, Xose Gago, Matthew Juddery, Daniel Juhasz, Ursula Neilson, Rosanna Ring, Ben Swain, Tiva Montalbano, Anna van Nostrand and George Wilkins. Glen Rose from AB Heritage completed geophysics, with aerial photography and photogrammetry managed by Adam Stanford from Aerial-Cam Ltd. Off site specialists' advice and assistance came from Hugo Anderson-Whymark, Paul Blinkhorn, Lisa Gray, Poppy Hodkinson, Richard Madgwick, Phil Mills and Stuart Noon. Floatation equipment was kindly loaned by LP Archaeology for all on site sample processing.

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1 INTRODUCTION AND SCOPE

1.1 Project Background

1.1.1 DigVentures Ltd 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 Historic England, 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 1-4), and a final publication and presentation stage (Year 5).

1.1.2 The information contained in this report encompasses the third year of evaluation and assessment, completed over the course of 2015. Scheduled Monument Consent and Section 42 Geophysical Survey licence was granted by the Secretary of State for Culture Media & Sport for this field season, supported by an Interim Assessment Report and Updated Project Design (Wilkins *et al 2015*), with the project taking place between the 13th and 26th July 2015 (Project Number: LA15/LCS 217/ESF23096).

1.1.3 The results presented in this report detail that work, and have been circulated for peer review and consultation with the wider specialist team (Review Point 8). This report is one of a number of archive and dissemination products to have been generated by the project, including a digital archive and metadata, paper archive, and artefact archive processed for temporary storage.

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 to 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 (SHAPE sub-programme number 11111.130 & 31521.110).

1.2.2 An assessment of all documentary sources held by Historic England 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.

1.3 Public Impact

1.3.1 Leiston Abbey lies within the immediate vicinity of major 10-year infrastructural redevelopment of Sizewell nuclear power station, including residential housing estates, transport links and the decommissioning and construction of a new power station. This development is currently in master planning, and although impacts have not yet been determined, it is likely that Leiston Abbey will be significantly affected. The extensive public engagement and outreach programme therefore provided a significant ancillary rationale to the project, and an evaluation of the breadth, depth and diversity of audience reach and engagement has been completed and is available in a separate report (Westcott Wilkins 2016).

1.3.2 The project was funded exclusively through public crowdfunded contribution, with the professional excavation team assisted throughout by crowdsourced voluntary public participation. On-going doctoral research into the wider applicability of this unique model (Wilkins, forthcoming) addresses key sector priorities to build resilience and sustainability in an age of declining public subsidy (SHAPE sub-programme number 11111.130).

1.3.3 In summary, the project's crowdfunding community has so far amounted to 294 people from 15 countries, comprising local residents as well as UK-wide and international visitors of all ages, walks of life, and different levels of archaeological experience and knowledge. The project has attracted 2,964 visitors to excavation site tours and family weekends (over a cumulative 6-week time frame), of which approximately 60% indicated that the dig was the main reason for their visit. Additionally, 51% of visitors identified themselves as living locally, while 48% had never previously visited the site. Of the visitors who did not live locally, 28% indicated that they were staying in paid accommodation in the area. The Leiston Abbey Digital Dig Team website attracted an average of 45,000 unique visitors per month during fieldwork (SHAPE sub-programme numbers 12212.110; 51311.110 and 51332.110). A publicly viewable animation reconstruction (based on a metrically accurate photogrammetry survey) was also produced this year to explain the aims of the project and describing the site's history to a varied, non-specialist audience (see here https://youtu.be/wLelqXjm7mk)

1.4 Site Description

1.4.1 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 Historic England.

1.4.2 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.

1.4.3 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). Growing from austere beginnings, the enduring influence of monastic houses can be seen not only in the wealth of upstanding ecclesiastical remains, but also in patterns of landholding, as their substantial estates stamped their industrial and agricultural footprint on the wider landscape (Aston 1993).

2.1.2 Housing monks, canons, and sometimes lay brothers, monasteries were relatively closed communities living a common 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). Unfortunately, the 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 this and previous excavations (Kerr, forthcoming) 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 (see Wilkins et al. 2015, Section 6.4).

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 north and south of the Abbey. In the ploughed field east of the claustral buildings, 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. The specific form and function of these features awaits further archaeological investigation

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 dorter. 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 *Leiston Abbey Updated Project Design* (Wilkins et al 2015), designed to address the evaluation and assessment stage of the project (3rd year 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 & 2015). 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 fully articulated in the 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 eastern range and associated sub-surface archaeology be established by remote survey?
- **Q2**: Can we identify the location of the Abbey's original inner gatehouse, or can we establish the position of other 'lost' structures such as the infirmary?
- **Q3:** Can the ground plan of buildings be discerned in the western field, contextualising structural postholes and slot trenches identified during investigations in the western field in 2014?

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.

- **Q4:** Is it possible to corroborate the location of the gatehouse, precinct wall or infirmary, as defined in Aim 1?
- **Q5:** How were the structures in the eastern field used and what functions and activities took place in this part of the site.
- **Q6:** What can we say about their scale and nature?
- **Q7:** Is there any evidence of the 1380 fire, or material culture markers linking the two Leiston Abbey sites?

3.4 **Aim 3:** Understanding the palaeoenvironmental conditions of the site.

- **Q8:** What is the current state of the archaeological and palaeoenvironmental material across the site?
- **Q9**: Can the palaeoenvironmental data recovered from sampling in the trenches inform us about farming, food processing or industrial activities?
- **Q10**: Can we increase our understanding of the local environment in the medieval period?

3.5 **Aim 4:** Making recommendations, analysis and publication.

- **Q11:** What can an integrated synthesis of the results of this work with previous interventions (such as the 1980's trenches) tell us about the site and it's setting?
- **Q12**: How well do deposits survive, and how deeply are they buried?

- **Q13:** Can we assess the state to which the archaeological and palaeoenvironmental resource at Leiston Abbey is being successfully preserved *in situ*, and how is this being impacted by modern farming techniques and bioturbation.

- **Q14:** 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 *Leiston Abbey Updated Project Design* (Wilkins et al 2015, 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). A non-invasive, magnetometry survey of the Eastern field was undertaken to further define the buried remains of a large rectangular structure and precinct ditch, and accurately position Trenches 16 and 19.

4.1.2 Additional magnetometry survey was also undertaken in the earthworks field to help contextualise structures excavated in this area in 2014, followed by the accurate survey of GPS located grid points for each of the ten proposed trenches in four main areas:

- **Claustral precinct**: A small, 2m x 5m trench was excavated in the refectory building in the claustral precinct (Trench 14) to investigate the effects of bioturbation (rabbit burrowing) on the buried archaeological deposits and investigate a possible culvert observed in the structures southeast wall.

- **Allotment Area:** Three small 3 x 3m trenches were located in this area (20, 21 and 22), a former allotment garden used recently when the site belonged to a Christian retreat.

- **Eastern Field**: Trenches 15, 16, 19 and 23 were located in a partially characterised area to the east of the abbey, excavated in 1985 by English Heritage and interpreted as the location of the infirmary buildings (Kerr, forthcoming).

- **The Road Verge and Field Boundary**: Two 1 x 25m trenches (17 & 18) were positioned in this area to determine the course of the precinct boundary ditch and investigate the potential for a secondary gatehouse.

4.2 Remote Sensing and Metric Survey

4.2.1 Remote sensing work (taking place between 14th and 16th July 2015) was designed to address the research questions associate with Aim 1 (Wilkins et al 2015, Appendix 3). This entailed a combination of non-intrusive geophysical survey (magnetometry) in combination with a low-level aerial survey to determine likely features for targeted trenching.

4.2.2 Geophysical survey (magnetometer) was completed in the eastern and western fields (Figure 2) with survey grids geo-referenced relative to the Ordnance Survey National Grid using a Trimble Geo XR GPS. This was used to collect reference points within the survey area, as well as local detail, and subsequently corrected to the Leiston Abbey site plan. The magnetic survey was carried out using a Bartington Grad 601-2 dual magnetic gradiometer. Geoplot 3 (Geoscan Research) software was used to process and present the data.

4.2.3 A UAV mounted photographic survey was undertaken on the upstanding Abbey remains (Abbey church) and precinct area to complete 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. This was supported by low-level aerial photography using UAV mounted cameras to investigate potential crop marks and landscape features adjacent to the Abbey.

4.3 Excavation Methodology

4.3.1 Excavation took place over the course of a third field season (13th – 26th July 2015) addressing the research questions associated with Aims 1 and 2. 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, artefactual and palaeoenvironmental assessment.

4.3.2 During 2015 a total of six machine-excavated trenches and four 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.

4.3.3 Trenches were subsequently hand-cleaned, planned and photographed prior to hand-excavation. Any archaeological features and deposits exposed in the evaluation trenches were hand cleaned and excavated to determine their nature, character and date. Carefully chosen cross-sections were then excavated through features to enable sufficient information about form, development, date and stratigraphic relationships to be recorded. All excavated features were 100% dry-sieved for artefacts using a 5mm gauge, and/or wet-sieved on site using a standard archaeological floatation device.

4.3.4 A complete drawn record of the evaluation trenches comprises both plans and sections, drawn to appropriate scales and annotated with coordinates and AOD heights. A single context recording system was used to record the deposits, and a full list of all records is presented in Appendix 1. Layers and fills are recorded (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+).

4.3.5 All interventions were surveyed using a GPS tied into the Ordnance Survey grid. During 2015 all recording was undertaken using the DigVentures Digital Dig Team recording system. Digital Dig Team is DigVentures' bespoke, cloud-based, open data recording platform, designed to enable researchers to publish data directly from the field using any web-enabled device (such as a smartphone or tablet) into a live relational database. Once recorded the born-digital archive is instantly accessible via open-access on a dedicated website, and published to social profiles of all project participants (community, professional and specialist). Links to all individual trench, feature and context records are provided in Appendix 1, from where all associated finds, samples, plans, sections, photographic records and 3D models can also be explored.

4.4 Health and Safety

4.4.1 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

The full geophysical digital archive can be downloaded and reviewed here: https://goo.gl/TDfZ5G

By Glen Rose

5.1 Introduction

5.1.1 This section presents the results of a geophysical survey undertaken by Glen Rose on 13th and 14th July 2015 (Rose 2015, including archive CD of raw data). A Section 42 licence for a photogrammetry survey of standing building remains and geophysics survey (case number SL00108492) was issued on the 9th July 2015. 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 4.1.1 and 4.1.2 above). Figure 2 shows the overall location of each targeted area, and Figures 4 –7 provide greyscale plans and interpretations.

5.1.2 The survey area extended over two fields, the Eastern Field located beyond the current boundary of the Abbey and the Earthworks Field located beyond the western boundary of the Abbey and south of the Guesten Lodge (Figure 2).

5.2 Methodology

5.2.1 All survey work was carried out in accordance with the current Historic England guidelines (HE 2008) and following the method outlined in Section 4.2 above. The magnetic survey equipment used was two Bartington Grad-601 (fluxgate magnetometers). 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). A physical and digital archive is stored in a suitable format at DigVentures office, and will be accessioned with the project archive.

5.3 General Considerations

5.3.1 The area under investigation covered 1.4 Ha (Figure 2), the magnetic survey was carried out using a Fluxgate Gradiometer. The underlying geology in this area consisted of deep well drained sandy soils, in addition to some localised areas of very acidic soils with a bleached subsurface horizon especially under heath or in woodland (SSEW 1983). Bedrock geology consisted of crag group sand; the superficial deposits belong to the Lowestoft formation (BGS 2014). At the time of survey, crop was present on the area surveyed to the east of the Abbey, which could affect data collection, although in this case,

minimally. The Earthworks field had not been grazed, and was subject to substantial vegetation cover.

Eastern Field (Figures 4 & 5)

5.3.2 The clearest feature observed in the survey was a linear anomaly progressing on a north-south axis for 120m, and was interpreted as the previously identified precinct boundary ditch. Areas of magnetic disturbance were also identified along the western field boundary. Similar anomalies of magnetic disturbance were also noted to the south west of the survey area, and these exhibited similar characteristics and orientation to the Abbey plan. These anomalies are likely to be a response to thermoremnant materials such as building rubble, bricks and fired material in keeping with the results of the 1985 excavation. The results were not of sufficient resolution to determine the specific outline of the infirmary buildings however, and Trench 16 and 19 were targeted on the basis of previous excavation results.

Earthworks Field (Figure 6 & 7)

5.3.3 A survey was undertaken across the Earthworks Field to help place 2014's excavation trenches (10 & 11) into context. Substantial structural elements had been identified in both trenches, and the goal was to identify the extent and scale of this activity. Unfortunately, the geophysics results were not successful and could not provide a refined understanding of the excavated features. This could have been affected by the substantial vegetation cover, though previous geophysical survey on adjacent areas of the site was also of variable quality.

5.4 Further recommendations

5.4.1 The survey successfully assisted in targeting evaluation trenches above previously identified archaeological structures, but was of insufficient resolution to provide a broader ground plan to indicate character or function. Further insight could be gained with a detailed resistivity survey and targeted radar above the structures, though results are also likely to be constrained by the attritional effects of the current farming regime.

6 EXCAVATION RESULTS

By Brendon Wilkins, Raksha Dave, Xose Gago, Matt Juddery and Nigel Steel

All digital context and feature records have been archived on the Digital Dig Team system and can be reviewed here: http://goo.gl/BWYpmY

6.1 Introduction

6.1.1 During 2015 ten small-scale evaluation trenches were investigated. Four trenches in the Eastern field, one trench in the Claustral precinct, three trenches at the southern edge and two trenches at the present entrance to the Abbey complex. The principle purpose of these excavations was primarily

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 3). 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 8 – 18 provide illustration of individual trenches containing archaeological features. Detailed descriptions of each and every context are included in Appendix 1, organised by trench number.

6.2 Stratigraphic Sequence

6.2.1 A common stratigraphic sequence was recognised across the site, in accord with the results from previous investigations. Trench 19, for example, comprised topsoil (19001) overlying greyish brown sandy silt subsoil (19002), followed by a light yellow brown silty sand natural (19021). The stratigraphic sequence fluctuated in depth across the site predominantly due to natural height variation with the underlying sloping topography.

6.3 Abbey Precinct

6.3.1 The Abbey Precinct was investigated with a small hand dug trench within the refectory building, set against the northwest wall of the undercroft. A pronounced area of rabbit burrow was observed against the northwest wall of the undercroft, and the trench was motivated by the need to to assess the attritional impacts in this area (Plates 8.1-8.3). This investigation also afforded the opportunity to examine evidence for internal water management in the monastic period by exposing a presumed drain feature linking the Lavatorium with a culvert in the southeast wall.

Trench 14 (Figure 8) http://goo.gl/kzwq3c

6.3.2 Trench 14 measured 2m x 5m, and was excavated down to the depth of the original stepped foundations (exposed in sondage, due to the height of the adjacent masonry). These deposits were assigned the feature number F1401, comprising several associated layers and masonry. No construction cut was observed beneath the foundation wall, supporting the earlier observation that the refectory was constructed on a flat terrace cut into the natural slope. This terrace surface had been consolidated prior to building by a layer of firm sandy clay (14007) onto which the stepped foundation masonry (14008) was constructed (Plate 8.5). It consisted of roughly hewn flint, chalk and irregular coursed limestone (ranging in size from 0.02m x 0.05 x 0.04 to 0.27m x 0.18m x 0.35m) bonded with lime including crushed chalk and shell fragments. The foundation courses were abutted by an internal clay silt levelling layer (14006) including clay silt with chalk fragments, flint and pebbles. A mixed selection of finds was recovered from this layer, including blackware and earthenware pottery (dating from the 15th-17th Century), animal bone and CBM.

6.3.3 This surface had been truncated by posthole feature F1402 recorded in the eastern trench section (Plate 8.7), which was itself truncated by later wholesale removal of deposits down to foundation level (probably during the early 20th century 'wall chasing' excavations). What remained of the posthole

cut (14004) could be observed in section, measuring 0.26m in width and 0.30m in depth. It was defined by a sub-rectangular cut filled by yellow brown sandy clay (14005) with a clay/mortar lens evident in the eastern section. Also excavated in sondage, the precise function of this feature and relationship to surrounding deposits was not clear, and no finds or other dating evidence was recovered.

6.3.4 With upstanding walls surviving to a height of approximately 12 metres, early 20th century removal of deposit down to foundation layers would have required remedial action to safeguard the refectory structure. This was provided by a substantial consolidation layer of sterile, coarse orange-yellow loose sand (14003) likely to have been sourced from the now redundant sand pits at the end of the Abbey's southern driveway (Plate 8.3). Overlaid with mid grey brown sandy silt subsoil, the soft, malleable composition of these later layers account for the substantial rabbit burrowing observed from the surface. Though the residual effect of this activity on the adjacent foundations could not be assessed, bioturbation in this part of the refectory area was broadly confined to the later 'landscaping' layers, and is not causing significant impact to the monastic deposits.

6.4 Allotment Area

6.4.1 Three trenches (20, 21 and 22) were located along the southern boundary of the site in a low lying area used recently as domestic allotments for Leiston's Christian retreat. The purpose of the trenches in this area was to establish the presence or otherwise of structural remains (Q4), and investigate the potential evidence for a secondary gatehouse adjoining the north-south site access road. Numerous mixed finds, including CBM, animal bone, oyster shell, metal, lead, glass, slag and pottery, were recovered from topsoil and subsoil deposits in this area, the probable result of recent spoil heaps and dumping at the edge of site.

Trench 20 (Figure 9) http://goo.gl/an52N7

6.4.2 Trench 20 was situated adjacent to the north-south route way into the site, now defined by a public footpath linking the village of Leiston in the south with Theberton in the north. Though this route is now the lesser of Leiston's two access points (eclipsed by the east-west tarmac driveway) it is by far the most striking approach, bridging the southern precinct boundary ditch and dividing the monastic complex along it's centre line.

6.4.3 Once superficial deposits had been removed, an east-west orientated wall F2001 was immediately observed (Plate 9.1), truncated by a later hedge line running parallel to present driveway. A 0.80m x 0.80m sondage was excavated against the northern face of the wall (Plate 9.4), revealing an irregularly bonded, stepped foundation wall (20005) of handmade red brick bonded with creamy white lime mortar with shell inclusions. The bricks were uniform, measuring 0.20m x 0.05m x 0.08m, with the lower foundation course laid in English Garden Wall style and the upper course in a Flemish pattern, the dimension of the bricks being consistent with 15th Century 'Tudor' type bricks

(See Mills, Section 11). No foundation cut was observed in the sondage, and the wall was constructed directly on top of a compact levelling layer F2003. This was defined by a light greyish brown clay silt (20012), overlaid by a yellow sandy surface (20006). This deposit abutted the wall feature, and contained a mixed assemblage of animal bone, CBM and Late 15th – Mid 16th century Reared/Aachen Stoneware.

6.4.4 Due to the small size of the trench it was not possible to identify if this formed an internal or external surface; neither was it clear whether the wall comprised part of a larger roof bearing structure or was part of a longer boundary wall aligned with the adjacent precinct ditch. The wall had been severely truncated at the western, driveway end (where a structural return might have been expected) by later natural and post hole features F2004 & F2005 (Plate 9.2). These were positioned parallel to the north-south driveway, following the direct course of a hedge and post line recognised in this area from post-war postcards (Figure 18).

Trench 21 (Figure 10) http://goo.gl/Ne6lYI

6.4.5 Trench 21 was the middle of three trenches excavated to evaluate the former allotment area, and also measured 3m x 3m. Topsoil and subsoil deposits (21001 & 21002) were removed, after which the trench was half sectioned down to the depth of the unmodified natural subsoil (21008). Two linear features were observed in this section; the first was a shallow gully F2101 extending east-west across the trench with a rounded terminus at its eastern end (Plate 10.1). It was defined by a 'u' shaped cut [21004], and measured 1.45m in length, 0.26m in width and 0.07m in depth, and was filled by dark grey brown sandy silt (21005) containing no finds. The second feature F202 was observed adjacent to the southern trench edge, characterised by a gradual sloping cut [21006] filled with a dark grey brown sandy silt (21007). It continued beyond the limit of excavation, and though the feature extended on a similar alignment with the adjacent precinct boundary ditch, it was not sufficiently exposed to assess any form of association, and no finds or dating evidence was recovered.

Trench 22 (Figure 11) http://goo.gl/MoUEbY

6.4.6 Trench 22 was the easternmost of the three trenches designed to evaluate the former allotment area. It was defined by a series of overlying layers, likely to have been dumped as spoil in this back corner (Figure 11). Once topsoil and subsoil (22001 & 22002) were removed, a mixed deposit layer of loose, orange brown sandy silt ((22003) was recorded extending across the whole trench. This was excavated in two north-south and east-west sections down to the unmodified natural subsoil (22007), encountering two further dump layers (20004 & 20007) with frequent chalk and mortar inclusions. A mixed assemblage of flint, CBM and pottery (including late 14th – late 15th century Langerwehe Stoneware) was recovered from these layers.

6.5 The Eastern Field

6.5.1 Trenches 15, 16, 19 and 23 were located in a partially characterised area to the east of the Abbey, previously excavated in 1985 by English Heritage and interpreted as the location of the infirmary buildings (Kerr, forthcoming). Crop marks delineating the outline of former structures were evident during the 2013 and 2014 field season, but further investigation was not possible due to time and logistical constraints. The cultivation of potatoes in this field in 2014 underlined the need to measuring the attritional effects of agriculture on any surviving archaeological deposits, and assess the nature of structural remains in this area.

6.5.2 Kerr's earlier excavation recorded structural remains only 0.2m below the surface. These were 'scarred by furrows, but floors and other layers survived within and around the remains of buildings' (Kerr, Forthcoming). Following negotiation with the landowner and tenant farmer, two small 10m X 2m trenches were located above Kerr's 1985 trench 2 (overlaid by Trench 16) and 1985 trench 3 (overlaid by Trench 19). Once crop was removed, all deposit was excavated by hand in a series of sections, with all spoil hand sieved to provide spatial control on finds and assess the impact of modern ploughing.

Trench 15 (Figure 12) http://goo.gl/A26gcz

6.5.3 In addition to the two trenches directly under the plough, Trench 15 was positioned immediately to the west of the current field boundary directly opposite Trench 16. If archaeological remains were identified on both sides of the hedge line, the assumption was that this intervention would provide baseline data on the effects of the current farming regime. Unfortunately, no significant finds or features were recorded in this trench, indicating that structural remains do not continue from the eastern field into this part of the Abbey complex. Once topsoil (15001) was removed by hand, numerous mixed bulk finds were recovered from a mid orange brown sandy clay subsoil deposit (15002). These included CBM, animal bone, shell and pottery including Late Medieval Transitional Ware (1400-1600) and Langerwehe Stoneware (late 14th to late 15th Century).

Trench 16 (Figure 13) http://goo.gl/Xfkpc7

6.5.4 Trench 16 was positioned on a north-south alignment, perpendicular to Kerr's 1985 trench 2 in which the remains of a cobbled foundation wall were recorded associated with a gravel surface covered with oyster shells. Once crop had been removed, topsoil was excavated by hand in five segments to provide spatial control for finds retrieval. Several deep plough furrows were encountered (Plate 13.4), and though these were clearly modern features, were recorded archaeologically to assess the impact of ploughing on any buried archaeological deposits.

6.5.5 The earliest deposits in trench 16 were represented by compacted surface layers (16009 & 16010) consisting of greyish yellow mortar with CBM inclusions (Plate 13.5). No evidence of the cobbled foundation wall recorded in 1985 was observed, or any indication that this had been recently robbed out,

suggesting that it remained beyond the limit of excavation. The surface had been subject to significant attrition however, with a series of narrow scoured grooves indicating the recent use of a subsoiler (a tractor mounted implement used to loosen and break up soil at depths below the level of traditional ploughing).

6.5.6 Above this, three plough furrow features F1601 – F1603 (Plate 13.3) were recorded, comprising cuts [16003, 16005 & 16007] and fills (16004, 16006 & 16008). These were defined by narrow linear cuts, 0.2m wide and 0.1m deep, with rounded bases and steep sides. Mixed finds were recovered from these furrows, including CBM, ferrous material, glass, and post-medieval pottery. These were concentrated in the lower, southern portion of the trench as a consequence of being dragged downslope by the plough, and further indication of ongoing attritional impacts.

Trench 19 (Figure 14) http://goo.gl/FhxCQR

6.5.7 Trench 19 was a complex trench located directly above a structure interpreted by Kerr as a substantial 'rectangular building', on the same alignment as the surviving claustral buildings (figure 19), divided into two rooms, the east room slightly smaller than the west room.' The trench was positioned at right angles to 1985's trench 3, extending across Kerr's 'west room' to also encompass previously unexcavated areas outside and inside the structure (Figure 15). Once topsoil and subsoil was removed (also removed in segments to assist with finds retrieval) the building's outer wall (Plate 14.7), recorded as Feature F1902, was the first significant evidence to be encountered. It was a substantial load bearing structural wall, comprising mortared limestone, chalk and flint cobbles, measuring 0.42m wide and extending east-west across the trench. This was composed of a foundation cut [19022] and masonry fill (19012) with a sherd of late 15th – mid 16th century Raeren/Aachen Stoneware recovered from the structure.

