

**RESISTIVITY AND MAGNETOMETER SURVEYS,
BOXLEY ABBEY
BOXLEY
KENT
ME14 3BT**

SCHEDULED MONUMENT No. 1012264

National Grid Reference Centred on: TQ 76122 58723



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Summary

Boxley Abbey, Boxley, Kent forms Scheduled Ancient Monument No. 1012264.

Hastings Area Archaeological Research Group (HAARG) was approached by Stephen Clifton