6.5.8 Further features were identified from within the western room of the structure confirming evidence previously identified during the 1985 investigation (Plate 14.3). These included clay floor layer (19004 & 19011), substantial areas of *in situ* burning, areas of inset brick (19024) and floor tiles (19015). These internal structural deposits had been mortared directly into a compact clay levelling layer (19016), representing the primary phase of building construction.

6.5.9 To the south and immediately outside the building, an equivalent and contemporary clay levelling layer was identified, truncated by later pit feature F1901. This feature extended beyond the limit of excavation, and was defined by a substantial sub-rectangular cut [19013] measuring 1.2m+ long, 2m+ wide and 0.55m deep. It contained several fills (19014, 19018 & 19023) with various mixed finds including CBM, animal bone, and pottery dating in range from 14th to the mid 16th century. In character it's composition was similar to the post-medieval rubbish pits excavated in Trench 9 in 2014, and it was interpreted as later post-dissolution activity.

6.5.10 Recent agricultural activity had been found to substantially impact these features, with a similar collection of narrow scoured grooves (Plate 14.1) indicating the recent use of a subsoiler dragging any associated finds downslope. Above this the subsoil (19002) was excavated in nine segments to enable the distribution and dispersion of finds to be plotted. A series of four modern plough furrows F1905 were recorded truncating the subsoil, similar in dimension and profile to those recorded in Trench 16.

Trench 23 (Figure 16) http://goo.gl/UFtdGd

6.5.11 Trench 23 was a hand dug test pit measuring 1m x 1m, excavated as a late addendum to the scope of works following a site visit consultation with Historic England. It was positioned to investigate a 25m+ linear feature identified through low-level aerial photography in 2013, that also began to re-emerge towards the end of the 2015 field season. Once a shallow layer of topsoil (23001) had been removed, the heavily truncated remnants of a foundation wall (23002) were recorded (Plate 15.1). It measured between 0.60m and 0.70m in width and contained cobbles of a size ranging between 0.10m and 0.20m continuing beyond the limit of excavation. No dating evidence was recovered for the feature, and the feature could not be characterised within such a small-scale excavation area. However, the scale of the crop mark, alignment with the claustral precinct, and fragmentary remains of lime mortar (23003) indicated that this was likely to be an enclosing wall associated with the infirmary complex.

6.6 The Road Verge and Field Boundary

6.6.1 Two parallel and overlapping trenches were positioned on opposite sides of the field boundary along the main east-west driveway into the site. Both were excavated by hand, and measured 1 x 25m. The precinct boundary ditch identified in the eastern field was presumed to continue into this area, either continuing under the present tarmac driveway, or making a return to the west to enclose the claustral complex. A slight topographic rise was also identified on the grass verge adjacent to the driveway as the potential location for a gatehouse structure, and the modern road looked to have deviated around an obstacle at this point.

Trench 17 (Figure 16) http://goo.gl/C8ol9e

6.6.2 Trench 17 was situated on the Northern boundary of the eastern field, in an area subject to substantial bioturbation from an adjacent rabbit warren (Plate 16.2). A loose grey brown topsoil (17001) was removed by hand to reveal a light orange brown sandy subsoil (17016) into which numerous natural features F1701 had been cut. Numerous finds were recovered from these features, including animal bone and late medieval transitional ware pottery (1400-1600AD), incorporated into the feature fills through bioturbation.

6.6.3 Once subsoil was removed, a large ditch feature F1708 running north - south was exposed in the trench, confirming the continuation of the precinct boundary ditch into this area. The cut (17020) measured 0.65m+ wide x 1.80m long, and contained a lower fill (17021) and an overlying secondary fill (17022).

An upcast bank deposit (17023) was observed in section, though the narrow trench made it difficult to determine the precise sequence of deposition, the cut profile or recover finds or dating evidence from any primary deposits in the base of the feature.

Trench 18 (Figure 18) http://goo.gl/x1nPMy

6.6.4 Trench 18 was positioned along a narrow grass verge adjacent to the present main driveway, spanning either side of a pronounced topographic rise at a point where the road changed direction slightly. An unbonded flint cobbled surface F1802 was encountered immediately below the topsoil (18001), concentrated in the centre of the trench and dispersing towards the ends. Cobbles varied in size and composition, with larger limestone cobbles and sandstone boulders (18007) inset into the surface natural, with smaller cobbles (18005) to the east and west of the central concentration (Plate 17.4).

6.6.5 Following a consultation site visit from Historic England, the trench was widened in the centre to investigate the potential for an adjacent building foundation. No further foundation stones were observed in this area that would be consistent with a gatehouse structure, however, the concentration of cobbles, location of the adjacent precinct ditch, topographic anomaly, and slight change in road direction were all indicative of a boundary crossing of some description. Further work in this area may reveal evidence for an associated structure, potentially extended into the current road, but this could not be determined within the confines of the trench. Later rubble deposits (18006) were identified in the western portion of the trench, containing multi-period finds including CBM, metal and ferrous objects (Plate 17.3). These were likely to have been deposited in the modern period, during resurfacing of the current driveway.

7 PALAEOENVIRONEMENTAL 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 2015, Section 5.5.8).

7.1.2. This section will assess the significance, preservation and potential of plant macrofossils from well-stratified features described in Table 1 below. Of the 35 soil samples taken, all were processed on site, with 15 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. The purpose of this work was to assess the state of palaeoenvironmental material on site (Q8); to recover evidence relating to farming, food processing or industrial activities (Q9); and to increase understanding of the local environmental context to the archaeological remains (Q10).

Sample	Context	Sample Size (L)	Flot size (ml)	% of context sampled	Contamination	Provisional Interpretation	Provisional Date
55	22003	40	150	5-20	Root action	Re-deposited layer	Late 15th Century
58	18006	40	250	20-40	Root action	Demolition mixed rubble	Unknown
59	18008	20	150	20-40	Mixed with overburden	Fill of cobbled feature	Unknown
65	22003	40	250	5-20	Root action	Re-deposited layer	Late 15th Century
66	14003	40	50	20-40	Mixed with overburden	Sandy deposit	Modern
74	16010	40	30	40-60	Mixed with overburden	layer	Unknown
75	21005	40	200	80-100	none	Fill of linear [21004]	Unknown
76	20010	40	10	20-40	Root action	Post hole fill	Unknown
77	19019	40	250	20-40	Mixed with overburden	Clay floor made ground	15th Century
78	19018	40	10	40-60	none	Fill of pit [19013]	Mid 16th Century
79	17015	40	10	40-60	none	Fill of linear feature	Unknown
80	19015	40	10	40-60	none	Tile floor	Unknown
81	20012	40	50	40-60	none	levelling deposit for wall feature [2005]	Unknown
82	21003	40	75	40-60	none	Dumped layer	15th Century
83	21007	40	25	40-60	none	Recent cut for modern fence	Unknown

Table 1 – Palaeoenvironmental sample detail

7.2 Methodology

7.2.1 Sampling and processing was carried out on site by the by the excavation team using a Siraf-type flotation tank, with specialist advice and attendance as detailed in the Project Design (Wilkins 2015, 43-44). 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 (complete data can be found in Appendix 3).

7.3 Results (see Table 1 and Appendix 2)

7.3.1 No known biases in sampling have been highlighted. Contamination (see Table 1) is due mostly to root action and possible mixing with adjacent contexts.

7.3.2 The samples were not very archaebotanically productive and produced botanical and faunal evidence reflecting disturbed, aerobic preservation conditions and chalky soil that favour the preservation of charred and mineral-replaced plant macrofossils (Campbell et al. 2011,6). This was observed in the author's pervious assessment (Gray 2014).

7.3.3 All flots contained abundant uncharred rootlet fragments and all apart from samples <55> and <59>, contained terrestrial mollusca, most in sample <75>. Samples <65>, <77>, <78>, <83> included shells of the subterranean snail *Ceciliodes acicula* (Müller). This snail borrows well below the ground surface (Kerney & Cameron 1979, 149) and can be indicative of bioturbation and oxygenation of the soil as can rootlets. Earthworm eggs were found in samples <59> and <65>

7.3.4 Modern fragments of grass (Poaceae) stem and chaff were present in samples <66>, <75>, <77> and <80>. Uncharred, probably modern, twig fragments were found in sample <58> and <59). Single modern alexanders (Smyrnium olustrum L.) seeds were found sample <79> and <81>. This wasteground archaeophyte has been considered to be modern because all of its internal tissues were present.

7.3.5 Other uncharred seeds with only the testas surviving, were present in the form of low numbers of ruderal, scrub and grassland plants; elderberry (*Sambucus nigra* L.), fat hen (*Chenopodium album* L.) blackberry/raspberry (*Rubus fruiticosus/idaeus*), common sorrel/curled dock/broad-leaved dock (*Rumex acetosa/crispus/obtusifolius*, it is difficult to identify these seeds to species without perianths) and stitchwort/mouse-ear (*Stellaria/Cerastium*) seeds. It is

difficult to be certain that these plant remains are not intrusive due to the significant evidence of bioturbation.

7.3.6 Charred plant remains are present. 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 As observed in the previous assessment (Wilkins et al. 2014) the quality of preservation with most of these charred remains was 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 (>4mm^2) and of low to moderate quantities in eleven samples (see table 2). Charred cereal grains were found in low numbers in samples <55> (re-deposited layer), <65> (re-deposited layer), <74> (layer), <75> (fill of linear [21004]), <77> (clay floor on made ground), <79> (fill of linear feature), <81> (levelling deposit for wall feature) <82> (dumped layer). The grains were those of bread/rivet wheat (*Triticum aestivum/turgidum),* hulled barley (*Hordeum vulgare)*. No rye (*Secale cereale*) grains were found in this sampling phase. Three charred seeds of cleavers (*Galium aparine* L.) were found in sample <81> and a fragment of poorly preserved possible legume (Fabaceae) was found in sample <75>.

7.3.9 Other items in these flots consisted of the faunal remains already stated, one large fragment of bone in <82> (21003), smaller fragments of bone in <75> <83>, one oyster shell in <77> (19019) and one large fragment. of clinker/coke in <65> (22003). No hammerscale or other magnetic material was found.

7.4 Palaeoenvironmental Discussion

Assessment of the state of palaeoenvironmental (archaeobotanical) material on site (Q8)

7.4.1 The assessment results from the 2015 field season were entirely in keeping with similar observations made following the 2013 and 2014 seasons. The current state of the archaeological and palaeoenvironmental material continues to be 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 (Q9)

7.4.2 Very low numbers of charred plant remain per litre of sampled soil were observed and with many of these grains were in poor condition suggesting that they are residual or redeposited (Q9). Similar examples are typically found in excavations from the Anglo-Saxon periods onwards, and without further dating evidence it is not possible to infer anything about the context and period related variation of these cereals.

The local environmental context to the archaeological remains (Q10)

7.4.2 Unfortunately, the uncharred/unmineralised seeds noted in section 7.3.5. cannot be guaranteed to be from any specific period or location due to their resilience and evidence for bioturbation (Q10). If well-sealed waterlogged organic deposits are encountered during future work, 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, see Evans and Connor 1999,135-136) may also provide useful results.

7.5 Recommendations and Archive

7.5.2 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

The full quantification tables for the faunal archive can be downloaded and reviewed here: https://goo.gl/SrytKA

By Poppy Hodkinson and Richard Madgwick

8.1 Introduction

8.1.1 The 2015 excavation season at Leiston Abbey, carried out by DigVentures recovered a medium-sized faunal assemblage of 1101 bone fragments, 615 of which have been successfully identified (Table 1). The majority of identifiable specimens come from 15th – 16th century contexts, although a large portion of the assemblage also belongs to modern phases. Only 3% of the assemblage has been retrieved from unphased contexts, meaning that the vast majority of the remains are of archaeological value. This assessment report is submitted to DigVentures in conjunction with the primary data excel spreadsheet, which provides context by context information on taxonomic representation, taphonomy and other pertinent comments.

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.

Phase	Cattle	Sheep/Goat	Pig	Horse	Dog	Fish	Bird	Other	M. Mammal	L. Mammal	Unidentifiable	Total	% ID
14thC	1									2	4	**7**	43%
15thC	85	21	7			1	4	6	12	62	99	**297**	67%
16thC	120	26	9	1	1		1	2	8	99	237	**504**	50%
16th-17thC		1	2						1		4	**8**	53%
Modern	44	10	1		3			38	7	17	119	**239**	50%
No Phase	8	7	1				1			4	19	**38**	50%
Total	**258**	**65**	**22**	**1**	**4**	**1**	**6**	**46**	**30**	**184**	**490**	**1109**	

Table 2 – Representation of taxa (by NISP - Number of Identified Specimens) and percentage of identifiable specimens from 2015 Leiston Abbey faunal assemblage, by phase

8.2 Method

8.2.1 Topsoil was removed by either machine or by hand, after which excavation proceeded by hand in all trenches. Deposits from all features were 100% dry sieved using a 5mm gauge. More comprehensive details on recovery strategy can be found in the Leiston Abbey evaluation assessment report and updated project design (Wilkins 2015, 27).

8.2.2 The material was assessed by the authors in the Osteoarchaeology laboratory at Cardiff University following Cardiff Osteoarchaeology Research Group (CORG) protocol (see Mulville 2005). Identification was aided by the CORG comparative collection and reference library. 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 (following Serjeantson 1996). Rib fragments with surviving vertebral articulations were recorded to taxon size, as were vertebral centra. Of cranial specimens, only occipitals, zygomatics, maxillae with at least two teeth and nasals were recorded. Non-articulating carpals and tarsals (except for the calcaneum, navicular-cuboid and astragalus) were not recorded.

8.2.3 Bone fragments were assessed for their potential for either metric analysis (following Von den Driesch 1976) or age (through epiphyseal fusion and dental eruption/attrition) and sex determination. Evidence of burning, butchery and other taphonomic processes, such as gnawing or digestion, were also recorded. The condition of fragments in each context was recorded on a scale of 1 to 5, whereby 1 indicated an excellent condition and 5 indicated very poor 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. This system is only internally consistent and cannot be used to compare bone preservation across different assemblages. In some instances, contexts comprised more than one bag of bone and the bags may have had different patterns of preservation. In these cases, a generalized overview of preservation across these bags has been provided.

8.3 Assemblage Summary

8.3.1 The 2015 Leiston Abbey assemblage comprises 615 identifiable specimens, the majority of which derive from 15th-16th century contexts (Table 1). While fragments were recovered from 14th and 17th century contexts, they are very small in number and are therefore of limited interpretive value. Additionally, specimens from unphased and modern contexts have little interpretative potential and the former are therefore not discussed further in this report.

8.3.2 The assemblage is generally well preserved, which is reflected in the survival of a substantial number of juvenile and small mammal bones (although it is possible that some of the small mammals may be modern intrusions). A high percentage of specimens (56%) were identifiable to either taxon or taxon-size (ribs/vertebrae), further emphasising the good preservation of the assemblage (Table 1).

8.3.3 Cattle are by far the most prevalent taxon in terms of NISP throughout all phases and contexts (Tables 1 and 2, Figures 1 and 2). Caprines (sheep/goat) and pigs are also present in most phases, but are less common. Other taxa are well represented with lagomorphs (rabbit/hare), rodents and other small mammals, cats and a red deer bone all present in the assemblage. However, the majority of these specimens come from modern contexts. Specimens of bird, dog, fish and horse are also present in small numbers. Inter-phase comparisons of taxonomic composition are at best very coarse in an assemblage of this size, although 15th and 16th century contexts have yielded sufficient bones to allow further interpretation. However, no clear difference in composition can be discerned. Cattle dominate both assemblages with caprine and pig specimens also being well represente.

Phase	Cattle	Sheep / Goat	Pig	Horse	Dog	Fish	Bird	Other	M. Mammal	L. Mammal	Total (NISP)
14thC	33									67	**3**
15thC	43	11	4			1	2	3	6	31	**198**
16thC	45	10	3	0.4	0.4		0.4	0.8	3	37	**267**
16th-17thC		25	50						25		**4**
Modern	37	8	1		3			32	6	14	**120**
No Phase	82	37	30				5		25	21	**23**
Total (NISP)	**258**	**65**	**21**	**1**	**4**	**1**	**6**	**46**	**29**	**184**	**615**

Table 3 – Relative percentage of taxa (by NISP) across each phase of the 2015 Leiston Abbey faunal assemblage

8.3.4 The potential for metric analysis is limited in this assemblage: only 56 fragments can yield at least one measurement (Table 3). Fragments suitable for age determination are more abundant: 138 fragments provide data for dental attrition or epiphyseal fusion (Table 3). Three specimens have the potential for sexing (Table 3). However, a number of these specimens come from animals that are not of primary importance in addressing research questions surrounding diet and husbandry; such as rodents and other small mammals. Fortunately, specimens of these taxa are most prevalent in the 'Modern' phase assemblage.

Phase	Meas.	Age	Sex
14thC	1	1	
15thC	17	44	2
16thC	20	49	
16th-17thC	1	2	
Modern	13	36	
No Phase	3	5	1
Total	**57**	**139**	**3**

Table 4 – Specimens with metric, ageing or sex data across each phase

8.3.5 Evidence of burning is minimal, a total of 11 fragments are charred or calcined (Table 4). Butchery is present on 37 bone specimens: both cut and chop marks have been recorded (Table 4). Gnawing was present in three contexts, and mould/concretions were also noted on specimens across several contexts.

Phase	Butchery	Burning
14thC		
15thC	13	2
16thC	20	6
16th-17thC		
Modern	4	2
No Phase		1
Total	**37**	**11**

Table 5 – Specimens with evidence of burning and butchery across each phase

8.4 Bone Condition

8.4.1 In general, the assemblage was well preserved. Surface degradation was minimal and almost all fragments had intact cortical bone. A large number of neonatal and small mammal bones provides further evidence for the excellent preservation, as does the high percentage of identifiable specimens. However, preservation was variable and some specimens had been subject to damage that occurred either during excavation or during finds processing and storage. A small number of specimens had not been fully dried prior to bagging. They were damp and therefore susceptible to further damage.

8.4.2 Using a scale of '1 to 5' to grade the condition of the bones in each context provides only a rough ordinal scale of bone condition but it is nonetheless a useful measure to provide an overview of preservation. Results emphasise the good condition of the bones in this assemblage. Just 3% of the 30 contexts were graded as 'very poor' (5), while 30% were 'excellent' or 'good' (1-2) and 57% were 'average' (3) (Table 5).

Condition	1	2	3	4	5	Total Contexts
14thC			1			1
15thC	2	2	4			8
16th-17thC			1			1
16thC		1	1	2		4
Modern	2		3	1	1	7
Unphased	1	1	7			9

Table 6 – Condition of the bones across all phases

8.5 Phased Assemblage Descriptions

14th Century

8.5.1 Three identifiable fragments were recorded from 14th century deposits: one cattle specimen and two from large mammals. One fragment can be

measured and another provides ageing evidence. There is no evidence for sex determination, butchery or burning (Table 4).

15th Century

8.5.2 The NISP for contexts from this phase is 198. Cattle are the most abundant taxonomic category, followed by large mammal (ribs and vertebrae), caprines and medium mammal (ribs and vertebrae) (Figure 3). Pigs are also recorded during this phase. Lagomorphs, red deer, birds, a cat humerus and a fish vertebra are present. A small number of juvenile individuals have also been identified from this phase, including cattle and bird. The bird specimen in question is a tarsometatarsus and is likely to belong a young cockerel, as there is evidence of a spur scar. A total of 17 specimens can be measured, 44 can be aged and two fragments have evidence for sex determination. There is potential here for withers height and age profile reconstruction. Thirteen specimens have evidence of butchery (both cut and chopped) and two have signs of burning. This phase also contains an articulating pair of specimens suitable for ^{14}C dating. It is a cattle distal femur metaphysis with matching unfused epiphysis. This element clearly represents a primary deposit.

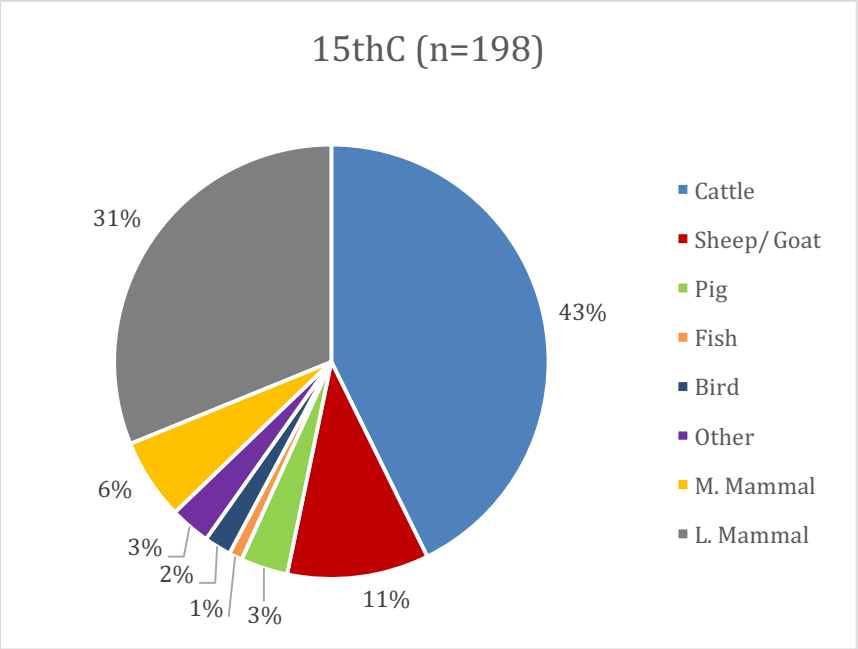

Chart 1 – Proportions of different taxa present (by NISP) in 15th Century context

16th Century

8.5.3 Trench Fragments from this phase are largely well preserved, although some mould staining and root action is visible on a few specimens. Additionally, some were a dark brown colour and damp inside the bag; these specimens were very fragile and a cattle mandible (containing P4, M1, M2 and M3) crumbled upon inspection. A total of 267 fragments have been identified to a taxonomic category from contexts in this phase. Cattle and large mammals

make up the most abundant taxa, followed by caprines, pig and medium mammals (Figure 4). 'Other' taxa (in this instance lagomorphs), horse, dog and bird were also recorded but only in negligible quantities. The potential for metric and ageing analysis is good, with 20 specimens yielding measurements and 49 providing ageing data. However, the potential for reconstructing husbandry regimes is limited, as none of the specimens could be assigned to a sex. Carcass processing, cooking and depositional practice are evidenced in twenty butchered fragments and six that are burnt. The butchery evidence for this phase is very distinct with heavy chopping commonplace. Gnawing is also present on many bones.

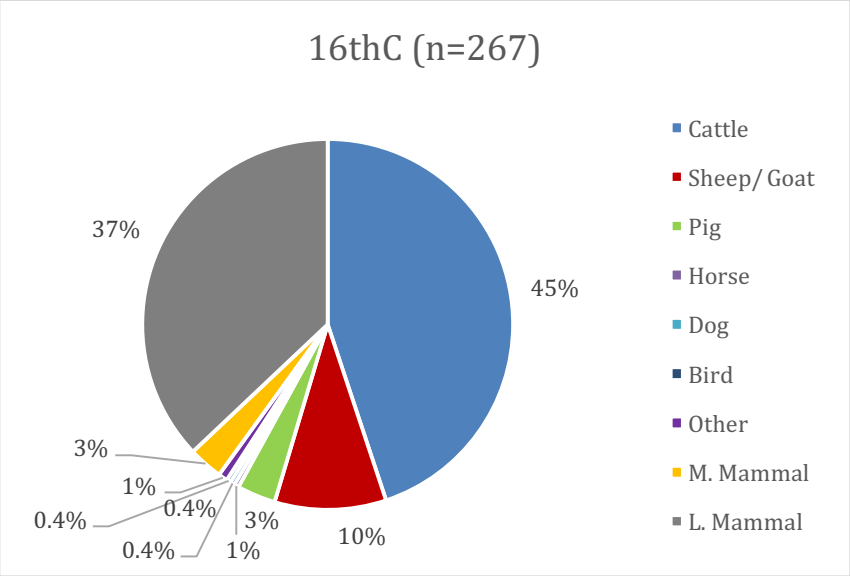

Chart 2 – *Proportions of different taxa present (by NISP) in 16th century contexts*

16th-17th Century

8.5.4 Trench Contexts from this phase produced only a very small sample of bone; only four fragments have been identified: pig, caprine and medium mammal. One of the pig specimens, a mandible, was heavily covered in mould and concretions. One specimen can be measured and two can provide data on age. There is no evidence for sex, butchery or burning.

Modern

8.5.5 Trench A total of 120 fragments have been identified from modern contexts. A number of specimens within this phase also display recent signs of damage: fresh breaks as well as surface degradation due to damp storage conditions. Other than this, the preservation is very good, as is expected from modern deposits. Cattle, 'other' taxa (mainly rodents and lagomorphs) and large mammal are the most abundant taxonomic categories (Figure 5). Small mammal bones were so abundant that it was possible to identify multiple individuals within single contexts. Caprines, medium mammals, dogs and a single pig specimen have also been recorded. Thirteen fragments can be measured and 36 provide ageing evidence. No evidence for sex was

recorded. Four specimens were butchered and two were burnt. Gnawing was present on the proximal humeri of both cattle and caprines, an area of the skeleton that is commonly targeted by scavengers.

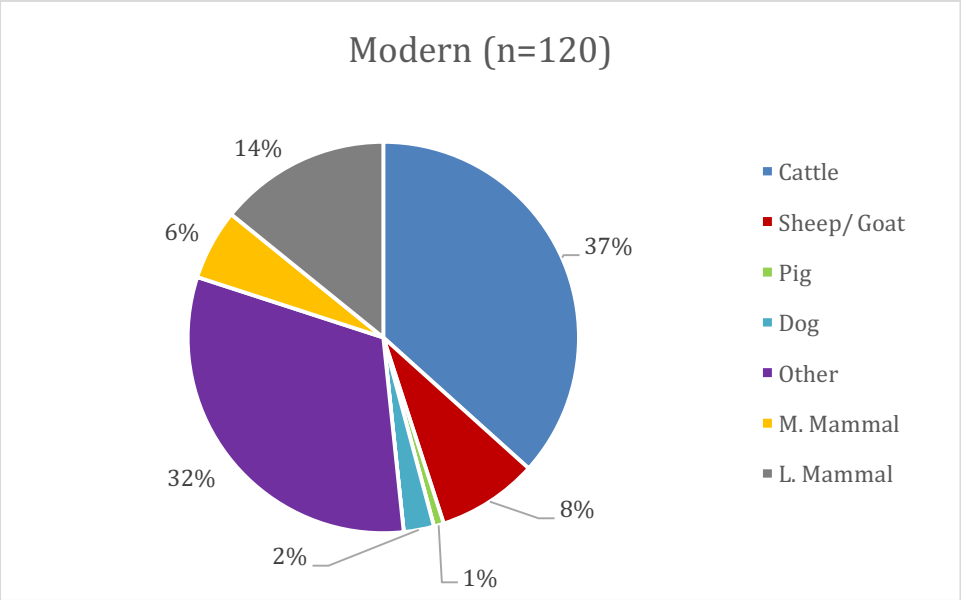

Chart 3 – Proportion of different taxa represented (by NISP) in modern contexts

8.6 Discussion

8.6.1 The 2015 excavation at Leiston Abbey unearthed a reasonably sized faunal assemblage, the majority of which derived from 15th and 16th century contexts. Most of the material was in very good condition, and displayed only minor taphonomic changes, indicating a rapid disposal and burial of the faunal remains in most cases. Few specimens were complete, but on the whole fragmentation was limited, with full diaphyseal circumferences often surviving on long bones. Modifications indicative of sub-aerial exposure, such as weathering, gnawing and trampling were scarce. However, there was considerable variability in bone preservation at both an inter- and intra-context level.

8.6.2 Despite the good preservation and high proportion of identifiable specimens, the interpretative value of the assemblage is still fairly limited. This is mostly due to the size of the samples from each phase, which are generally too small to inform reliable interpretations. Excepting the modern dataset, only the 15th and 16th century assemblages are substantial enough to make meaningful comparisons and evidence for taxonomic variation is negligible. The presence of some wild species, such as lagomorphs (hare/rabbits) and red deer are of potential archaeological interest, as they are uncommon in monastic assemblages (Moreno-Garcia 2007). However, it is possible that some of the lagomorph specimens are intrusive. Modern material is also well represented

in this assemblage, but it is not discussed here as it provides only tangential information for the Leiston Abbey project aims.

8.6.3 The potential for metric analysis is good with 40 specimens from phased contexts (except modern) being complete enough to yield measurements. The sample size is not substantial enough to support robust interpretation but can provide some useful information on whether size changes are likely to have occurred in domestic animals. This could be a fruitful line of enquiry, as it is a pertinent question in medieval and post-medieval archaeology, with improvements in nutrition, breeding and husbandry regimes causing rapid size increases in some instances (Thomas *et al.* 2013). Ageing information was also comparatively abundant in the assemblage. Therefore, the potential for age reconstruction is relatively good and inferences concerning husbandry regimes, the role of the domestic species and how these featured changed over time may be possible. However, the majority of ageing information derives from epiphyseal fusion evidence. This provides only a minimum or maximum age and therefore resolution is often too limited to reconstruct age profiles in detail. Few in tact tooth rows, which provide much more precise ageing data, were recovered.

8.6.4 The presence of neonatal animals in the assemblage is indicative of an on-site breeding population, but this does not preclude some animals being raised in the abbey's hinterland. As is typical in faunal assemblages, identifying the sex of individuals was more problematic, as most taxa have few dimorphic elements and only a negligible number of sexable specimens were recovered, further hindering the reconstruction of exploitation strategies. In assemblage scanning as part of an assessment of potential, it is very likely that subtle pathological alterations will be missed. However, the good surface preservation of the bones means pathological analysis may produce useful evidence for animal disease or activity related pathologies linked with intensive husbandry remains, as are common in post-medieval British domesticates. A single pathological specimen was observed during recording, a bird tarsometatarsus with marked exostosis.

8.6.5 Burnt bone was scarce in this assemblage. This provides useful information on waste disposal methods at the abbey. The lack of calcination suggests that food waste was rarely disposed of in fires. The scarcity of charring suggests that meat was rarely roasted on the bone, and would more frequently have been filleted and/or stewed. There is, however, a modest amount of evidence for butchery in the 15th and 16th century contexts; both fine knife cuts and heavy chop marks are present in the assemblage. Investigation into the representation of different skeletal elements also represents a fruitful future line of enquiry.

8.6.6 Anatomical elements are not quantified at assessment level, but it was noted during recording that a large proportion of cranial and mandibular fragments were present in several 16th century contexts. Full quantification will clarify the strength of this pattern and it is possible that these contexts represent dumps of primary butchery waste. Detailed analysis of the butchery, combined with

age profiles should shed light on the role of the abbey in its local and regional context.

8.6.7 The interpretative potential of the material from 2015 excavations alone is limited. However, combined with material from the 2013 and 2014 seasons, the fauna now represents a fairly substantial collection with considerable potential for reconstructing and tracking changes in taxonomic abundance, husbandry regimes, carcass processing practices and domesticate size. There is sufficient material across the assemblage to consider novel scientific programmes of analyses. Carbon and nitrogen isotope analysis would be of particular value to investigate husbandry and foddering in the domesticate assemblage. This approach is inexpensive and involves minimal bone destruction and is therefore recommended. It would represent a particularly novel study, as very little isotope research on post-medieval animals has been undertaken in Britain (Fisher and Thomas 2012 is a rare exception).

8.6.8 This assemblage makes a valuable contribution to the growing corpus of material from post-medieval monastic contexts, especially as comparative sites with good faunal data are scarce in Suffolk. The interpretative potential of the assemblage is also enhanced by the relatively secure phasing of the vast majority of the contexts, with few remains deriving from unphased deposits. Some suitable ^{14}C samples have been noted during recording should a radiocarbon dating programme be undertaken, but this has limited potential for a post-medieval assemblage with good stratigraphic phasing.

8.6.9 Leiston Abbey is unusual in being of the Premonstratensian denomination. Little is known about this denomination and, to the authors' knowledge, no zooarchaeological research pertains to it. Therefore, detailed analysis can provide new insights into dietary practice in this denomination and how this may have differed from other monastic orders. There is an abundance of broadly contemporaneous monastic sites across Britain which would make for fruitful comparison.

8.7 Recommendation

8.7.1 The 2015 assemblage is recommended to progress to full analysis along with material from 2013 and 2014 seasons. Continuing excavation in 2016 encompassing Leiston's first site at Minsmere will further bolster the assemblage, thus enhancing its interpretative value. 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 40 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).

9.2 Methodology

9.2.1 The flints were catalogued according to broad artefact/debitage type and retouched pieces were classified following standard morphological descriptions (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
14003	14	Four flakes. One blade-like flake that exhibits dorsal blade scars and platform edge abrasion.
14006	14	Four flakes (1 broken).
15001	15	Twelve flakes (5 broken).
16002	16	Section 2. One flake.
16002	16	Section 5. Three flakes (1 broken). One of these flakes exhibits platform edge abrasion.
18005	18	One flake.
19002	19	One flake.
19002	19	Segment 2. Four flakes (1 broken). One piece of burnt unworked flint.
19002	19	Segment 3. One flake.

Context	Trench	Description
19002	19	Segment 4. One flake. One piece of burnt unworked flint.
20002	20	Two flakes (1 broken). One piece of burnt unworked flint.
20003	20	Two flakes, including 1 heavily corticated example.
21003	21	One blade-like flake with platform edge abrasion and dorsal blade scars. Probably Mesolithic-early Neolithic.
22003	22	One flake.
22004	22	SF103. One flake.
22004	22	One flake (broken). Slight edge damage or retouch.

Table 7 – Flint assemblage by context and trench (SF refers to small finds)

9.3 Results

9.3.1 Forty struck flints and three pieces of burnt unworked flint was recovered from excavations at Leiston Abbey in 2015. The flints are all unretouched flakes of squat proportions, with the notable exception of two flints considered further below. The bulbs, where present are prominent, indicating that these flakes were probably detached using a hard hammer percussor, such as a flint or quartzite hammerstone. Platform-edge abrasion is notably absent. These simple reduction strategies are most characteristic of the later Neolithic and Bronze Age.

9.3.2 Two flakes, from contexts (21003) and (14003), are of narrower proportions than the majority of the assemblage and both exhibit platform-edge abrasion and dorsal blade scars. The former indicates that reduction was carefully controlled, while the latter indicates that these flakes derive from a blade-orientated industry. These two flakes are likely to date from the Mesolithic or early Neolithic, but in the absence of typologically distinct artefacts closer dating cannot be attempted. The burnt unworked flint is not intrinsically datable.

9.3.3 The lithic assemblage from the 2015 excavations compares well to the material recovered from the 2013 and 2014 excavation seasons, but again serves only to indicate the presence of some prehistoric activity in the local environs.

9.4 Recommendations and 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 flint work 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 226 sherds with a total weight of 2568g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 0.85. The assemblage consists of medieval and post-medieval date. 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).

10.1.2 The following ware types were noted:

Pottery Type	Date	Number of Sherds	Weight (g)	EVE
Late Hedingham -Type Ware	Mid 14th – 15th Century	14	194	0.17
Grimston ware	Late 12th – 15th Century	1	4	0
Yarmouth-Type Glazed Ware	13th-15th Century (Mellor 1976)	2	10	0
Surrey Whiteware	Mid 13th - Mid 15th Century (Pearce and Vince 1998)	1	1	0
Late Medieval Transitional Ware	15th – 17th Century	23	200	0.06
Late Medieval Transitional Ware	15th – 17th Century	97	1280	0.30

Pottery Type	Date	Number of Sherds	Weight (g)	EVE
Late Medieval Transitional Ware	15th – 17th Century	10	139	0.16
Langerwehe Stoneware	Late 14th – Late 15th Century (Gaimster 1997)	8	110	0.08
Raeren/Aachen Stoneware	Late 15th – Mid 16th Century (Gaimster 1997)	21	236	0.08
Low countries Redware	15th – 17th Century (Hurst et al 1986, 130)	1	31	0
Frechen/Cologne Stoneware	Mid 16th – 17th Century (Gaimster 1997)	9	60	
Midland Blackware	Mid 16th – 17th Century	2	69	
Glazed Red Earthenware	16th – 19th Century (Wade and Martins 1983)	15	132	
Staffordshire Slipware	Mid 17th – 18th Century	2	19	
English Stoneware	1680 + (Mountford 1971)	1	19	
Miscellaneous 19th and 20th Century wares	19th and 20th Century	19	64	

Table 8 – Pottery Fabric Types Recovered from Leiston

10.1.3 The range of fabric types is broadly the same as that from the previous two seasons' excavations at Leiston (2013 and 2014). As with the reports on the pottery from those excavations, this report is intended as an interim statement due to the on-going nature of the project, although the material from this site has been fully quantified and an archive-standard analytical database has been compiled.

10.1.4 The range of vessel forms from these trenches is slightly different from that from the earlier excavations in that cooking pottery is very scarce and drinking vessels, particularly German Stoneware mugs, appears much more common. The significance of this will be discussed in analysis, but suggests that the areas examined by the latest trenches are in areas which were functionally different to the earlier ones. The mean sherd weight from this group is also somewhat smaller than that of the pottery from the earlier excavations, indicating that the areas examined were not in main places which were used for the disposal of refuse.

10.2 Phased Assemblage Descriptions

Trench 14

10.2.1 All the contexts from this trench are of post-Dissolution date, although pottery contemporary with the life of the Abbey is present, indicating that there has been some disturbance of earlier strata. The medieval pottery is a mixture of fragments of German Stoneware drinking vessels and earthenware jugs, which is typical of the period.

	P328		P401		P403		P405		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
14002			1	5	1	13			MOD
14003	1	4	1	5			1	3	MOD
14006									M16thC
	P411		P425		P428		P1000		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
14002			2	3	1	11	2	7	MOD
14003							1	2	MOD
14006	1	4	1	5					M16thC

Table 9 – Pottery Occurrence, Trench 14

Trench 15

10.2.2 The only medieval pottery from this trench are two sherds of German Stoneware drinking vessels, however the two contexts that were represented in this trench were poorly stratified subsoil deposits.

	P403		P404		P405		P425		P1000		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
15001					1	10	5	79	4	9	MOD
15002	1	46	1	36							L14thC

Table 10 – Pottery Occurrence Trench 15

Trench 16

10.2.3 This trench was excavated in an area adjacent to the monastic infirmary complex, and recovered a mix of post-Dissolution and earlier pottery, indicating that there had been some disturbance of earlier strata. The few identified sherds of medieval pottery were fragments of German Stoneware drinking vessels and earthenware jugs.

	P401		P404		P405		P407		P425		P438		P1000		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
16002			1	3	1	2			1	1			4	18	MOD
16004							1	5							M16thC
16006	1	8									1	19			L17thC

Table 11 – Pottery occurrence in Trench 16

Trench 17

10.2.4 All pottery recovered from this trench was medieval, though substantial animal burrowing was observed in this area. Most of the material was recovered from contexts (17005, 17013 and 17016), and cross-fitting sherds indicated that these originated from a large glazed jug in fabric P402.

	P327		P402		P406		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
17005			7	65			15thC
17007			2	12			15thC
17009	1	35					M14thC
17011	4	47	1	60			15thC
17013			31	203			15thC
17016			50	808	1	31	15thC

Table 12 – Pottery Occurrence for Trench 17

Trench 19

10.2.5 This trench produced a large and varied collection of pottery, with most dating to the medieval period. As is common on this site, the assemblage consisted of a mixture of glazed earthenware (mainly jugs) and German Stoneware drinking vessels. The medieval sherds were of no great size, suggesting that most of them are the product of secondary deposition, suggesting scattered rubbish rather than an area of intense activity.

	P327		P329		P401		P402		P403		P404		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
19002	6	45			4	18			2	16	1	37	MOD
19004	1	6											M14thC
19006			1	2	1	9							15thC
19008	1	3											L15thC
19010					1	2							M16thC
19012													L15thC
19014					1	3	3	103	1	25			L15thC

19018							3	29	3	28	1	4	M16thC
19019									1	6	1	7	15thC

Table 13 – Pottery Occurrence in Trench 19

Trench 20

10.2.6 The majority of the pottery from this trench was post-medieval, although a small quantity of earthenware and German Stoneware sherds were also present.

	P401		P405		P407		P428		P1000		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
20002	1	2	3	14	4	23	1	8	5	23	MOD
20003	3	56									15thC
20006			1	4							M16thC

Table 14 – Pottery occurrence in Trench 20

Trench 21

10.2.7 The majority of the pottery recovered from Trench 21 dates to the medieval period, originating from three deposits (21001, 21002 and 21003). These consisted of large, unabaraided sherds of glazed earthenwares, although a few fragments of German Stoneware were also present.

	P327		P356		P401		P403		P404		P405		P407		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
21001					1	4	1	5							15thC
21002			1	1	7	53					1	40	1	10	M16thC
21003	1	58			1	35			1	7					15thC

Table 15 – Pottery occurrence in Trench 21

Trench 22

10.2.8 All pottery from Trench 22 was medieval in date, comprising mainly German Stoneware drinking vessels recovered from layer deposits (22002 and 22004).

	F329		F404		F405		
Context	**No**	**Wt**	**No**	**Wt**	**No**	**Wt**	**Date**
22002	1	8					13thC
22003			1	7	1	25	L15thC
22004			1	9			L14thC

Table 16 – Pottery occurrence in Trench 22

10.3 Discussion

10.3.1 The same general comments in the assessment for the material from the earlier excavations apply to this assemblage, although most of the pottery from this year's trenches consists of fairly small and scattered groups. There is a distinct difference in vessel types in this year's excavation, the frequency of German

Stoneware mugs and jugs indicates that there was a change in functionality in the areas targeted by trenches in 2015.

10.3.2 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 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 Archive

10.4.1 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.

11 CERAMIC BUILDING MATERIAL

By Phil Mills

11.1 Introduction

11.1.1 There were 2583 fragments, weighing 113.6kg, of building material presented for assessment. This included 7 fragments, 1.6kg of concrete, 6 fragments, 0.5kg or mortar, 50 fragments, 11kg of stone 1233 fragments, 67 kg of brick and 1287 fragments, 33kg of roof tile. The majority of the material was recovered from topsoil deposits. The ceramic building material assemblage was assessed with recommendations for further work by Phil MIlls, 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 Dating

11.2.1 There is very little datable evidence from this material. The brick is hand formed, poorly levigated and with common organic voids on the surfaces, with extant dimension of width being c. 100 – 110 mm (4 – 4 ¼ inches) and c. 50 mm (2 inches) thick. This is consistent with 15th century 'Tudor' type brick sizes (Ryan 1996; Lloyd 1983). The roof tile was mainly flat with enough peg holes surviving to suggest that all the material was peg tile. The majority of

these were round pegs, although square pegs holes were noted from (21002) and (21003), and may be a chronological marker.

11.2.2 There are a few fragments of ridge tiles, including evidence of glazed ridge tile, which are a feature of ecclesiastical roofing in the 14th and 15th century. The floor tiles were all plain, with dark green to black glazes and yellow glazes, typical of tiles that could date from at least the 14th century onwards. More recent material, including the concrete was noted, along with pan tiles, probably of 18th century or later date from (14002) segments A and C and (14003) and the fragment of a stamp, probably of 19th century or later date from (20002).

11.3 Taphonomy

11.3.1 The majority of the material is from top soil deposits, however there is still enough material from other deposits to indicate a pattern. Table 18 shows the contexts from which brick was found by number of fragments (No), weight in grams (Wt) and average fragments size (MSW). Table 2 shows the information for roof tile and Table 3 shows it for stone. This clearly shows the different disposal patterns for the material types. The preference for tile in pits nicely reflects the pattern noted in Cambridge and Coventry for the same period (Mills, forthcoming; and Mills, forthcoming b).

Brick	No	Wt	MSW
Construction Layer	0.6%	0.4%	37.00
Ditch	0.1%	0.1%	38.00
Feature - general	0.2%	0.1%	12.67
Floor layer/ yard/ road surface etc.	7.4%	20.6%	152.00
Layer	14.8%	13.2%	48.74
Midden/ Rubbish layer	1.6%	3.0%	101.85
Demolition.	1.4%	1.7%	65.18
Pit	1.5%	3.8%	135.00
Topsoil/Ploughsoil etc.	71.0%	56.3%	43.22
Tree root hole/animal hole	1.4%	0.9%	36.82
N/AVG	***1231***	***67147***	***54.55***

Table 18 – Brick recovered by context

Roof Tile	No	Wt	MSW
Construction Layer	0.3%	0.6%	46.75
Ditch	0.6%	0.9%	39.125
Floor layer.	0.5%	0.5%	23.57
Layer	30.5%	47.7%	40.37
Midden/ Rubbish layer	5.2%	12.0%	59.49
Demolition.	0.1%	0.1%	47

Pit	3.5%	4.2%	31
Topsoil/Ploughsoil etc.	59.0%	33.5%	14.65
Tree root hole/animal hole	0.3%	0.4%	30.75
N/AVG	***1284***	***33087***	***25.77***

Table 19 – Roof tile recovered by Context

Stone	**No**	**Wt**	**MSW**
Floor layer	20.0%	31.0%	343.7
Layer	22.0%	12.4%	124.73
Midden/ Rubbish layer	2.0%	1.4%	153
Pit	6.0%	6.8%	252.333
Topsoil/Ploughsoil etc.	50.0%	48.5%	215.4
N/AVG	***50***	***11104***	***222.08***

Table 20 – Stone recovered by context

11.3.2 No attempt was made to identify fabric for this assessment, but the three categories of building material are discussed below. The fabric codes used in this intermediate report are based on a hierarchal system with types divided into three categories. TZ denotes medieval Tile, LZ represents medieval brick and ST denotes stone, the suffix 00 signifies a general type.

11.3.3 The majority of the stone were unidentifiable fragments. There were however 4 examples of stone roof tile and five examples of architectural fragments, for which at least one worked face was discernible.

11.3.4 The majority of the roof tiles were fragments of flat tile. There were 54 fragments which had peg holes, the majority were round peg holes of c. 10mm diameter, with 5 examples of squared holes from (21003) and one from (21002). There was one possible roof tile with glaze splashes from (19002) segment 6. There was very little evidence for ridge tile, which is unusual. There were 9 small fragments of probable ridge tile, including one with traces of glaze.

11.3.5 There were no extant examples of brick, but most were in a very poorly levigated fabric which had been hand formed with regular rounded arrises with dimensions of c. 110 x 50 mm. There were a number of different sized floor tiles, a number of c. 230 x 230 x 40mm (9x9x1½ inches) with dark brown to green glazed upper face and a few black glazed floor tiles of 120mm (4 ¾ inch) length and 30mm (1 ¼ inch) thickness which could be of c. 14th-16th century date and a few yellow glazed tiles of 30 mm thickness, which may be later. The mortar and concrete comprised unidentifiable fragments.

11.4 Discussion

11.4.1 This is a relatively small assemblage of building material typical of c. 15th century and later date. There is not much in the way of higher status markers

(glazed ridge tiles, patterned floor tiles) which may reflect an earlier date. The brick foundation uncovered in Trench 20 fits into the size range for 15th Century 'Tudor' brick. The plain floor tile uncovered in Trench 19 reflect an area that was not used for a high status purpose such as an infirmary.

11.5 Recommendations and Archive

11.5.1 The following project aims can be addressed by the building materials.

Q7: Is there any evidence of the 1380 fire, or material culture markers linking the two Leiston Abbey sites?

11.5.2 Q7 can be addressed by the systematic recording of burning a traces on the Building material, and seeing if there is any pattern relating to find location, and burning patterns on other materials.

Q11: What can an integrated synthesis of the results of this work with previous interventions (such as the 1980's trenches) tell us about the site and it's setting?

11.5.3 Q11 can be addressed as the building materials will directly reflect the appearance of structural elements during different periods. The examination of roof tile in phase groups can elucidate the appearance of the roof at different periods, and which elements were tiled in stone, and which in ceramic. The collection of so much material from the top soil is an important indicator of the nature of the roof in the final stage of the buildings use. The concentration of brick find spots may indicate the location of brick elements in the buildings structure, and help the interpretation of the structure. The floor tile may indicate nature and decoration of floors.

Q14: 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.

11.5.4 Q14 Further areas of study, the analysis of the fabrics of the ceramic component of the building material will indicate the nature of supply to the structure and how this may change over time. This should complement the evidence of the ceramic vessels. The nature of the deposition on the site of different materials can be compared to other sites of similar status and period in order to develop understanding of building materials in site formation processes. The study of phase groups of material will provide evidence of potential typo-chronological markers for a poorly studied category of material.

11.5.5 Further work on the concrete is not likely to provide further information relevant to the project objectives. There is too little mortar present to recommend a useful program of analysis. The stone work should be catalogued, and the larger pieces illustrated and included within any publication. The ceramic building material can be recorded to fabric and form type, with minimum

quantities based on the corner count. The larger fragments from top soil can be included in this work as this can be the best source of information about the final appearance of the abbey. Comparison with other assemblages of similar date can be made.

11.5.6 No special conservation is required, and should a discard policy be required, it is suggested that material be recorded to fabric and form type before discarding.

12 SMALL FINDS

All finds records have been archived on the Digital Dig Team system and can be reviewed here:

By Stuart Noon

12.1 Finds Assessment

12.1.1 The small find assemblage comprises20 objects. This selection comprises 10 finds derived from deposits in Trenches 18, 19, 20 and 21, and assessed with recommendations for further work by project finds specialist Stuart Noon (See Appendix 2). 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).

12.1.2 An interesting array of finds were recovered from this season's fieldwork, and these are described and discussed individually in Appendix 4. Dates of artefacts span 19th or a 20th Century (probably agricultural machinery related or possibly domestic fragments) through to 15th to 17th century (related to household and personal adornment).

12.2 Recommendation and Archive

12.2.1 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 DISCUSSION

13.1 Introduction

13.1.1 The work presented here details the third execution stage of a five-year multi-staged project, encompassing an evaluation and assessment stage (Years 1 – 4), followed by final analysis and publication (Year 5). These results are intended to provide the site custodians with baseline information on the Leiston Abbey Scheduled Ancient Monument, and 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 (2016).

13.2 Project Aim 1

13.2.1 Aim 1 focussed on remote sensing, setting out to define and establish the physical extent of previously unsurvey areas (the Eastern and Earthwork Fields). A mix of different methodologies were employed, including magnetometry, low-level UAV aerial photography, photogrammetry and digital terrain modelling. Two main areas were selected for survey, addressing research questions Q1, Q2, Q3 and Q4. The purposes of this work was to establish whether the layout of the infirmary, 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 unidentified structures in the outer precinct (such as the original inner gatehouse or infirmary) in addition to identifying former structures associated with the outer precinct (such as the outer gatehouse and precinct boundary ditch).

13.2.2 The capacity for remote sensing to define the layout of 'the eastern range and associated structures' (Q1) depended on the area surveyed and the technique used. Taken as a whole, this approach allowed conclusions derived from ground and airborne techniques to be compared and corroborated. Remote sensing was least successful in the Earthworks Field (Q3), where magnetic survey struggled to detect any responses of a definite archaeological origin. Results were more favourable in the Eastern Field, detecting wall lines on the same alignment as the Abbey, tracking the course of the precinct ditch and potential infirmary buildings identified in previous excavations (Q2, and see Section 2.3.5 above). Attributing function to these structures was not possible on survey data alone, and the magnetometry plots were used to target trenches that could help characterise and refine the results (see Section 13.3 below). Low-level aerial photography and targeted trench excavation has helped to further define these features in relation to the main abbey complex, and it is highly recommended that this area is subject to protective measures to guard against the impacts of farming.

13.2.3 The project has accumulated three seasons of remote sensing data, including topographic, GPR, Magnetometry, Resistivity, LIDAR, 3D digital terrain modelling and low level aerial photography (using kite and quadcopter mounted cameras). No further data capture is proposed, and the results have been collated into a site-wide GIS and synthesised into a metrically accurate visualisation animation. 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.

13.2.4 The project team also completed a full photographic survey of the entire built structure in 2015, and it is recommended that these are processed to create 3D digital surface models from which orthophoto elevations can be extracted. 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.

13.2.5 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 and 2015 field seasons to refine this where possible. A question remains over whether parts of the flush work 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. Analysis 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 (Q7).

13.3 Project Aim 2

13.3.1 Aim 2 was devised to characterise the results of the non-invasive survey, with a programme of machine and hand-dug test trenches (Q4, Q5, Q6 and Q7). A major research objective of the 2015 field season was to recover evidence 'to corroborate the location of the inner gatehouse, precinct wall or infirmary' (Q4). This was achieved by uncovering structural evidence of the previously excavated infirmary building in Trench 19, followed by remnants of a medieval wall in Trench 20 and a cobbled area in Trench 18. That these wall/cobble features were observed at the hypothetical location of two potential gatehouses (guarding both the southern and eastern entrances to the site) was an intriguing result. The picture was limited, however, by the constraints of trench size revealing only a narrow view of what could be more extensive remains.

13.3.2 Positioned between the current driveway and field boundary, Trench 18 could not be substantially expanded to verify the continuation of foundation stones definitively indicating a structure. The concentration of cobbles, location of the adjacent precinct ditch, topographic anomaly visible in the grass verge, and slight change in road direction were all indicative of a boundary crossing of some description. This location remains a compelling candidate for an inner gatehouse, and further intrusive work on the opposite side of the wall (exposing the section of the field ditch) should be considered if logistically possible.

13.3.3 The wall feature identified in Trench 20 was much less ambiguous, comprising an irregularly bonded, stepped foundation wall of handmade red brick bonded with creamy white lime mortar with shell inclusions. The lower foundation course was laid in English Garden Wall style and the upper course in a Flemish pattern, the dimension of the bricks being consistent with 15th

Century 'Tudor' type bricks. It was abutted by a floor surface, but due to the small size of the trench it was not possible to identify if this formed an internal or external surface; neither was it clear whether the wall comprised part of a larger roof bearing structure or was part of a longer boundary wall aligned with the adjacent precinct ditch. As the current Tudor gatehouse was the latest addition to the monastic complex at Leiston, it is entirely possible that construction also presented an opportunity to redefine the southern approach to the abbey with a substantial wall, and further analysis work on the fabric of both structures is proposed.

13.3.4 Trenches in the Eastern Field confirmed the results of remote sensing, with Trench 19 positioned at right angels to 1985's trench 3, extending across Kerr's 'west room' to also encompass previously unexcavated areas outside and inside the structure. Substantial agricultural damage (see below) had dragged archaeological material downslope, though fragments of floor tiles, wall foundations and external pits were recorded and sampled. Further analysis of this material is proposed to refine understanding of the scale, function and activities that took place in this part of the site (Q5 and Q6), and determine further material culture markers linking the two Leiston Abbey sites (Q7). 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 contemporary foundations (such as Butley Priory).

13.4 Project Aim 3 & 4

13.4.1 Aim 3 was designed to further our understanding of the 'palaeoenvironmental conditions and burial environment of the site', with recommendations for further work falling under Aim 4. The cultivation of potatoes in the Eastern Field in 2014 underlined the need to measure the attritional effects of agriculture on any surviving archaeological structural deposits, as with substantial rabbit burrowing in the refectory undercroft. To these ends targeted interventions to establish the impacts of farming and bioturbation on the subsurface archaeological deposits (Q8), supported by 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.

13.4.2 The Abbey complex continues to be subject to significant animal burrowing, and Trench 14 was excavated in one of the worst affected areas (Q12 & 13). Concentrated burrowing activity in this area can be explained by evidence of previous excavation, with the wholesale removal of deposits down to foundation level (probably during the early 20th century 'wall chasing' excavations). Given the proximity of the potentially unstable refectory walls, this area was backfilled with a substantial consolidation layer of sterile, coarse orange-yellow loose sand that has proved an attractive home for burrowing rabbits. Bioturbation in this part of the refectory area was broadly confined to these later 'landscaping' layers, and is not causing significant impact to the monastic deposits.

13.4.3 Trenches 16 and 19 (discussed above) were located in an area subject to ploughing in an area of known monastic activity, with Trench 15 positioned immediately to the west of the current field boundary to help provide baseline data on the effects of the current farming regime (Q11, 12 & 13). Unfortunately, no significant finds or features were recorded in this trench with which to provide a comparative 'unploughed' case study. Trenches 16 and 19 had been subject to significant attrition however, with a series of narrow scoured grooves indicating the recent use of a subsoiler (a tractor mounted implement used to loosen and break up soil at depths below the level of traditional ploughing). Plough furrows were recorded above this, with the overall effect of dragging archaeological material downslope. Given the significance of archaeological material in this part of the scheduled area it is recommended that protective measure should be applied immediately.

13.4.4 In general, artefact recovery was also very good (Q8), and the individual specialist reports in this document have outlined a number of research angles that may be profitable followed with further work. 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.

13.4.5 Plant remains recovered from samples were low in number (ranging from 0.2 to1 grain per litre of sampled soil) and predominantly charred (Q9). They were in a poor condition generally, and potentially redeposited or residual. 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). There is an abundance of broadly contemporaneous monastic sites across Britain which would make for fruitful comparison of this material. The representation of taxa at St Gregory's Priory, Canterbury (Powell *et al.* 2001) is markedly different to that of Leiston: caprines and pigs dominate the assemblage in a stark contrast to the abundance of cattle recorded for this report.

13.4.6 The faunal assemblage recovered from St Mary's Abbey, Winchester (Brown 2011) also displays a difference in taxon representation, as it mainly consists of pig and caprine specimens. This data provides an interesting comparison to Leiston, not only because of the differences in taxa, but because St Mary's can provide insights into how male and female monastic life may have differed. Eynsham Abbey (Ayres *et al.* 2003) is an excellent site for comparison, due to its large assemblage and the extensive research that has been carried out on the material. Additional sites that might be considered are St Mary's Merton, Surrey (Pipe 2007) and Bermondsey Abbey, Southeast London (Pipe *et al.* 2011). Comparisons should also be made with secular assemblages and the vast dataset from Norwich Castle (Albarella *et al.* 2009), much of which is directly contemporaneous, provides a good regional analogue.

13.5 Review Point 8 – Updated Project Design

13.5.1 The excavation has been successful in collating the data from Aims 1-3 (Q11) and has entered into a Review Point cycle. 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.

13.5.2 As the project moves into the fourth of the proposed five-year plan, assessment report findings have been distilled into an Update Project Design in consultation with Historic England, in advance of full analysis and publication (Aim 4 – and Appendix 5). A short assessment was carried out at Chapel Hill Field, Minsmere during the 2015 field season, sieving and recording medieval building debris from the WW2 pillbox spoil heaps. Further fieldwork at Minsmere will aim to elucidate connections between Leiston's first and second sites and explore the wider landscape setting in advance of analysis and publication in 2017. This will entail a non invasive survey of Chapel Hill Field and Cow Marsh Hill, a 3D photogrammetry survey of the remaining building in Chapel Hill Field, an auger survey of a potentially navigable 'dock' feature and five targeted evaluation trenches designed to ground truth geophysical results.

13.5.3 The project archive was prepared in accordance with the guidelines outlined in Appendix 1, P1 of MoRPHE PPN 3 (Historic England 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 2016 field season, with an appropriate local museum under HER code LCS 176 (2013 interventions), LCS 177 (2014 interventions) and LCS 178 (2015 interventions).

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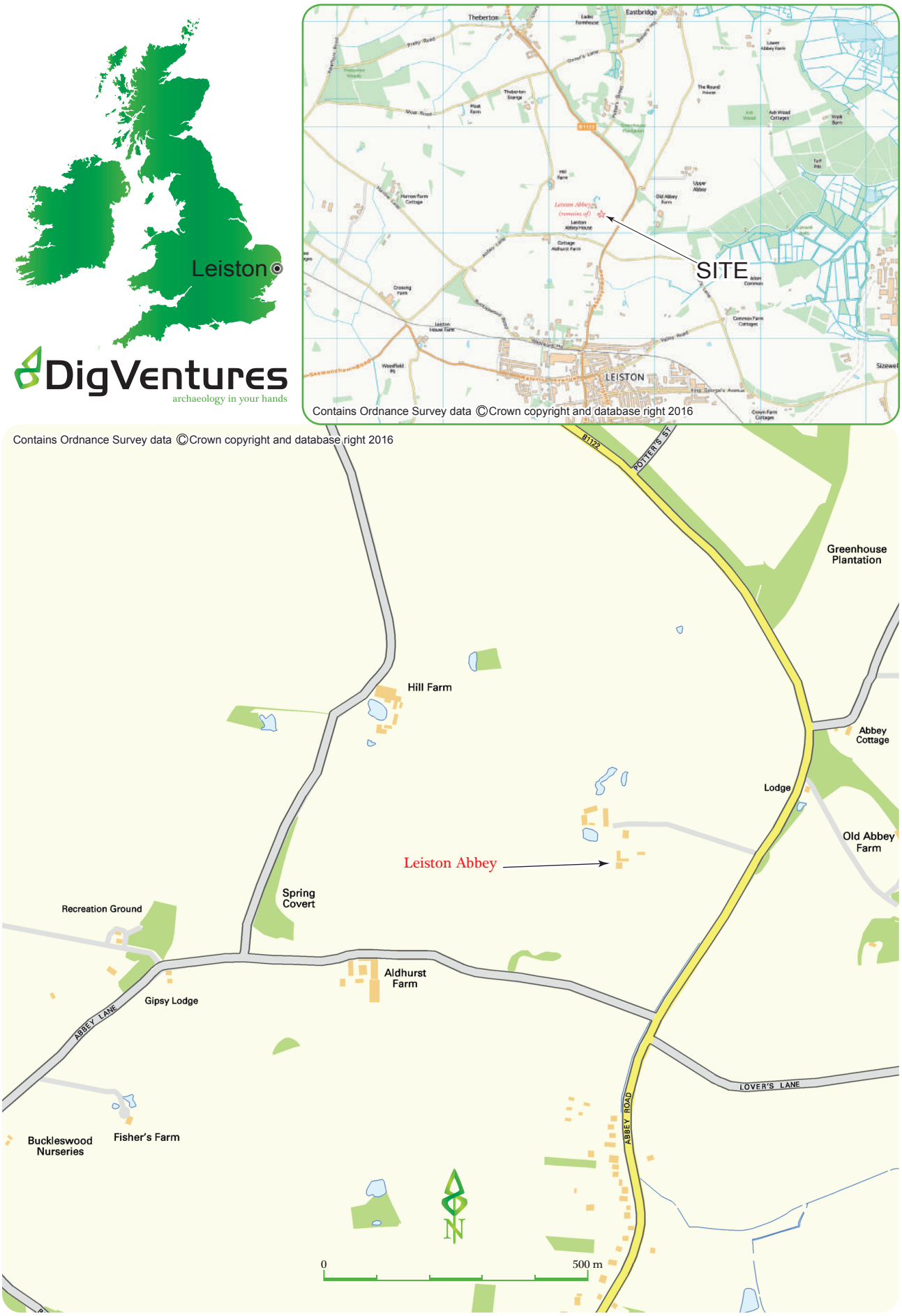


Figure 1 - Leiston Abbey, Sizewell, Suffolk. Site location.


Pond
Pond
Guesten Hall
The Lodge
Pond
Track
Earthworks Area (Site 2)
Leiston Abbey House
DW
Lady Chapel
DW
DW
DW
DW
DW
DW
DW
DW
Remains of Leiston Abbey (Premonstratensian founded 1182)
Abbey Complex
Eastern Area (Site 1)
N
0
100 m

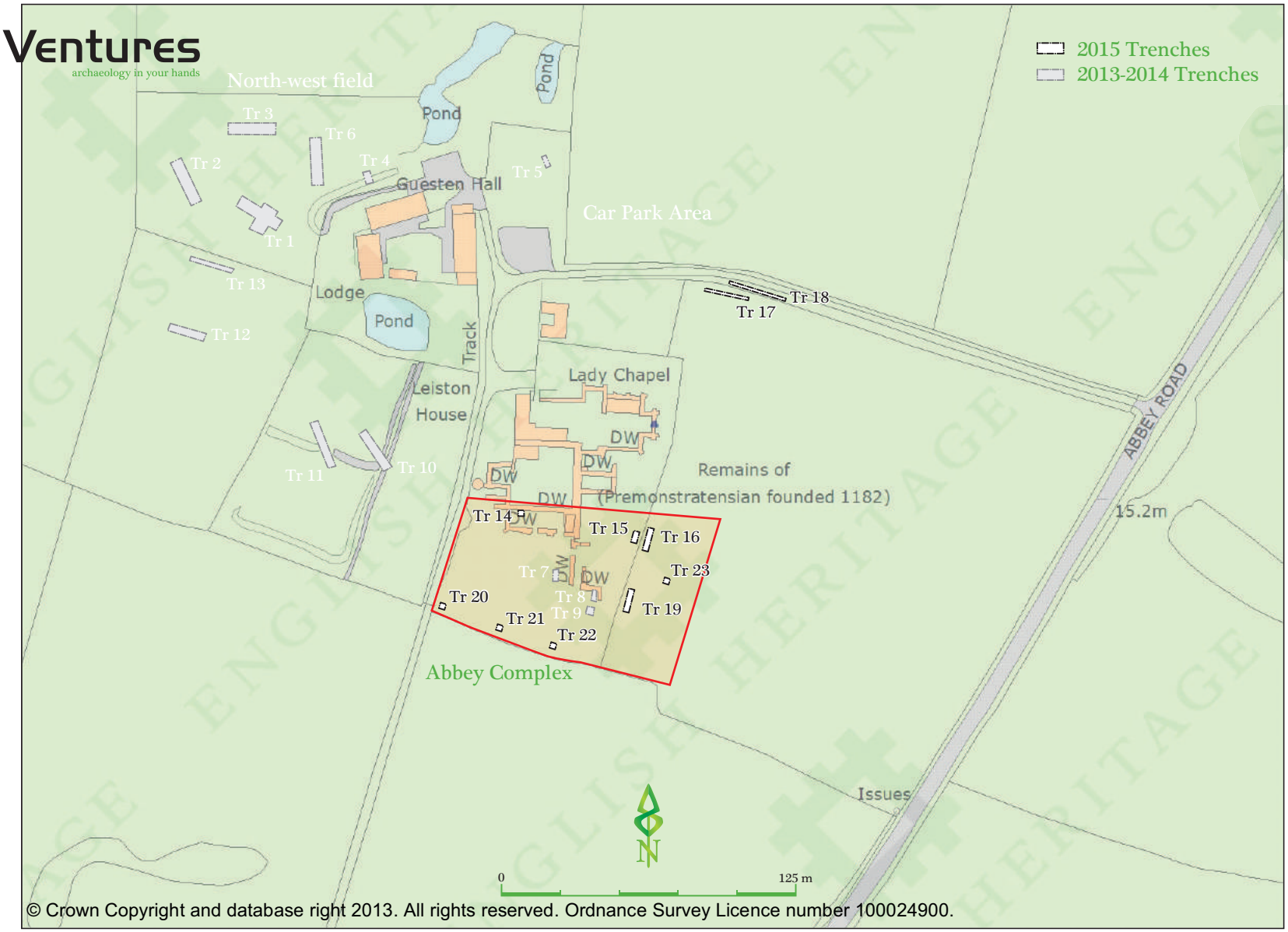


Figure 3 - Leiston Abbey, Sizewell, Suffolk: Trench location plan.

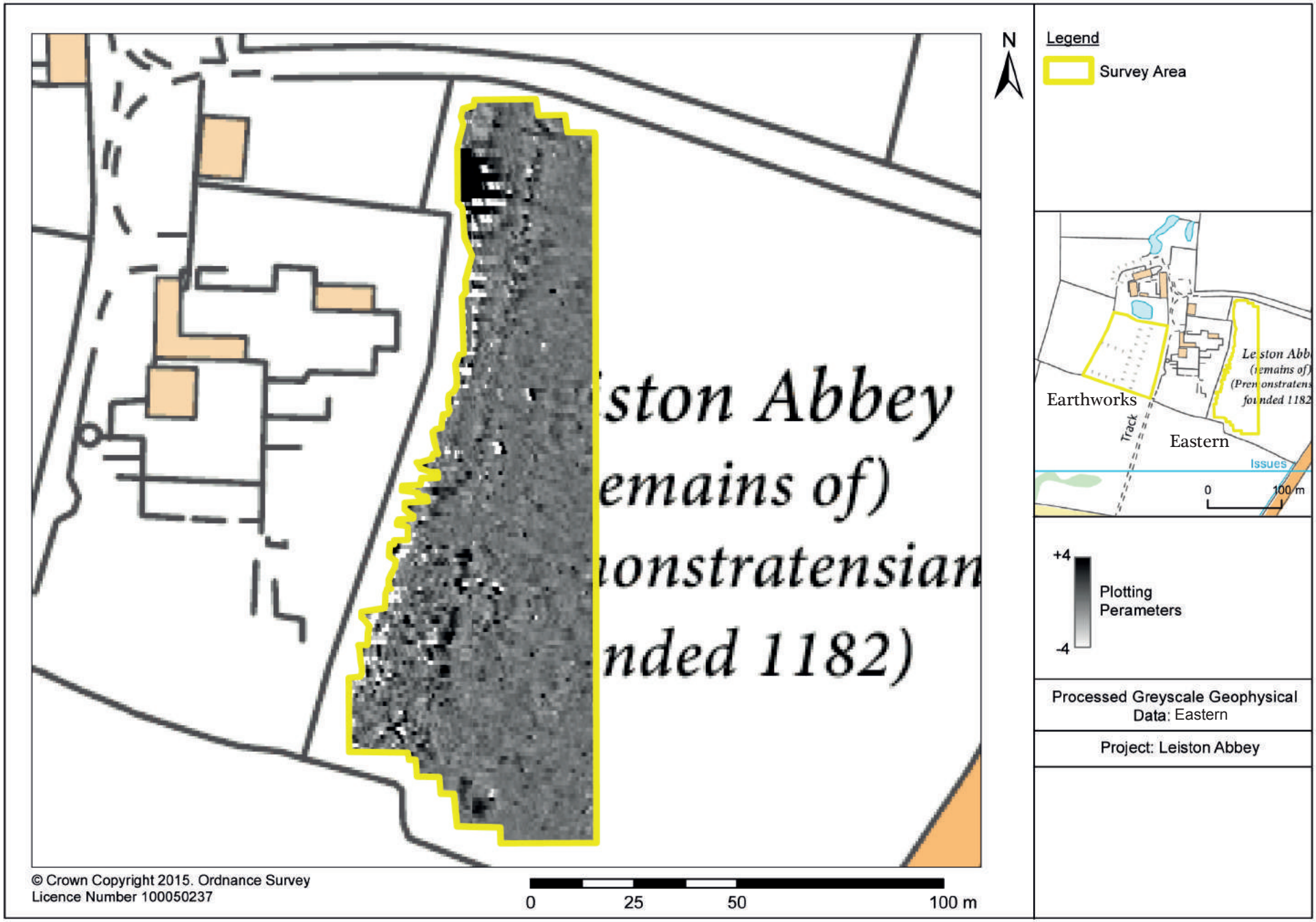


Figure 4 - Summary Magnetometry, Eastern greyscales.

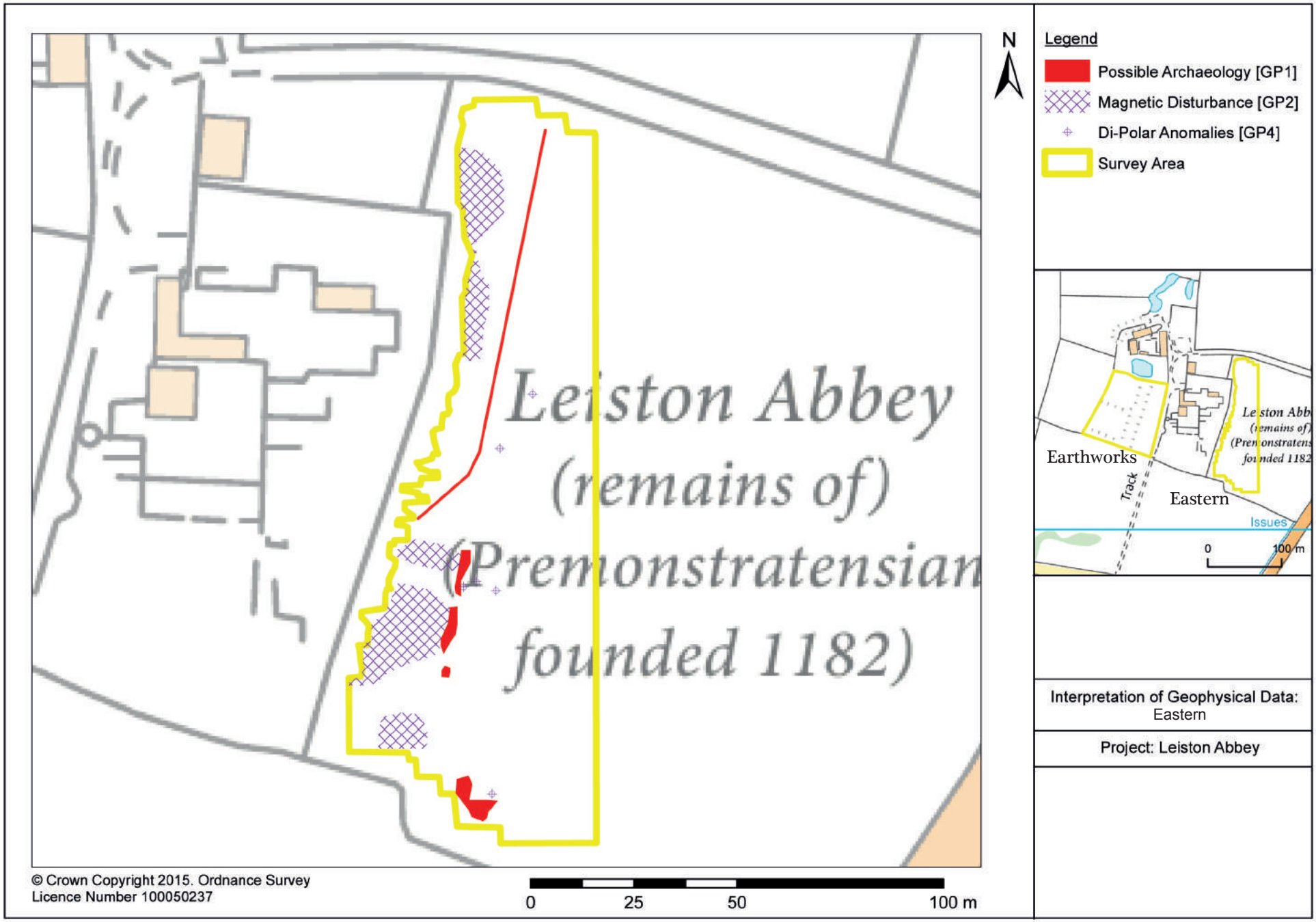


Figure 5 - Summary Magnetometry, Eastern interpretation.

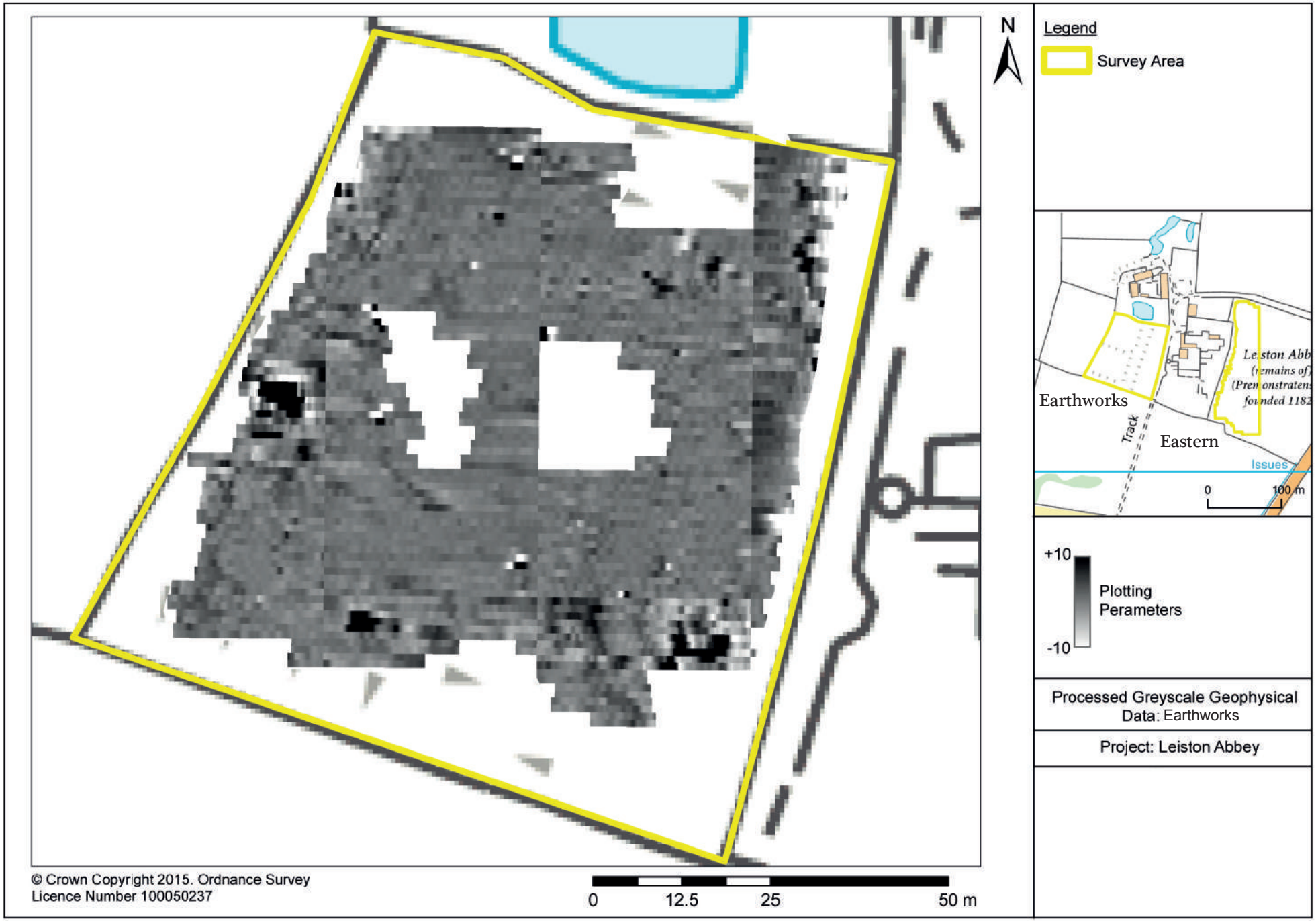


Figure 6 - Summary Magnetometry, Earthwork greyscales.

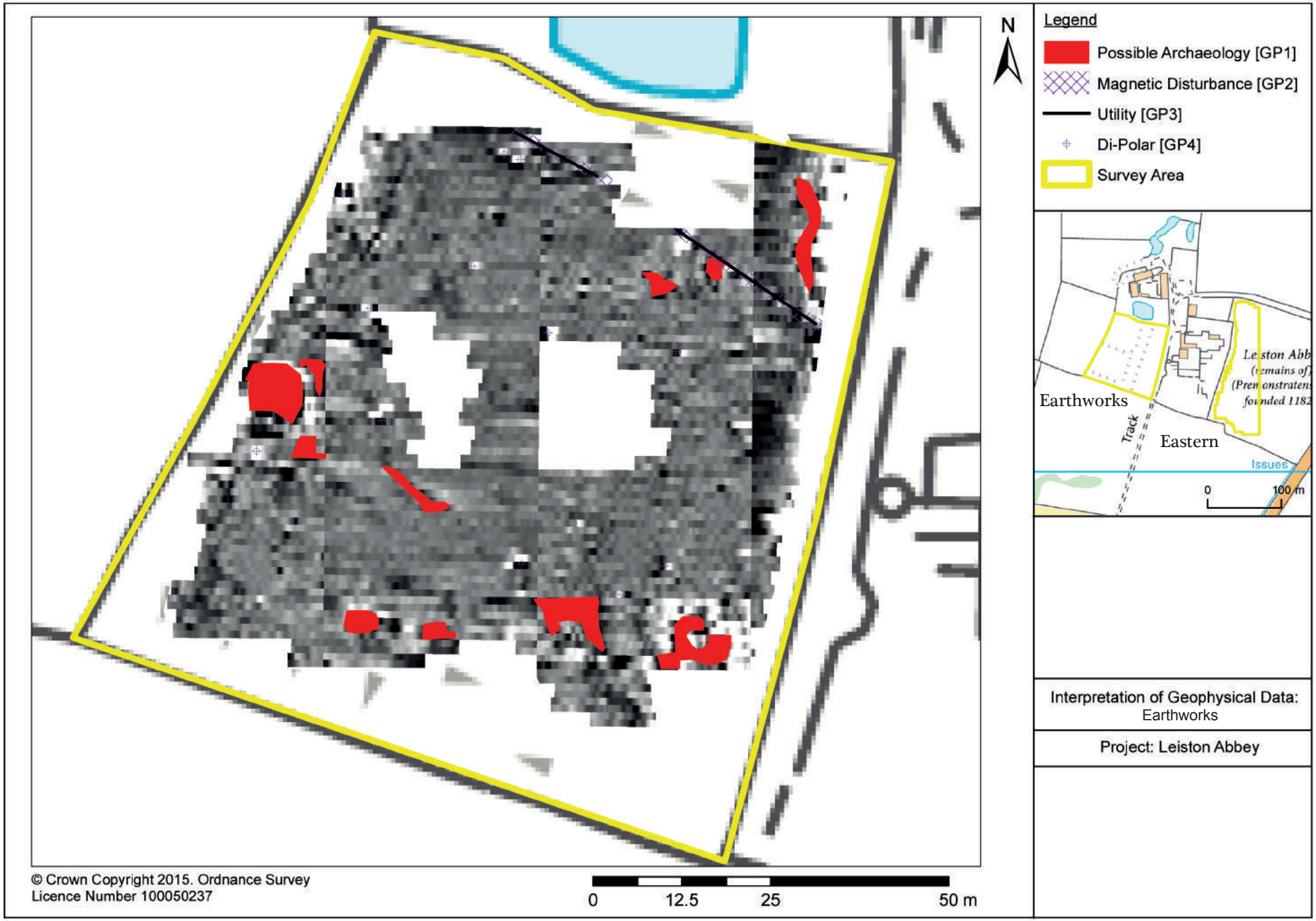
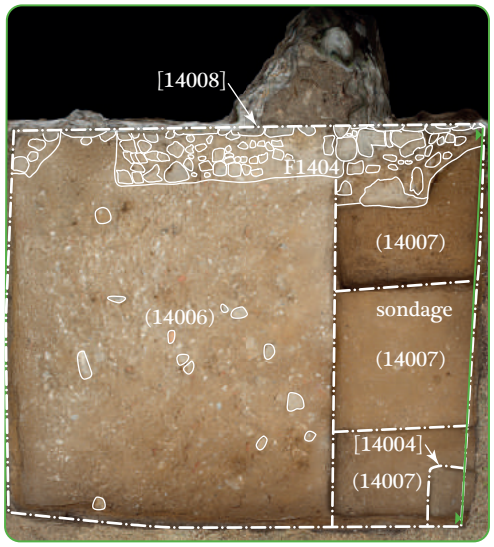
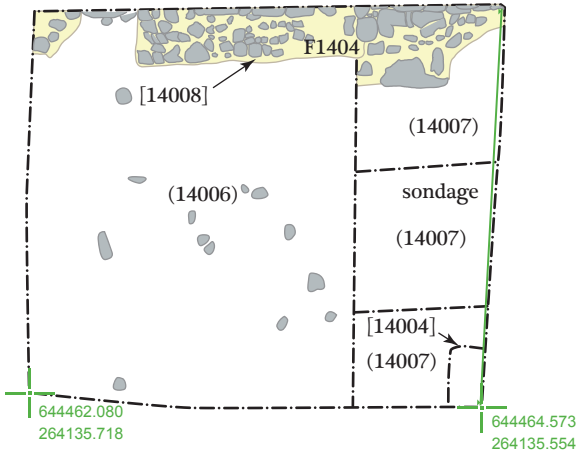
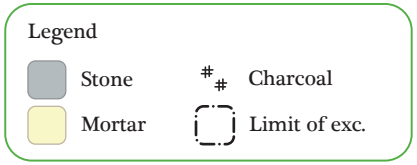


Figure 7 - Summary Magnetometry, Earthwork interpretation.







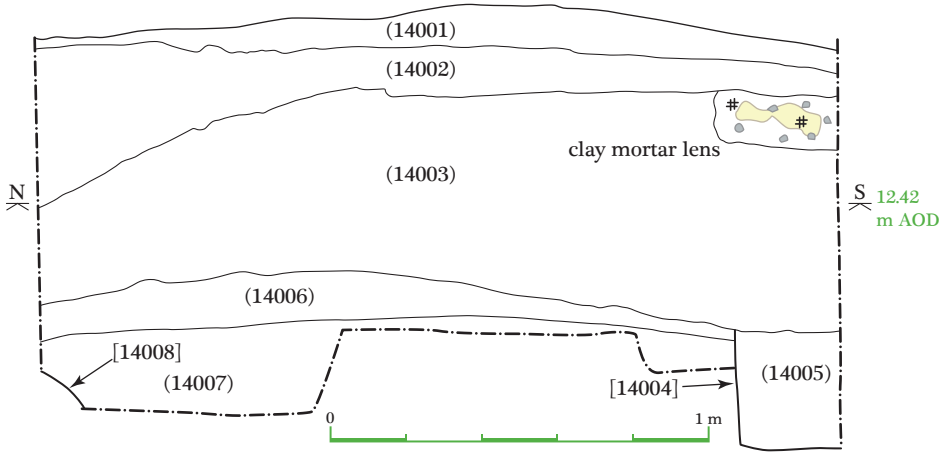


Figure 8 - Trench 14 excavation results.

Plate 8.1 - Pre-excavation facing NE, with visible signs of rabbit burrowing immediately below the vegetation.

Plate 8.2 - Mid-excavation facing W, indicating redeposited sand layer (14003) with substantial bioturbation.

Plate 8.3 - Mid-excavation facing E, indicating redeposited sand (14003) layer with substantial bioturbation.

Plate 8.4 - Mid-excavation facing W, indicating floor surface (14006).

Plate 8.5 - Post-excavation facing N, with Refectory foundations set against trench base.

Plate 8.6 - Post-excavation facing W, with extensive rabbit burrowing visible in section.

Plate 8.7 - Post-excavation facing W, with sondage (14007) in foreground.

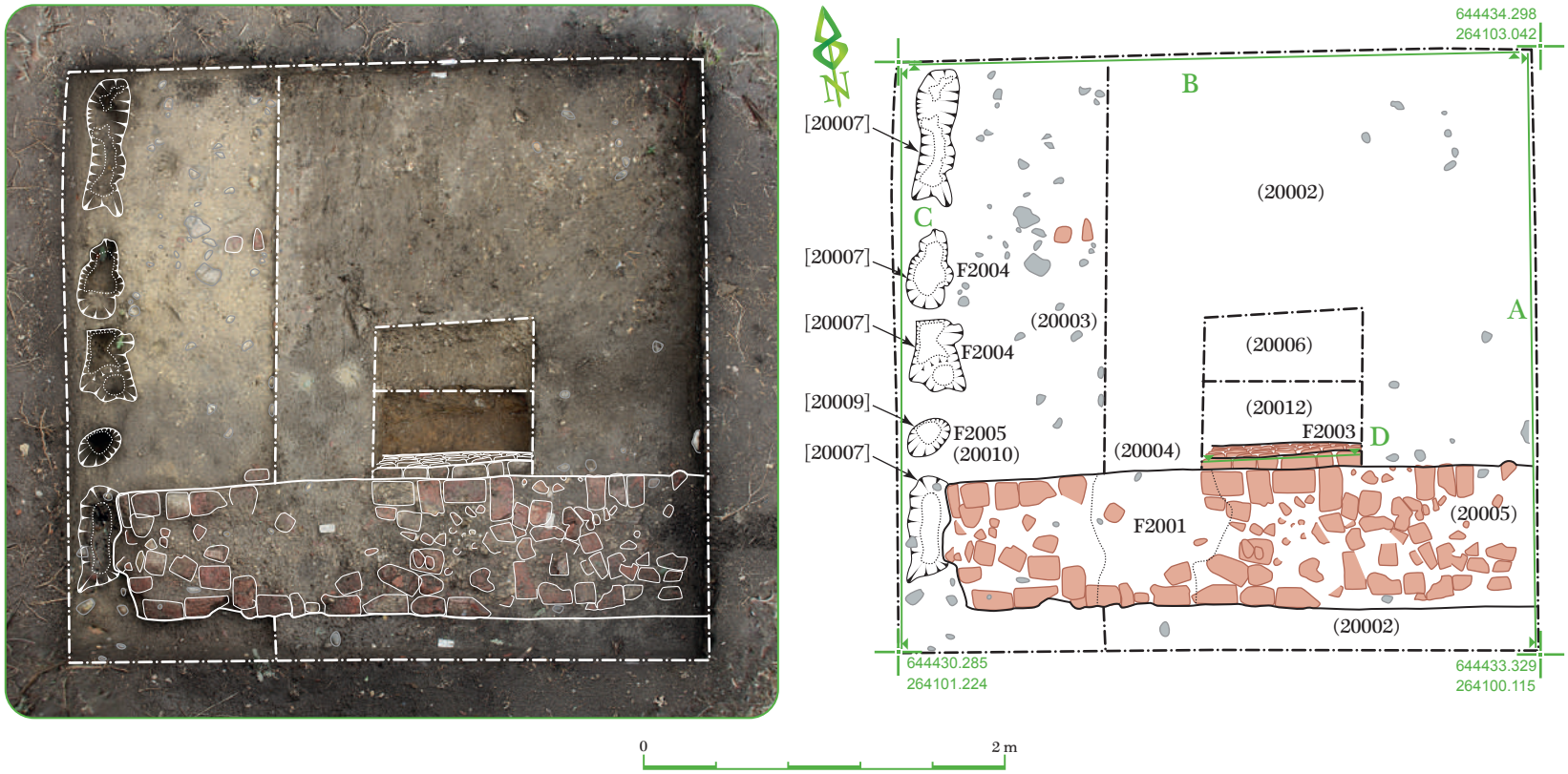


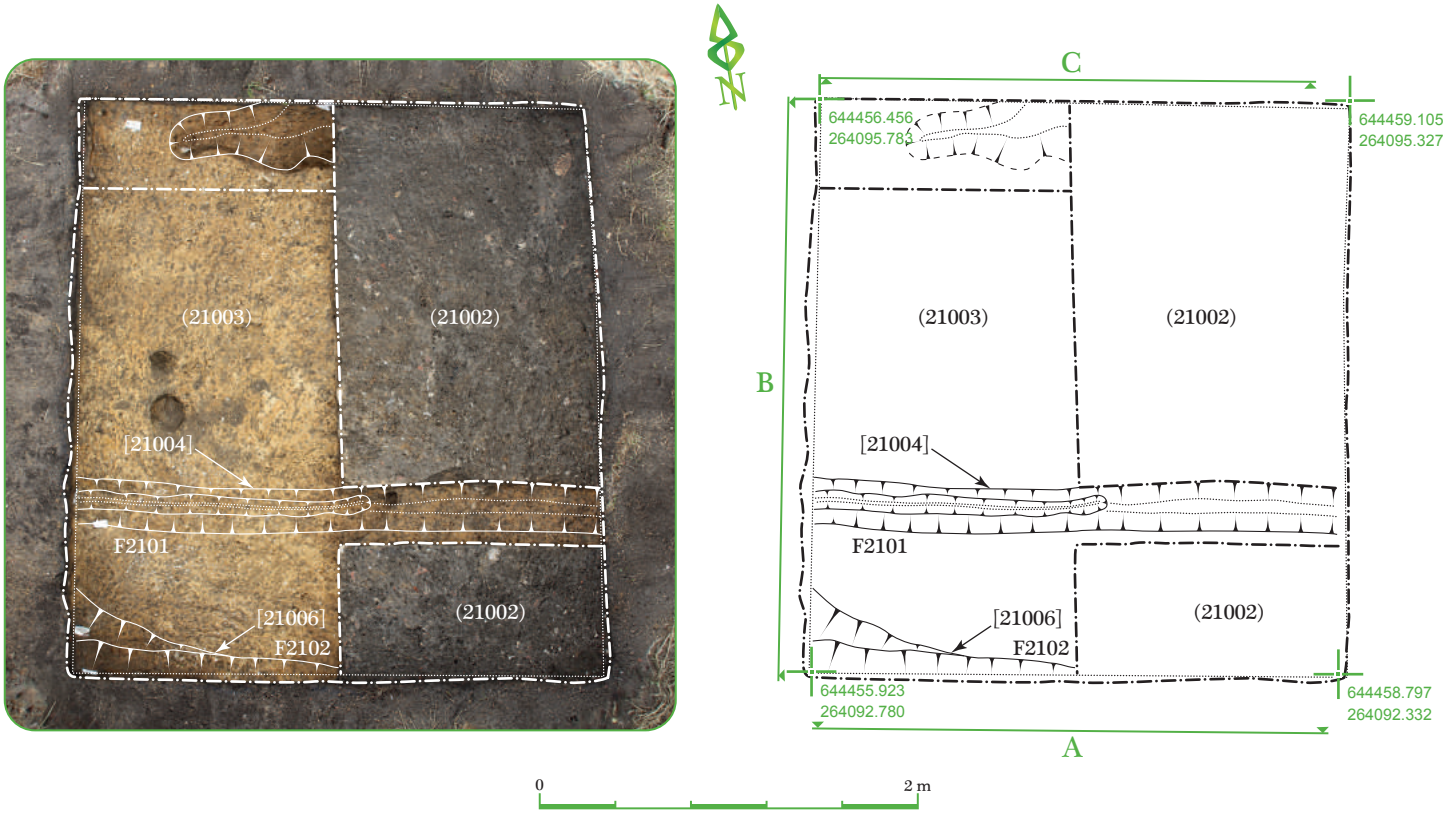
Figure 9 - Trench 20 excavation results.

Plate 9.1 - Mid-excavation facing N, indicating red brick mortared wall (20005).

Plate 9.2 - Mid-excavation facing S, showing later irregular cut [20006] truncating wall (20005).

Plate 9.3 - Mid-excavation facing N, showing close-up of wall (20005).

Plate 9.4 - Post-excavation facing S, showing close-up of wall (20005) exposed in sondage.



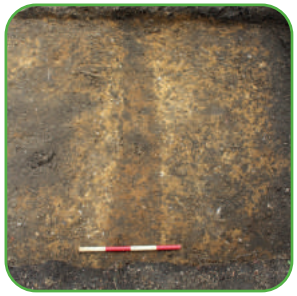


Plate 10.1 - Mid-excavation facing E, of linear feature [21004].

Plate 10.2 - Mid-excavation facing E, with linear feature [21004] partially excavated.

Plate 10.3 - Post-excavation shot of trench facing N.

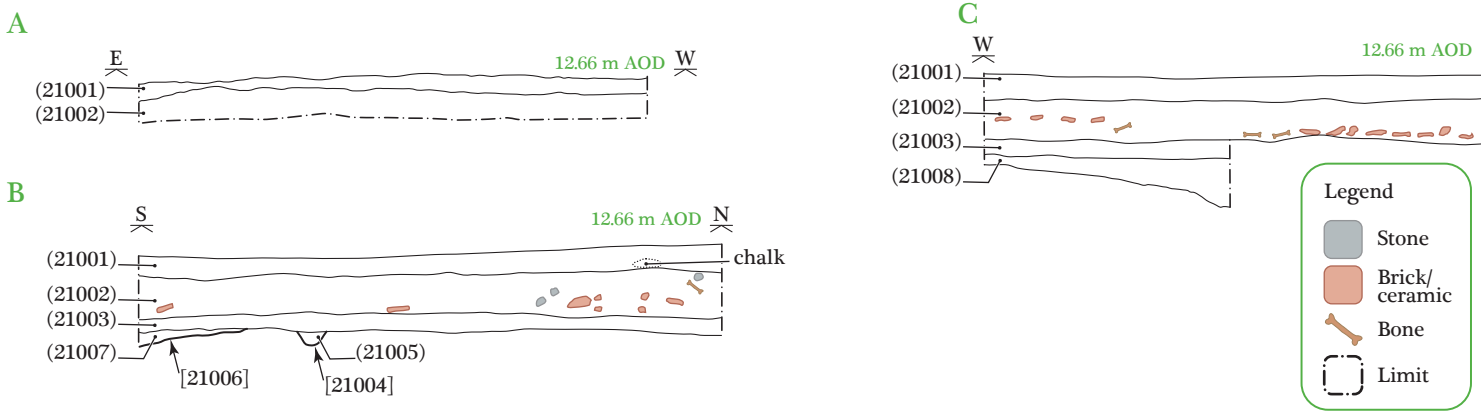


Figure 10 - Trench 21 excavation results.

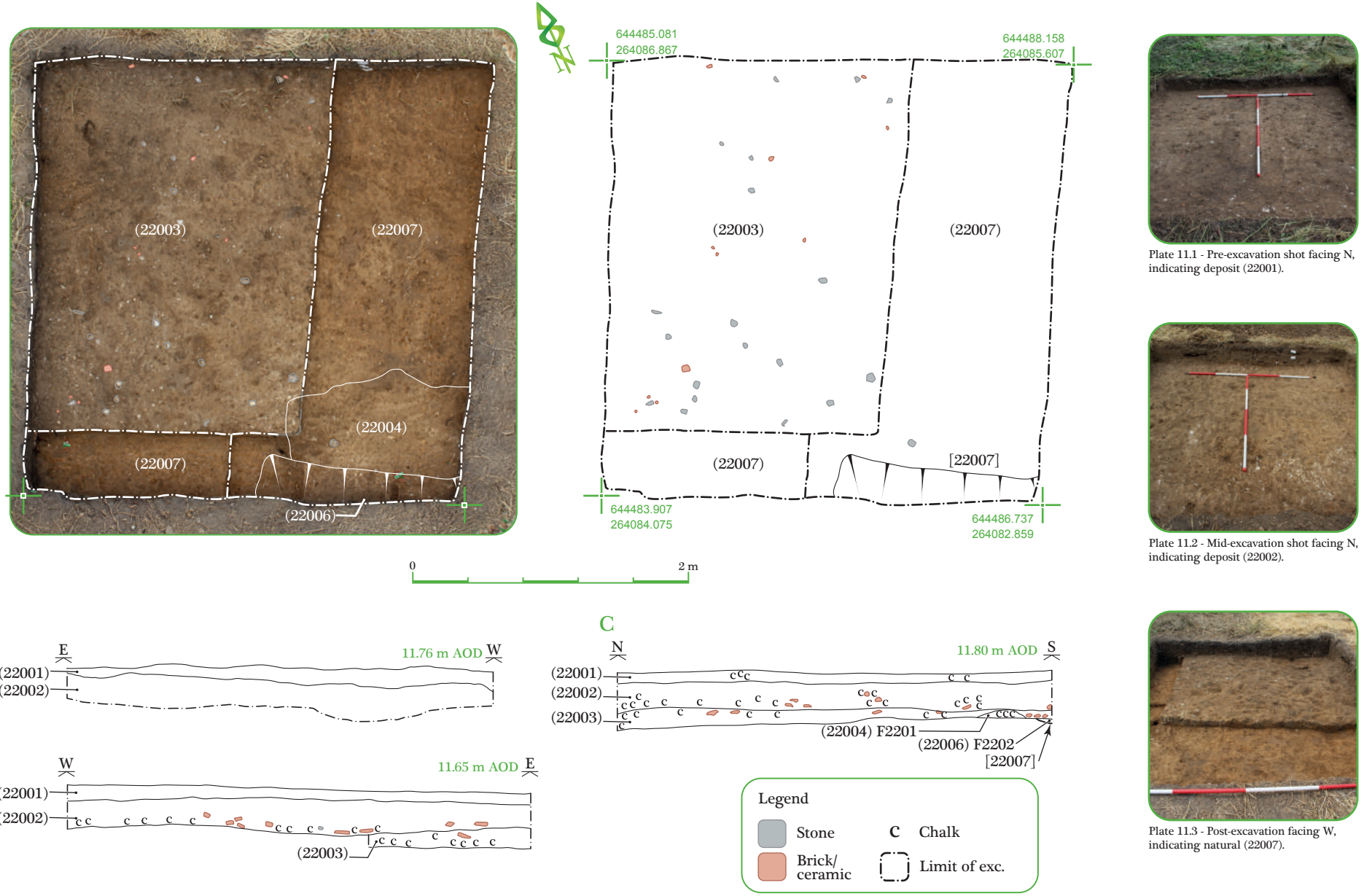


Figure 11 - Trench 22 excavation results.

Plate 11.1 - Pre-excavation shot facing N, indicating deposit (22001).

Plate 11.2 - Mid-excavation shot facing N, indicating deposit (22002).

Plate 11.3 - Post-excavation facing W, indicating natural (22007).

Plate 12.1 - Mid-excavation shot facing S, indicating subsoil deposit (15002).

Plate 12.2 - Post-excavation facing N, indicating Natural Subsoil (15003).

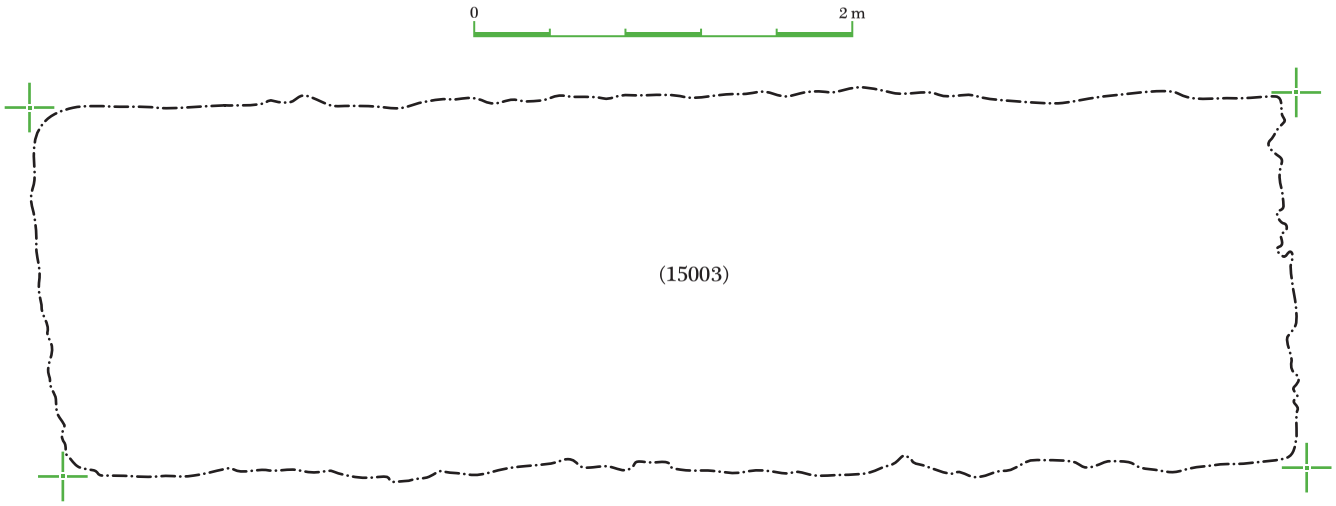


Figure 12 - Trench 15 excavation results.

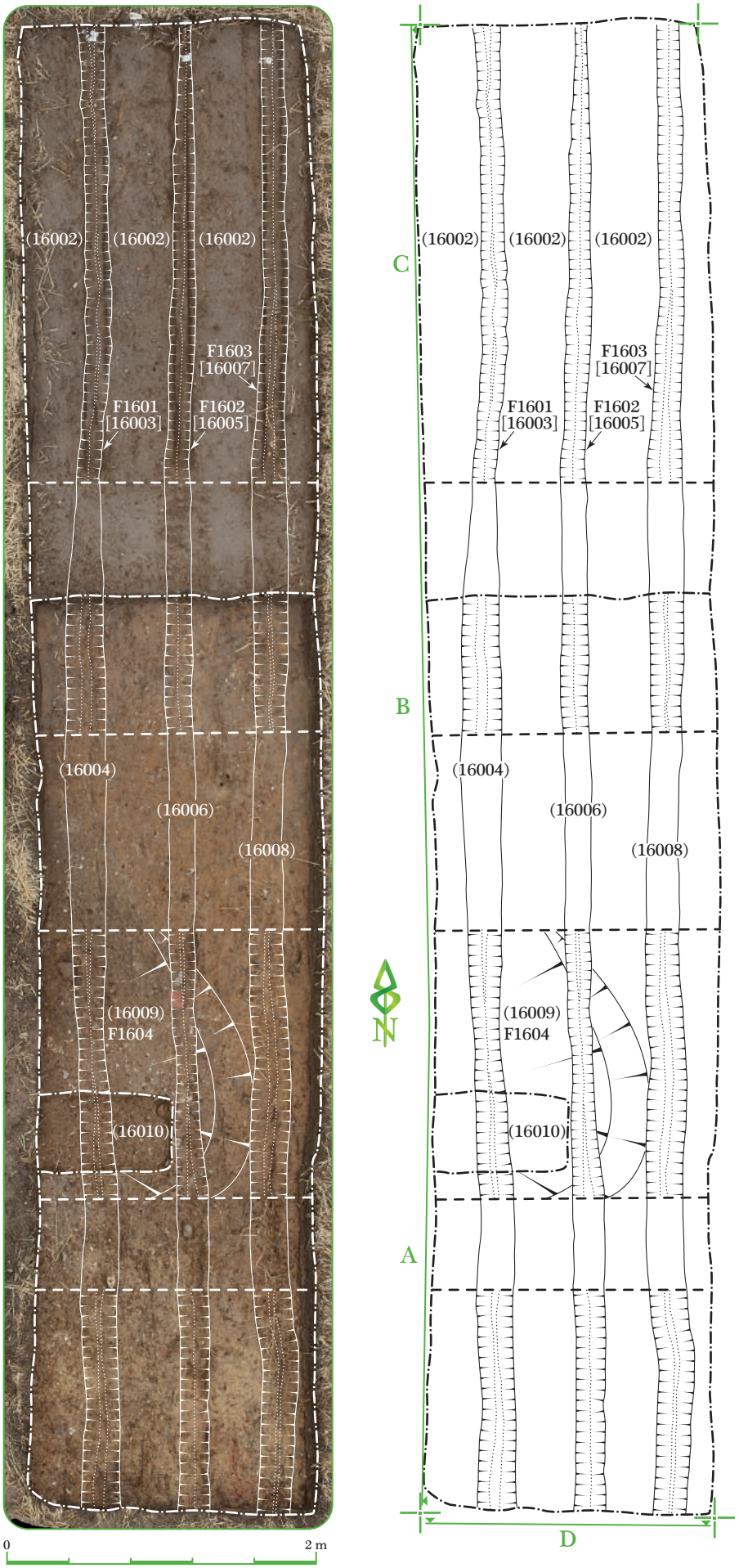


Figure 13 - Trench 16 excavation results.

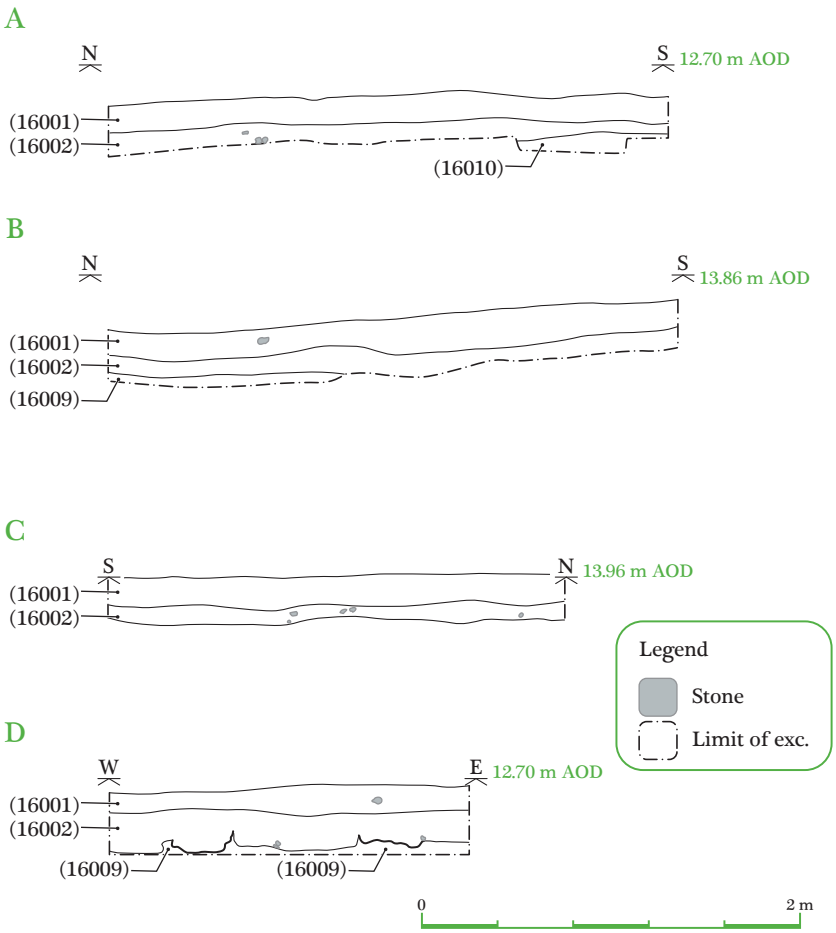


Plate 13.1 - Pre-excavation facing S, with agricultural furrows visible immediately below vegetation.

Plate 13.2 - Mid-excavation facing N, indicating furrows excavated in section.

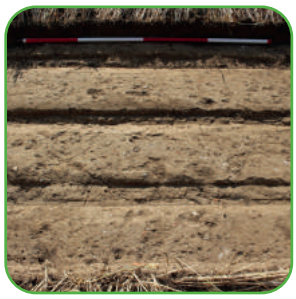


Plate 13.3 - Mid-excavation facing E, of plough furrows [16003, 16005 & 16007].

Plate 13.4 - Mid-excavation facing S, showing partially removed plough furrows and surface (16010) beneath.

Plate 13.5 - Post-excavation facing N, with layers (16009 & 16010) visible in centre of trench.

Figure 13 - Trench 16 excavation results (sections and plates).

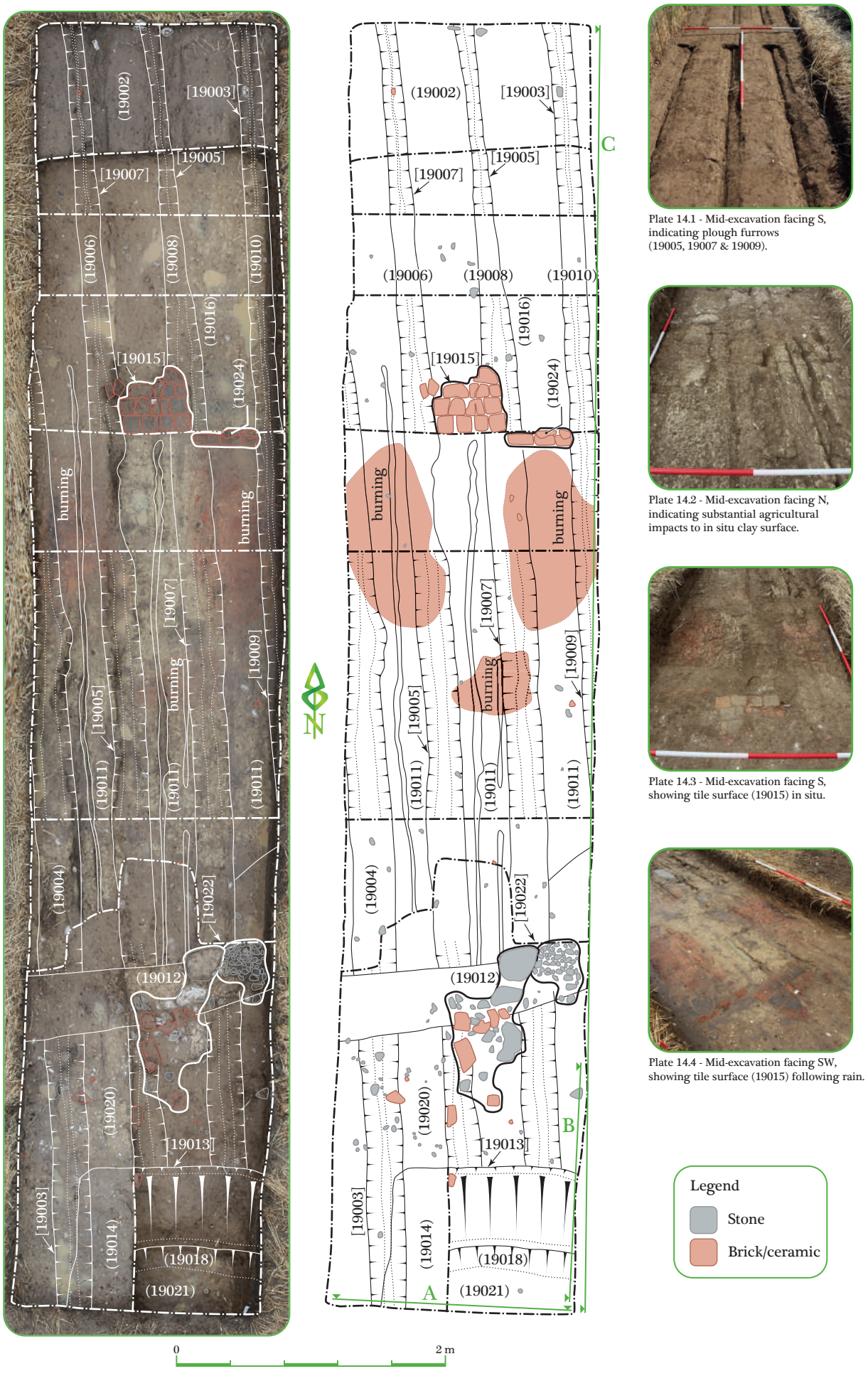


Plate 14.1 - Mid-excavation facing S, indicating plough furrows (19005, 19007 & 19009).

Plate 14.2 - Mid-excavation facing N, indicating substantial agricultural impacts to in situ clay surface.

Plate 14.3 - Mid-excavation facing S, showing tile surface (19015) in situ.

Plate 14.4 - Mid-excavation facing SW, showing tile surface (19015) following rain.

Figure 14.1 - Trench 19 excavation results.

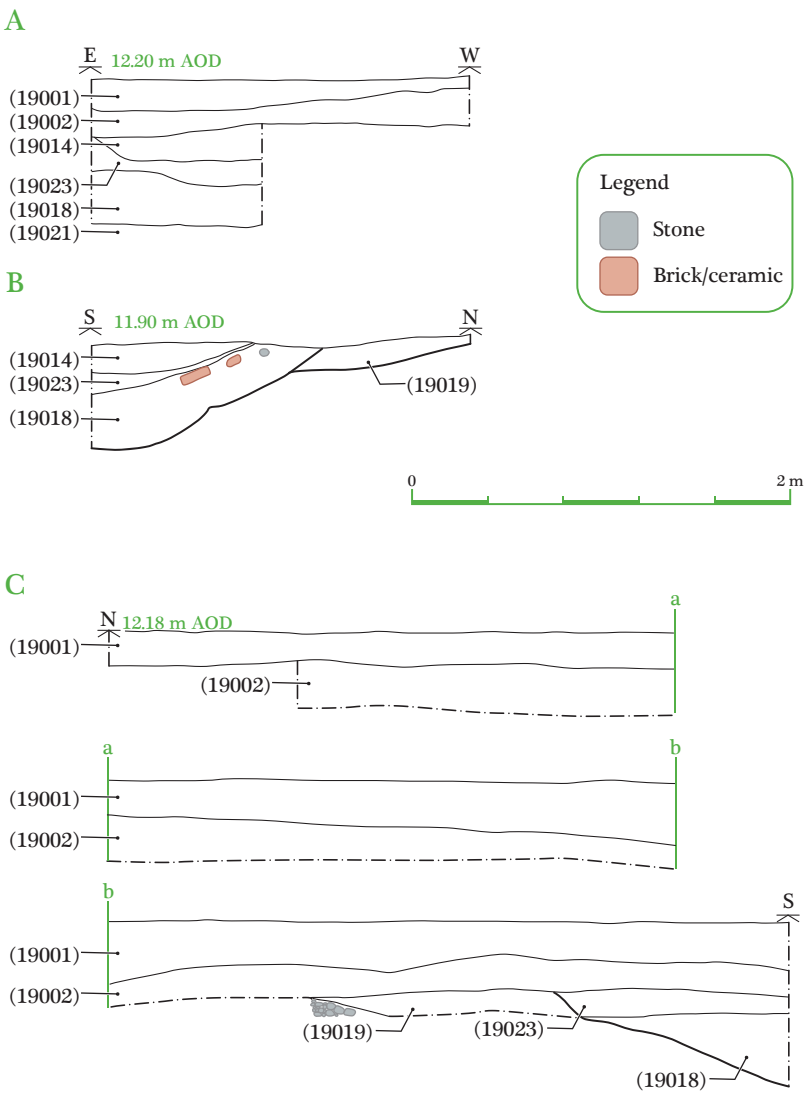


Plate 14.5 - A mid excavation close up of some of the tiles from the tile floor.

Plate 14.6 - A mid excavation shot of a possible wall foundation underneath the current layer.

Plate 14.7 - Mid-excavation facing E, indicating infirmary wall foundation.

Figure 14.2 - Trench 19 excavation results (sections).

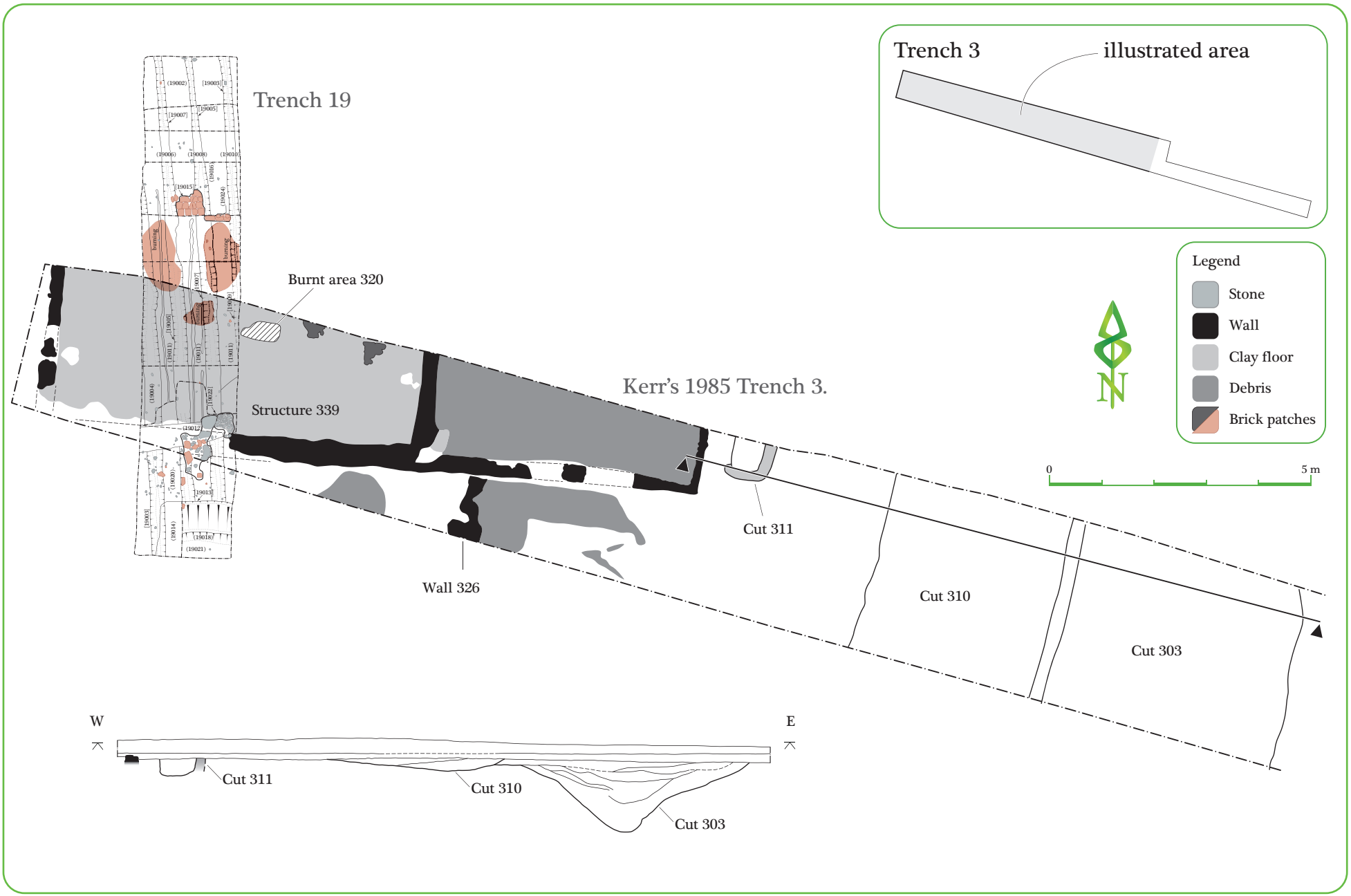


Figure 14.3 - Trench 19 overlaid on Kerr's 1985 Trench 3.

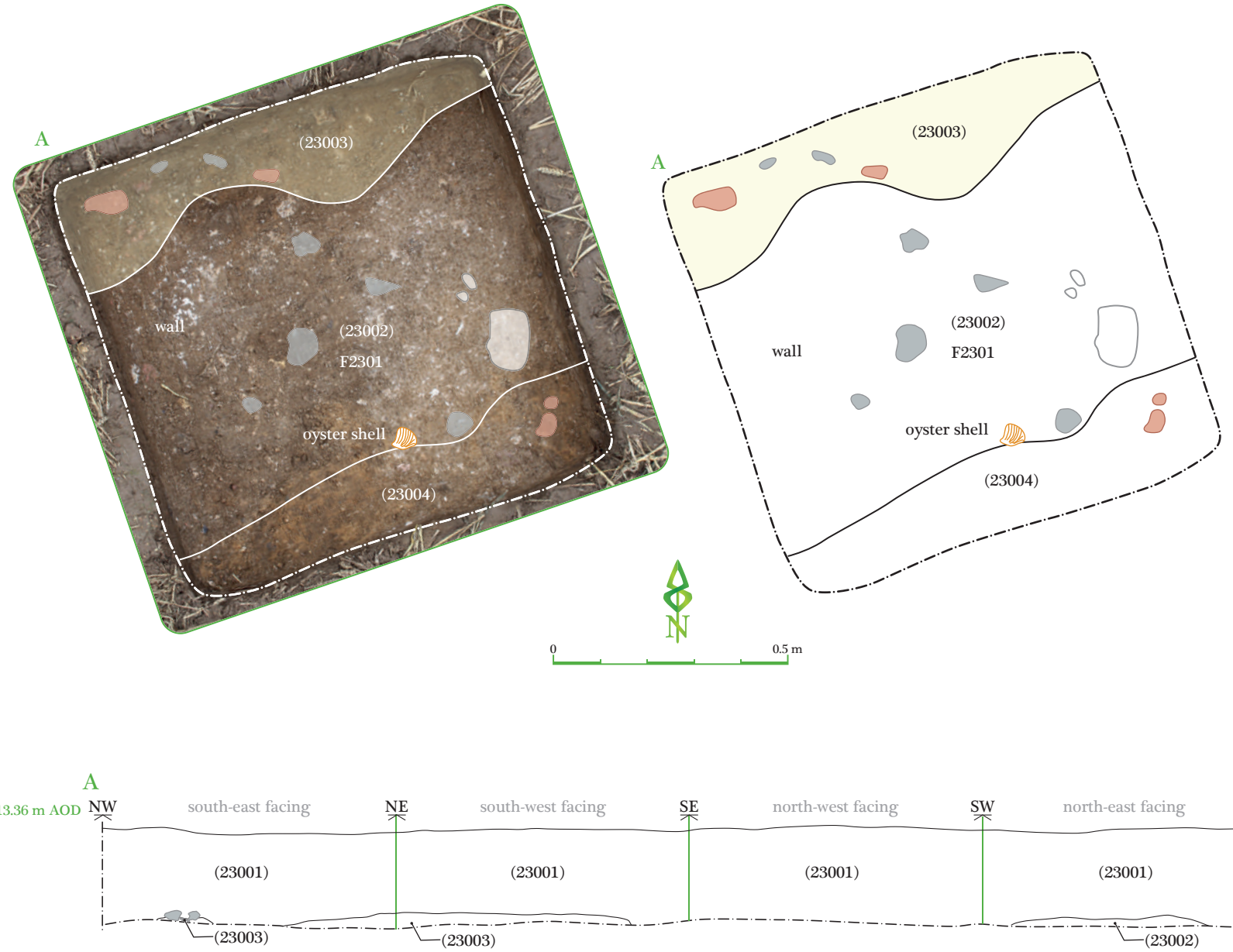
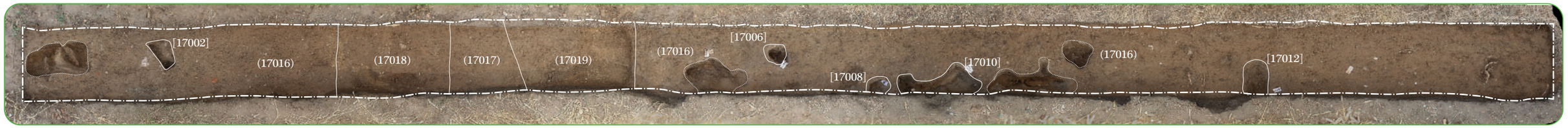
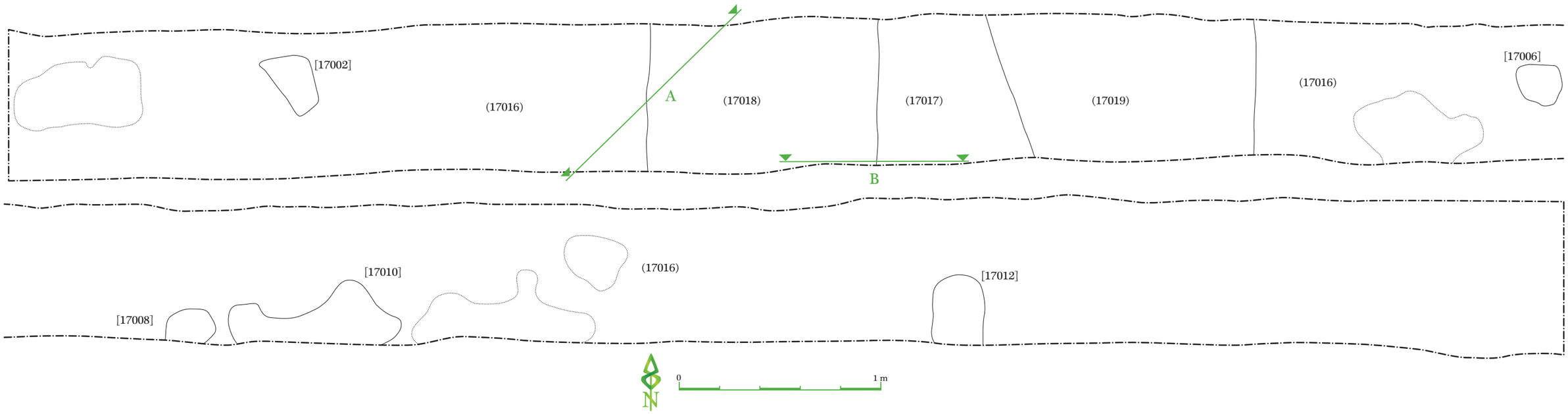


Plate 15.1 - Post-excavation facing W, indicating deposit (23002).

Figure 15 - Trench 23 excavation results.





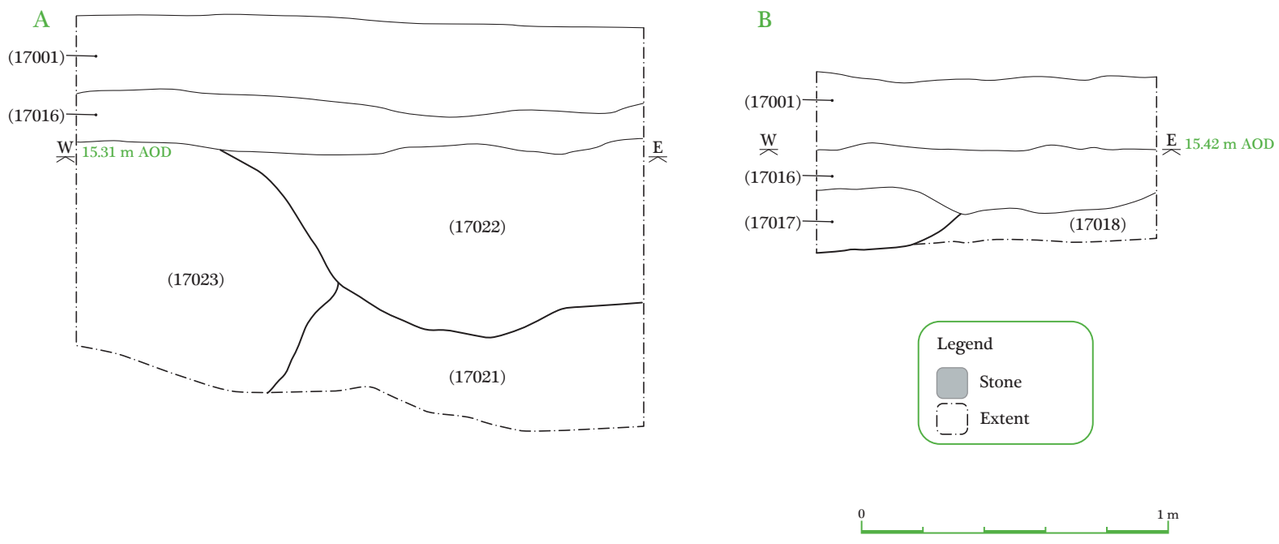


Figure 16 - Trench 17 excavation results.

Plate 16.1 - Mid-excavation of narrow trench facing E, removing topsoil & subsoil by hand.

Plate 16.2 - Mid-excavation facing E, with evidence of substantial bioturbation.

Plate 16.3 - Mid-excavation facing N, indication one of several natural features within the subsoil.

Plate 16.4 - Mid-excavation facing W, with rabbit burrows removed.

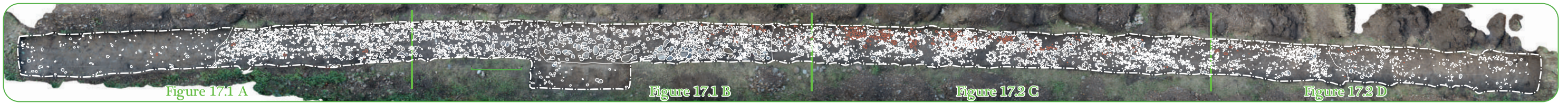
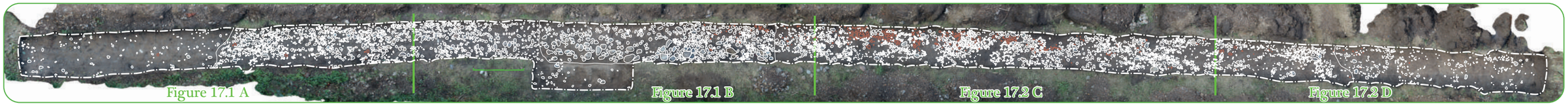


Figure 17.1 - Trench 18 excavation results.



C

(18009)

D

(18009)

(18004)

644584.569
264226.643

644584.138
264225.681

Plate 17.1 - Mid-excavation facing E, showing aspect of trench adjacent to main driveway.

Plate 17.2 - Mid-excavation facing E, indicating natural layer (18004) and cobbled layer (18009).

Plate 17.3 - Mid-excavation facing S, of layer (18006) .

Plate 17.4 - Mid-excavation facing S, of Masonry foundation layer (18007).

N

0 1 m

Legend

Stone

Brick

Extent

Figure 17.2 - Trench 18 excavation results.

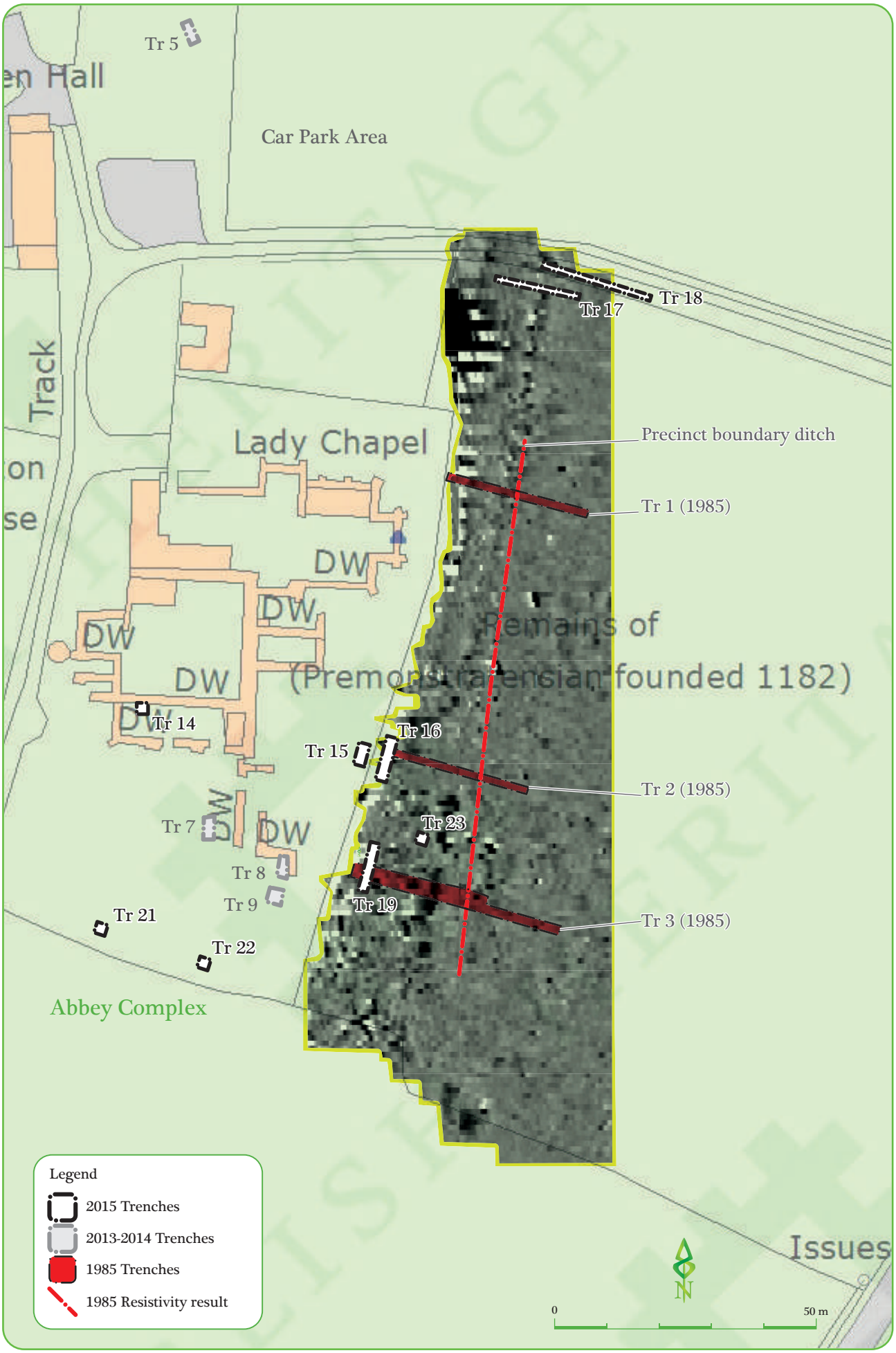


Figure 18 - The Eastern Field, featuring Kerr's 1985 excavation trenches overlaid with 2015 magnetometry results and trenches.

Plate 19.1 – Trench 19 from above, featuring the in situ floor tiles and agricultural damage to the Infirmary building

Plate 19.2 – Community volunteers hand digging Trench 17 at the edge of the Eastern field

Plate 19.3 – Postcard from c.1900, illustrating vegetation adjacent to the southern site entrance, and likely truncating the medieval wall observed in Trench 20

Plate 19.4 – Postcard from c.1910, illustrating the gable-ended chapel at Minsmere prior to WW11 remodelling

15 APPENDICES

Appendix 1 – Trench and context descriptions

Trench 14	Dimensions: 2m x 5m			
	Orientation: N-S			
	Reason for Trench: To assess how much damage rabbits had caused to the archaeology			
	Digital Record Link: http://goo.gl/kzwq3c			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
14001	Mid to dark grey brown friable to loose sandy silt with moderate to small sub-rounded pebble inclusions. This also had entrances to rabbit warrens. **Link:** http://goo.gl/iy7qhz	**Deposit** – topsoil	Length - 2.00m Width - 2.50m Depth - Ranges from 0.20m - 0.05m	_
14002	Mid greyish brown very loose sandy silt with occasional chalk fragments, occasional charcoal, moderate sub-angular to rounded pebbles and CBM. The rabbit holes continued into this context. **Link:** http://goo.gl/nVGlxt	**Deposit** – subsoil	Length - 2.00m Width - 2.50m Depth – 0.06m	_
14003	Orange-yellow loose sand with occasional small sub-angular and sub-rounded pebbles and plastic. There is the continuation and base of the rabbit holes. **Link:** http://goo.gl/U5Pk5l	**Deposi**t – sandy deposit	Length - 2.00m Width - 2.50m Depth – 0.13m	_
14004	A rectangular cut with squared corners and vertical sides with a sharp break of slope at the top and a horizontal break of slope at the bottom. **Link:** http://goo.gl/iwKGk3	**Cut** – Possible post hole	Length - 0.28m Width - 0.26m Depth - 0.30m	1401

Trench 14	**Dimensions: 2m x 5m**			
	Orientation: N-S			
	Reason for Trench: To assess how much damage rabbits had caused to the archaeology			
	Digital Record Link: http://goo.gl/kzwq3c			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
14005	Yellow with occasional mid grey/brown clay patches of loose sand with occasional lenses of clay with very occasional sub-rounded pebbles. **Link:** http://goo.gl/CSxqGp	**Fill** – of [14004]	Length - 0.28m Width - 0.26m Depth - 0.30m	1401
14006	Mid grey brown mottled with white moderate to firm clay silt with chalk fragments and flint cobbles and pebbles. Moderate charcoal, small sub-rounded and sub angular pebble inclusions. **Link:** http://goo.gl/6hQ25A	**Deposit** – Floor make-up layer	Length - 2.00m Width - 2.50m Depth - 0.12m	1402
14007	Mid grey brown moderate to firm sandy clay with occasional sub-angular pebbles. **Link:** http://goo.gl/F8JbEL	**Layer** – clay consolidation	Full extent unknown excavated in sondage: Length - 2.00m Width - 0.80m Depth - 0.20m	1402
14008	Irregular, roughly hewn limestone chalk and flint with sand and lime with crushed chalk fragment bonding material. **Link:** http://goo.gl/1QS3N7	**Masonry** – foundations of refectory.	Excavated in sondage only and limit of excavation. Upper courses ran the width of trench at 2.50m Depth 0.48m and height 0.56m	1402

Trench 15	**Dimensions: 2m x 5m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate a crop-mark identified by low aerial photography in 2013			
	Digital Record Link: http://goo.gl/A26gcz			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
15001	Grey brown medium sandy clay with chalk, charcoal and CBM inclusions. **Link:** http://goo.gl/62yHHE	**Deposit** – Topsoil	Length – 4.83m Width – 2.00m	–
15002	Yellow-grey medium sandy clay with chalk, charcoal and CBM inclusions. Rubble was particularly concentrated in the western side. **Link:** http://goo.gl/p69bpe	**Deposit** – Subsoil	Length – 4.83m Width – 2.00m	–
15003	Yellow-brown loose sandy soil. **Link:** http://goo.gl/M7G3hU	**Deposit** – Natural	Length – 5.00m Width – 2.00m Depth unknown as not excavated	–

Trench 16	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/Xfkpc7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
16001	Mid brownish brown loose course sand with occasional small flints, chalk and green glass. Wheat was planted directly into this layer thus explaining the	**Deposit** – topsoil	Length - 9.70m Width - 2.00m	–

Trench 16	Dimensions: 2m x 10m			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/Xfkpc7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	abundance of roots. One piece of clay tobacco pipe was found. **Link:** http://goo.gl/kU2jYs			
16002	Mid brownish brown course sand with a loose crumbly soil compaction with occasional flint, stone and CBM. **Link:** http://goo.gl/IK2DX4	**Deposit** – subsoil	Length - 9.70m Width - 1.96m	–
16003	A N-S orientated linear cut with sharp breaks of slope at top and bottom, steep sides and a rounded base. This cut has no corners, no inclination and no truncation. **Link:** http://goo.gl/w7fB1p	**Cut** of Plough furrow	Length – 9.70m Width – 0.20m Depth – 0.10m	1601
16004	Light greyish brown very loose sandy clay with CBM, post medieval glass and pottery, and oyster shell inclusions. **Link:** http://goo.gl/sqfK2L	**Fill** of Plough furrow	Length - 9.70m Width - 0.20m Depth - 0.10m	1601
16005	A N-S orientated linear cut with sharp breaks of slope at top and bottom, steep sides and a rounded base. This cut has no corners, no inclination and no truncation. **Link:** http://goo.gl/OBwYrr	**Cut** of Plough furrow	Length – 9.70m Width – 0.20m Depth – 0.10m	1602
16006	Light greyish brown very loose sandy clay with oyster shell, post medieval post and	**Fill** of Plough furrow	Length - 9.70m Width - 0.20m Depth - 0.10m	1602

Trench 16	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/Xfkpc7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	glass, and CBM inclusions. **Link:** http://goo.gl/QAAwVF			
16007	A N-S orientated linear cut with sharp breaks of slope at top and bottom, steep sloping sides and a rounded base. This cut has no corners, no inclination and no truncation. **Link:** http://goo.gl/vcQ7Wt	**Cut** of Plough furrow	Length - 9.70m Width - 0.15m Depth - 0.10m	1603
16008	Light greyish brown very loose sandy clay with CBM, post medieval pottery and glass, and oyster shell inclusions. **Link:** http://goo.gl/SUjN9a	**Fill** of Plough furrow	Length - 9.70m Width - 0.20m Depth - 0.10m	1603
16009	Mid grey yellow loose mortar with CBM and flint inclusions. This layer has been gouged by the plough. **Link:** http://goo.gl/ej9dqc	**Layer** of compacted mortar	Located on plan of trench	–
16010	Mid orangey grey hard mortar (16009) as well as subsoil (16002) so sandy mortar and sandy clay with plenty of chalk fleck and small rocks, streaks of mortar as well as small bits of CBM (likely medieval). This is a mixture of remnants of subsoil (16002) and remnants of mortar (16009). **Link:** http://goo.gl/EmNYm8	**Layer**	Located on plan of trench	–
16011	Mid orangey brown very loose sand.	**Layer** – Natural	N/A	–

Trench 16	Dimensions: 2m x 10m			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/Xfkpc7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	Link: http://goo.gl/cO8f2K			

Trench 17	Dimensions: 1m x 25m			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/C8ol9e			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
17001	Mid greyish brown very loose sandy silt. **Link:** http://goo.gl/FW3AJ2	**Deposit** – Topsoil	Length – 25.00m Width – o.70m Depth – 0.24m	–
17002	Curving linear feature – orientated to and extends beyond Northern and Western LOE. Corners could not be deciphered due to the extensions beyond LOE. It has a sharp break of slope at the top (the bottom was non-perceptible), steep sides and an undulating base. **Link:** http://goo.gl/kZyE3q	**Cut** of curving feature	Length - 0.30m Width - 0.30m Depth - 0.20m	1701
17003	Mid orangey brown loose sandy silt with 10% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/etz8Ob	**Fill** of curving feature	Length – 0.30m Width - 0.30m Depth - 0.20m	1701
17004	An irregular, vaguely elliptical cut with rounded corners with a non-perceptible orientation or break of slope at the base. The	**Cut** of circular feature	Length - 0.80m Width - 0.80m Depth - 0.60m	1702

Trench 17	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/C8ol9e			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	break of slope at the top is sharp with the sides varying from concave to steep and a curving base with some undulation. **Link:** http://goo.gl/zhP9JE			
17005	Mid orangey brown loose sandy silt with 10% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/C7Dn9B	**Fill** of circular feature	Length - 0.60m Width - 0.60m Depth - 0.38m	1702
17006	A circular cut (possible rabbit hole) with a non-perceptible orientation or break of slope at the base. It has a sharp break of slope at the top and vertical to undercut sides. **Link:** http://goo.gl/ceEvBP	**Cut** of circular feature	Length - 0.18m Width - 0.18m Depth - 0.18m	1703
17007	Mid orangey brown loose sandy silt with 10% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/AoB2tT	**Fill** of circular feature	Length - 0.18m Width - 0.18m Depth - 0.18m	1703
17008	A circular cut (possible rabbit burrow) with no corners and no perceptible breaks of slope or orientation. The sides are shallow and the base is flat. **Link:** http://goo.gl/9rlC3r	**Cut** of circular feature	Length - 0.26m Width - 0.26m Depth - 0.18m	1704
17009	Mid orangey brown loose sandy silt with 5% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/S31ta0	**Fill** of circular feature	Length - 0.26m Width - 0.26m Depth - 0.18m	1704

Trench 17	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/C8ol9e			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
17010	A non-distinguishable but slightly elliptical cut (possible rabbit burrow) with no corners. It has a non-perceptible orientation or break of slope at the base. The break of slope at the top is sharp, the sides are non-distinguishable to vertical and the base is flat. **Link:** http://goo.gl/rS0aLb	**Cut** of linear feature	Length – 0.80m Width - 0.80m Depth - 0.32m	1705
17011	Mid orangey brown loose sandy silt with 10% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/z1E2jt	**Fill** of linear feature	Length - 0.80m Width - 0.60m Depth - 0.32m	1705
17012	A roundish cut (possible part of rabbit hole) with no corners, a gradual break of slope at top and base, shallow sides, a flat base and no visible orientation. **Link:** http://goo.gl/ZpG6Pk	**Cut** of circular feature	Length - 0.34m Width - 0.34m Depth - 0.26m	1706
17013	Mid orangey brown loose sandy silt with 5% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/V7O7KB	**Fill** of circular feature	Length - 0.34m Width - 0.34m Depth - 0.26m	1706
17014	A linear cut with no distinguishable corners or orientation. It has a sharp break of slope at the top and a steep break of slope at the base. The sides are vertical and the base is a flat chalky layer. **Link:** http://goo.gl/wrRQuJ	**Cut** of linear feature	Width – 3.00m Depth – 1.40m+	1707

Trench 17	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/C8ol9e			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
17015	Mid orangey brown loose sandy silt with 10% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/aeNolZ	**Fill** of linear feature		1707
17016	Light orangey brown loose sandy silt with 5% sub-angular flint and CBM inclusions. **Link:** http://goo.gl/XbHtil	**Deposit** – Subsoil	Length – 12.26m Width – 0.60m Depth – 0.24m	–
17017	Light orangey yellow compacted… **Link:** http://goo.gl/3ZKeRk	**Deposit** - Compacted layer	Length – 0.80m Width – 0.64m Depth – 0.40m	–
17018	Dark orange yellow very loose sand. **Link:** http://goo.gl/Lf78Aa	**Deposit** - Natural sand	Length – 22.60m Width – 0.70m Depth – 0.45m	–
17019	Greyish white very hard sandy clay with 25% sub-angular chalk. **Link:** http://goo.gl/aS28Hf	**Deposit** - Chalky layer	Length – 1.30m Width – 0.74m	–
17020	A N-S linear ditch with a gradual break of slope at the top and convex sides. The base of the cut was not reached due to health and safety reasons. The corners were not present within the LOE. There was no truncation or inclination. **Link:** http://goo.gl/m8u6Ox	**Cut** of a ditch	Length – 0.75m Width – 0.65m Depth – 0.90m (not fully excavated due to health and safety)	1708
17021	Mid greyish orange loose silty sand with no inclusions. The full extent was not excavated due to health and safety. **Link:** http://goo.gl/BMnDow	**Primary fill** of ditch	Length – 0.75m Width – 0.65m Depth – 0.40m	1708
17022	Mid yellowish orange loose silty sand with 5% angular flint.	**Secondary fill** of ditch	Length – 0.70m Width – 0.65m Depth – 0.65m	1708

Trench 17	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/C8ol9e			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	Link: http://goo.gl/wPKDzg			
17023	Mid orangey yellow compact sandy clay with 50% inclusions of chalk. **Link:** http://goo.gl/mz9Yga	**Bank** next to ditch	Length – 0.70m Width – 0.64m Depth – 0.75m	1708

Trench 18	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/x1nPMy			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
18001	Dark greyish brown very loose sandy silt. **Link:** http://goo.gl/sJOOxm	**Deposit** – Topsoil	Length - 30.50m Width - 0.85m Depth - 0.20m	–
18002	Mid greyish brown loose sandy silt with chalk and flint inclusions. **Link:** http://goo.gl/U5JFvk	**Deposit** – Subsoil	Length - 30.50m Width - 0.85m Depth - 0.10m	–
18003	Sub-circular cut with a steep sides and a sharp break of slope at top and bottom and a semi-circular base. No corners, inclination or truncation. **Link:** http://goo.gl/KKiMwO	**Cut** of cobbled feature	Length - 0.60m Width - 0.28m	1801
18004	Mid orangey yellow compact sandy clay with chalk and flint inclusions. **Link:** http://goo.gl/FCVWgU	**Deposit** - Natural layer	Length - 2.62m Width - 0.32m	–
18005	Light greyish brown compact sandy silt Up to 80% Sub angular inclusions of pulverised CBM, mortar and flint. **Link:** http://goo.gl/tQW2Cf	**Layer** - Cobbled surface surrounding limestone wall	Length - 6.80m Width - 0.80m	–

Trench 18	**Dimensions: 1m x 25m**			
	Orientation: WNW-ESE			
	Reason for Trench: To investigate the possibility of an Abbey gatehouse			
	Digital Record Link: http://goo.gl/x1nPMy			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
18006	Mid greyish brown loose sandy silt with Up to 50% angular to sub angular inclusions of CBM, flint and limestone, and multi period finds. **Link:** http://goo.gl/TQuJtK	**Layer** - Demolished mixed rubble	Length - 2.65m Width - 0.85m Depth - 0.15m	1803
18007	Flint, limestone and sandstone (flint ranges from 0.01m to 0.2m limestone ranges from 0.01m to 0.3m sandstone ranges from 0.01m to 0.24m) forming a very roughly hewn and randomly coursed wall foundation with small angular inclusions of pulverised CBM and hard cream coloured mortar and some flint fragments. **Link:** http://goo.gl/Nmy0Rt	**Masonry** - Limestone and flint foundation wall	N-S = 0.80m E-W = 4.72m	1802
18008	Light greyish brown compact sandy clay with up to 70% sub rounded inclusions of flint. **Link:** http://goo.gl/P9tC21	**Fill** of cobbled feature	Length - 0.60m Width - 0.28m	1801
18009	Light greyish brown compact sandy silt Up to 80% Sub angular inclusions of pulverised CBM, mortar and flint. **Link:** http://goo.gl/RPKk7m	**Layer** - Cobbled surface surrounding limestone wall	Length - 11.60m Width - 0.80m	–
18010	Light orangey yellow compact sandy silt with 20% sub angular inclusions of flint. **Link:** http://goo.gl/lc02uK	**Layer** - Hard layer inside trench extension	Length – 2.00m Width – 0.25m Depth – 0.60m as seen in sondage.	_

Trench 19	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/FhxCQR			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
19001	Mid greyish brown friable clay silt. **Link:** http://goo.gl/lXMZgY	**Deposit** – Topsoil	Length - 9.65m Width - 1.88m (extends beyond LOE)	–
19002	Greyish-yellowish light brown loosely to tightly compacted plough furrows of sandy clay with inclusions of roots, flint, chalk and CBM. It was dug in 9 segments each a metre wide. **Link:** http://goo.gl/ksbpUw	**Deposit** – Subsoil	Length - 9.65m Width - 1.88m (extends beyond LOE)	–
19003	N-S, long, narrow and rectangular cut (no corners as extends beyond LOE) with a sharp break of slope at top and bottom with steep to vertical sides and a flat base. It is cut into (19002). **Link:** http://goo.gl/V9DmjR	**Cut** - Plough furrow	Width - 0.04m minimum to 0.24m maximum	1905
19004	Greyish-yellowish light brown loose sandy clay with 5% chalk and 1% CBM and oyster shell inclusions. **Link:** http://goo.gl/1uWUnc	**Fill** of Plough furrow (19003)	Width - 0.04m minimum to 0.24m maximum	1905
19005	N-S, long, narrow and rectangular cut (no corners as extends beyond LOE) with a sharp break of slope at top and bottom with steep to vertical sides and a flat base, it is cut into (19002). **Link:** http://goo.gl/WgUvS8	**Cut** - Plough furrow	Width - 0.11m minimum to 0.30m maximum	1906

Trench 19	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/FhxCQR			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
19006	Greyish-yellowish light brown loose sandy clay with 5% chalk and 1% CBM and oyster shell inclusions. **Link:** http://goo.gl/KogG9w	**Fill** of Plough furrow (19005)	Width - 0.11m minimum to 0.30m maximum	1906
19007	N-S, long, narrow and rectangular cut (no corners as extends beyond LOE) with a sharp break of slope at top and bottom with steep to vertical sides and a flat base, it is cut into (19002). **Link:** http://goo.gl/2WuwjA	**Cut** - Plough furrow	Width - 0.15m minimum to 0.28m maximum.	1908
19008	Greyish-yellowish light brown loose sandy clay with 5% chalk and 1% CBM and oyster shell inclusions. **Link:** http://goo.gl/4mRxUt	**Fill** of Plough furrow(19007)	Width - 0.15m minimum to 0.28m maximum	1908
19009	N-S, long, narrow and rectangular cut (no corners as extends beyond LOE) with a sharp break of slope at top and bottom with steep to vertical sides and a flat base, it is cut into (19002). **Link:** http://goo.gl/8WKrnl	**Cut** - Plough furrow	Width - 0.04m minimum to 0.28m maximum	1907
19010	Greyish-yellowish light brown loose sandy clay with 5% chalk and 1% CBM and oyster shell inclusions. **Link:** http://goo.gl/aWO6X5	**Fill** of Plough furrow (19009)	Width - 0.04m minimum to 0.28m maximum	1907
19011	Light yellowish grey compact clay silt with	**Layer** - Clay floor	Unknown as unexcavated	1904

Trench 19	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/FhxCQR			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	frequent small chalk inclusions with occasional medium to large chalk inclusions and very occasional rounded flint. Heavily truncated and damaged by modern ploughing or subsoiler. **Link:** http://goo.gl/ynMh6V			
19012	N-S, variable size (Largest - 0.33m x 0.18m. Rounded Cobbles - 0.10m x 60mm) unfinished stone, flint and chalk with light grey yellow, medium sand mortar with frequent small chalk inclusions. It has been heavily ploughed and appears to be the same mortar as [19015]. **Link:** http://goo.gl/m92PJG	**Masonry** - Stone and mortar wall	602mm x 453mm	1902
19013	Rounded, sub-rectangular cut with regular concave sides. The top break of slope is sharp and at the base is gradual. This cut has a flat base. **Link:** http://goo.gl/81MLdH	**Cut** of pit	Unknown	1901
19014	Dark grey brown soft clay silt with occasional (5%) flacks of chalk and CBM as well as finds (pot) similar to post-medieval pits from trench 9 in 2014. **Link:** http://goo.gl/WD8umx	**Fill** of pit [19013]	Unknown	1901

Trench 19	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/FhxCQR			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
19015	Squared ceramic tile and brick tile floor (Tile = 0.12m x 0.12m x 38mm Brick = 0.21m x 0.11m x 41mm) that is unevenly coursed with a light grey yellow, medium sand mortar with frequent small chalk inclusions. **Link:** http://goo.gl/LfaulY	**Masonry** - Tile floor	0.48m x 0.48m	1903
19016	Mid brown yellow firm clay silt with moderate (10%) sub-rounded chalk clasts and occasional (5%) charcoal flecks. It appears to be a more mixed deposit as (19020) in southern part of trench. **Link:** http://goo.gl/rx9CS8	**Layer** - Clay floor or levelling layer	Unknown as unexcavated	–
19018	Dark greenish brown soft sandy silt with occasional (2%) flacks of chalk and CBM. c. 0.5m slot placed through pit [19013]. Similar finds (pot) from trench 9 from 2014. **Link:** http://goo.gl/nYYq8o	**Fill** of pit [19013]	Unknown	1901
19019	Mid grey brown firm clay silt with 15% rounded to sub-angular chalk clasts. Many of the finds appear to be associated with a window. **Link:** http://goo.gl/PUDawP	**Layer** - Clay floor or made ground	Unknown	–
19020	Mid orange brown soft silty sand with	**Layer** - Levelling layer	Unknown as unexcavated	–

Trench 19	**Dimensions: 2m x 10m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the infirmary building by re-opening Kerr's 1985 trench			
	Digital Record Link: http://goo.gl/FhxCQR			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	occasional chalk and CBM. It appears to extend across the trench. Same as (19016) in northern part of trench? **Link:** http://goo.gl/1riNJR			
19021	Mid orange yellow lightly cemented silty sand with frequent variable sub-angular flints and pebbles. **Link:** http://goo.gl/xRTbQR	**Layer** – Natural	Unknown as unexcavated	–
19022	ENE-WSW linear cut. All else is unknown as unexcavated. **Link:** http://goo.gl/QVSqoc	**Cut** - Construction cut of wall	Unknown as unexcavated	1902
19023	Mid brown yellow compact clay silt with 15% rounded chalk clasts. Slump from cut of pit. **Link:** http://goo.gl/uoCfMB	**Fill** of pit [19013]	Unknown as unexcavated	1901
19024	Squared brick floor or edging of tiled floor with linear coursing. The bonding is unknown. **Link:** http://goo.gl/8NM20c	**Masonry** - Brick floor or edging	0.60m x 0.08m	1903

Trench 20	**Dimensions: 3m x 3m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/an52N7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
20001	Dark greyish brown very loose sandy silt. **Link:** http://goo.gl/AjM4Pk	**Deposit** – Topsoil	Length - 3.20m Width - 3.00m Depth - 0.10m	_
20002	Greyish brown loose sandy silt with chalk, flint and CBM inclusions. Big brick alone in the middle of the trench. Same kind that the ones making part of wall [20005]. Concentration of rounded flints on the West of the trench. Find of a decorated piece of pottery on the bottom of the layer, possibly 16th Century imported from Germany. **Link:** http://goo.gl/TBFYO6	**Deposit** – Subsoil	Length - 3.20m Width - 3.00m Depth - 0.17m	_
20003	Dark yellowish brown soft clay silt with 70% (frequent) angular chalk deposits, 25% (moderate) angular CBM, 10% (moderate) sub-angular/sub-rounded cobbles and 1% (occasional) angular charcoal deposits. **Link:** http://goo.gl/Gfp7v2	**Layer** – Re-deposited fill	Length – 2.22m Width – 1.00m Depth – 0.06m	_
20004	Dark blackish brown very compact clay silt with moderate CBM and mortar. **Link:** http://goo.gl/N40ZAt	**Layer** - Rubble deposit above wall	Length – 1.06m Width – 0.80m Depth – 0.05m	_
20005	Handmade red brick and mortar. **Link:** http://goo.gl/ycPGQM	**Masonry** - Red brick mortared wall	Length – 0.90m Width – 0.40m Depth – 0.35m	_

Trench 20	**Dimensions: 3m x 3m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/an52N7			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
20006	Yellow very compact clay with chalk and CBM. **Link:** http://goo.gl/O1imX5	**Deposit** - Yellow sand layer	Only excavated 0.80m x 0.80m	–
20007	N-S rectangular cut with rounded corners. The break of slope at the top is not perceptive and at the bottom it is gradual. The sides are concave. The base is undulating with a maximum depth of 0.20m. It is truncated by (20009). **Link:** http://goo.gl/xGHwrp	**Cut** into [20006]	Length - 3.00m Width - 0.20m Depth - 0.20m	–
20008	Dark greyish brown loose silt. **Link:** http://goo.gl/iumXJV	**Fill** of [20007]	Length – 3.00m Width - 0.20m Depth - 0.20m (Max)	–
20009	Circular cut with sharp break of slope at top and bottom with vertical sides and a flat base. **Link:** http://goo.gl/GHfEvD	**Cut** - Post hole near brick wall [20005]	Length - 0.19m Width - 0.18m Depth - 0.27m	–
20010	Dark greyish brown loose silt. **Link:** http://goo.gl/3zLeZu	**Fill** of post hole [20009]	Length - 0.19m Width - 0.18m Depth - 0.27m	–
20011	Dark greyish brown medium loose silt with chalk and pebble inclusions. Very similar to [20003]. **Link:** http://goo.gl/8nhiB9	**Deposit** - Dark layer to the south of [20005]	Length – 0.90m Width – 0.35m Depth – 0.35m	–
20012	Light greyish brown compact clay silt with chalk inclusions. **Link:** http://goo.gl/HHaVom	**Layer** - Levelling layer	Taken from sondage: Length – 0.80m Width – 0.80m Depth – 0.10m	–

Trench 21	**Dimensions: 3m x 3m**			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/Ne6lYl			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
21001	Dark greyish brown loose sandy silt. **Link:** http://goo.gl/yT1tqE	**Deposit** – Topsoil	Length - 3.00m Width - 2.70m Depth - 0.08m	–
21002	Greyish brown loose sandy silt with a high rate of organic waste and chalk and flint inclusions. Half of this context is within the trench. **Link:** http://goo.gl/gNtr2p	**Deposit** – Subsoil	Length - 3.00m Width - 2.70m Depth - 0.19m	–
21003	Light yellowish brown soft sandy silt with stone and charcoal inclusions. **Link:** http://goo.gl/9oLcEv	**Deposit** – Deposition phase of organic waste	3.00m x 2.85m x 0.36m unexcavated 3.00m x 1.40m x 0.36 m excavated	–
21004	E-W linear cut with a sharp break of slope at the top and a grounded break of slope at the bottom. It has steeply sloping sides and a U-shaped base. **Link:** http://goo.gl/YyBoCS	**Cut** - linear feature	The western end of the feature disappears into the baulk. At the Eastern end is the terminus which is slightly offset.	–
21005	Dark greyish brown soft sandy silt with stone inclusions. A dark linear noted in [21003]. Unlikely bioturbation due to its straight edges. **Link:** http://goo.gl/VLCYcF	**Fill** of linear feature [21004]	Length – 1.45m Width – 0.26m Depth – 0.07m	–
21006	E-W linear feature with a gently sloping top break of slope with gently sloping sides. The base is not seen in this context. **Link:** http://goo.gl/1HXvJr	**Cut** of ditch [21007]	Length – 0.70m Width – 0.40m Depth – 0.06m	–

Trench 21	Dimensions: 3m x 3m			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/Ne6lYI			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
21007	Dark greyish brown soft sandy silt with stone inclusions. **Link:** http://goo.gl/Y2Qc5m	**Fill** of [21006]	Length – 0.70m Width – 0.40m Depth – 0.06m	_
21008	Yellowish brown compact silty sand with sub-angular flint and stone. **Link:** http://goo.gl/Dj8oiv	**Deposit** - Natural	Length - 3.00m Width - 2.80m Depth - 0.41m	_

Trench 22	Dimensions: 3m x 3m			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/MoUEbY			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
22001	Dark greyish brown very loose sandy silt. **Link:** http://goo.gl/NhtGaJ	**Deposit** – Topsoil	Length - 3.00m Width - 3.00m Depth - 0.08m	_
22002	Greyish brown loose sandy silt with flint and chalk inclusions. **Link:** http://goo.gl/Vy9wRF	**Deposit** – Subsoil	Length - 3.00m Width - 3.00m Depth - 0.21m	_
22003	Orange brown loose sandy silt with rounded chalk. **Link:** http://goo.gl/7sF0xe	**Deposit** – Redeposited layer	Length - 3.00m Width - 3.00m Depth - 0.30m	_
22004	Light whitish brown sandy silt and chalk with sub-rounded chalk inclusions. **Link:** http://goo.gl/fZhe0T	**Deposit** - Chalky material	Length - 1.00m Width – 0.35m Depth - 0.05m	_
22006	Greyish brown loose sandy silt with sub-rounded chalk and flint.	**Deposit** - Redeposited material	Length – 1.00m Width – 0.30m Depth – 0.37m	_

Trench 22	Dimensions: 3m x 3m			
	Orientation: NE-SW			
	Reason for Trench: To investigate the potential site of spoil heaps from 1920s 'wall chasing' excavations			
	Digital Record Link: http://goo.gl/MoUEbY			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	Link: http://goo.gl/cz4ohK			
22007	Yellowish brown compact sandy silt with sub-rounded chalk and flint inclusions. **Link:** http://goo.gl/DTv6yq	**Deposit** – Natural	Length - 3.00m Width - 3.00m Depth – 0.35m	–

Trench 23	Dimensions: 1m x 1m			
	Orientation: N/A			
	Reason for Trench: To investigate a crop-mark identified by low aerial photography			
	Digital Record Link: http://goo.gl/UFtdGd			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
23001	Mid brown grey very soft and loose sandy silt with post med CBM, some stones and chalk (infrequent). **Link:** http://goo.gl/Qiq59r	**Deposit** – Topsoil	Length - 1.00m Width - 1.00m (known in slot) Depth - 0.32m	–
23002	Cobbles and mortar (lime), as well as chalk. The cobbles were roughly averaging between 10 - 20cm, chalk pieces small 5cm or less with lime mortar, elements of light whitish grey chalk. It is foundation rubble. There was not enough coursing to comment on. No faces are apparent. **Link:** http://goo.gl/bJjjTc	**Masonry** - Wall foundation rubble	Length - 1.00m (known within slot) Width - between 60 - 70 cm, degraded in some parts (see plan) Depth - unknown, only uncovered, was about 32 cm below top of test pit	–
23003	Mid greyish yellow very loose mortar with high	**Deposit** – Mortar abutting wall	Length – 1.00m (known in test pit)	–

Trench 23	Dimensions: 1m x 1m			
	Orientation: N/A			
	Reason for Trench: To investigate a crop-mark identified by low aerial photography			
	Digital Record Link: http://goo.gl/UFtdGd			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
	sand content and very little occasional flint. **Link:** http://goo.gl/1Ss9T7		Width – 0.20-0.30m Depth – unknown	
23004	Mid orangey brown very loose sand. Wall (23002) seems to be cut into it. **Link:** http://goo.gl/sYKKXE	**Deposit** - Natural	Within pit apparent on southern side of wall, for approximately 10 cm in width, and 1.00m length apparent in test pit.	–

Trench 24	Dimensions: 2m x 5m			
	Orientation: N/A			
	Reason for Trench: To investigate Minsmere's western spoil heap created in WWII			
	Digital Record Link: http://goo.gl/jlhK4U			
Context	**Description**	**Interpretation/ Process of deposition**	**Dimensions (m)**	**Feature**
24000	Minsmere's western spoil heap. **Link:** http://goo.gl/QoiUJP	**Spoil heap** laid down in WWII	N/A	2400

Appendix 2 – Leiston Abbey Palaeoenvironmental table

Sample	Context	Charred Plant Remains							Dried Waterlogged Seeds			Modern Plant Remains				Significant Taxa
		Grains			Seeds			Charcoal > 4mm				Rootlet/ rhizome	Twigs	Grass stem and chaff	Seeds	
		a	d	p	a	d	p	a	a	d	p	a	a	a	a	
55	22003	1	1	2	-	-	-	1	2	1	3	3	-	-	-	One barley/wheat grain, testas of seeds of elderberry, fat hen and stitchwort/mouse-ear.
58	18006	-	-	-	-	-	-	-	2	1	3	3	3	-	-	Testas of seeds of elderberry and fat hen.
59	15008	-	-	-	-	-	-	-	-	-	-	3	2	-	-	unproductive
65	22003	1	1	2	-	-	-	2	3	1	3	3	-	-	-	One fragment of hulled, possibly twisted, barley grain. Testas of seeds of fat hem, blackberry/raspberry and sorrel/dock.
66	14003	-	-	-	-	-	-	1	1	1	3	3	-	1	-	Testas of seeds of fat hen and elderberry.
74	16010	1	1	1	-	-	-	2	2	1	3	3	-	-	-	One very poorly preserved charred grain, testas of elderberry seeds.
75	21005	1	1	3	1	1	1	1	-	-	-	3	-	1	-	Low numbers of bread/club/rivet wheat grains and a fragment of poorly preserved legume.
76	20010	-	-	-	-	-	-	1	1	1	2	3	-	-	-	Testas of seeds of elderberry and dead-nettle
77	19019	1	1	2	-	-	-	1	1	1	3	3	-	2	-	One barley grain,

Sample	Context	Charred Plant Remains							Dried Waterlogged Seeds			Modern Plant Remains				Significant Taxa
		Grains			Seeds			Charcoal > 4mm				Rootlet/ rhizome	Twigs	Grass stem and chaff	Seeds	
		a	d	p	a	d	p	a	a	d	p	a	a	a	a	
																testas of elderberry seeds
78	19018	-	-	-	-	-	-	1	-	-	-	3	-	-	-	Just charcoal
79	17015	1	1	2	-	-	-	-	1	1	3	-	-	-	1	Grains of bread/club/rivet wheat, testas of fat hen and deadnettle, one modern Alexanders seed.
80	19015	-	-	-	-	-	-	-	-	-	-	3	-	-	1	unproductive
81	20012	1	1	2	1	1	3	2	3	2	3	-	-	1	-	Barley/wheat grains, cleavers seeds, testas of seeds of elderberry, fat hen, one modern Alexanders seed and one modern chickweed/mouse-ear seed.
82	21003	1	1	1	-	-	-	2	-	-	-	3	-	2	-	One poorly preserved cereal grain.
83	21007	-	-	-	-	-	-	1	-	-	-	3	-	1	-	Just charcoal

Table 2: 'Flot' contents

Key: a = abundance [1=occasional1-10, 2=moderate 11-100 and 3= abundant>100; d = diversity [1=low1-4 taxa types, 2=moderate5-10,3= high; p = preservation [1 = poor (family level only), 2= moderate (genus), 3= good (species identification possible)

Appendix 3 – Raw Data CBM table

Sum of NoSh	Column Labels	General ware	Med Brick		Stone	Med Tile	
Row Labels	**concrete**	**LZ 00**	**LZ 100**	**M 00**	**ST 00**	**TZ 00**	**Grand Total**
14002	2	2				7	11
14002A		17		2	1	11	31
14002b		17			5	26	48
14002c	4	14				16	34
14002d		51				10	61
14003		9				3	12
14006		7				4	11
15001		8			5	25	38
15002		25			6	26	57
16002						1	1
16002s1		11				180	191
16002s2						5	5
16002S3		1				4	5
16002S4		1				2	3
16002S5		7		1		9	17
16004		1				4	5
16006		4				4	8
17001		31				14	45
17002		1					1
17003		4					4
17007		3					3
17011		3				3	6
17012		9				1	10
18002		5				5	10
18005						2	2
19002						4	4
19002S1		26				11	37
19002S2			50		2	42	94
19002S3		1				7	8
19002S4		207				8	215
19002S5		86				112	198
19002S6		12				18	30
19002S7		54				13	67

Sum of NoSh	**Column Labels**	General ware	Med Brick		Stone	Med Tile	
Row Labels	**concrete**	**LZ 00**	**LZ 100**	**M 00**	**ST 00**	**TZ 00**	**Grand Total**
19002S8		14				24	38
19002S9		62			5	63	130
19004						5	5
19006		2				3	5
19008		1				2	3
19010		4				1	5
19014		11			3	31	45
19015		57					57
19016		7			1	5	13
19018		8				14	22
19019		27			9		36
20001		1				4	5
20002	1	122		3	3	46	175
20003		4				11	15
20004		17				1	18
21001		35			1	85	121
21002		36			4	297	337
21003		20			1	67	88
21007		1				8	9
22001		1				2	3
22002		17				19	36
22003		81			1	19	101
23001		7					7
24000		31			3	3	37
Total	**7**	**1183**	**50**	**6**	**50**	**1287**	**2583**

Key: NoSH = Number of Sherds, TZ = Medieval Tile, LZ = Medieval Brick, ST = Stone. 00 = General ware

Appendix 4 – Small Finds Tables

Small Find Number	Context Number	Object Type	Short Description
101	21002	Iron Key	Large iron key with 4 wards of which that closest to the bow has a rectangular cleft. The other wards were probably originally clefts but have corroded over. In form the door key is probably a Ward-Perkins (1940; 1993, 135) Type VIIA, a common form which dates from the fourteenth or fifteenth centuries. The object is similar to NARC-C02FC7, SUSS-OB9568 and KeyLON-3202CBon the Portable Antiquities database. Suggested date: late Medieval to the early Post-medieval period 1350 – 1425AD
102	18001	Copper Alloy bicycle component	Copper alloy object noted in the excavation as a bicycle lamp. It is circular in two parts comprising a front and back plate. The back plate is inscribed with the name JOSEPH LUCAS LTD then No 3 inside a winged motif (King of the Road) then the numbers 54. The object is a component part from the top plate of a lamp for a vintage bicycle King of the Road carbide lamp made by Joseph Lucas Ltd Birmingham. Suggested date: manufactured between 1897 and circa 1923.
104	20003	Copper Alloy buckle frame	Cast copper alloy double-loop oval buckle frame with a flat base and a convex profile in cross-section and a simple, narrowed, central pin bar. The frame has bevelled inner edges and rounded ends to the loops which have serrated outer edges. Each loop has eight filed grooves, giving the outer edge of the loop a

Small Find Number	Context Number	Object Type	Short Description
			cusped appearance. There is also a wider filed pin rest on the inside edge of each loop. The pin is now missing. Suggested date: late Medieval to the early Post-medieval period 1450 – 1600AD.
105	21002	Iron Key	Large iron key with 4 wards of which that closest to the bow has a rectangular cleft. The other wards were probably originally clefts but have corroded over. In form the door key is probably a Ward-Perkins (1940; 1993, 135) Type VIIA, a common form which dates from the fourteenth or fifteenth centuries; also similar to NARC-C02FC7. Suggested date: late Medieval to the early Post-medieval period 1350 – 1425AD
108	19009	Iron Key	Iron object possibly a locking pin or mechanism. The object has been noted in the excavation as a window latch which is possible. It it does not appear to be wrought iron but rather cast and it could also be agricultural related as a component part of machinery. Suggested date: it does not appear to have a great age probably 20th century.
110	19009	Iron buckle	Wrought iron frame of a rectangular buckle with rounded outer corners; probably from a horse harness; with a square plain frame and an iron pin now broken wrapped around the bar. It is badly corroded and encrusted.

Small Find Number	Context Number	Object Type	Short Description
			Suggested date: Post-Medieval, 1500-1800
111	19009	Ferrous	Iron object slightly convex on one face and concave on the other with breaks at both termini. The object has been noted in the excavation as a blade. The form is unlikely to relate to a knife blade and it does not appear to be wrought iron but rather cast and it would seem likely that it is agricultural related probably a component part of machinery. Suggested date: it does not appear to have a great age probably 20th century.
112	19020	Ferrous	Iron object noted in the excavation as a sickle possibly due to an attachment at the apex of the curve. The object does not appear to be wrought iron but rather cast and it would seem likely that it is agricultural related probably a component part of machinery. Suggested date: it does not appear to have a great age probably 20th century.
113	19020	Ferrous	Iron object noted in the excavation as a strap. It is curved, fully broken at one terminal and partially at the other and does not have any obvious attachments. It appears to be wrought iron rather than cast and it is likely that it is not a strap but rather agricultural related as a component part of machinery.

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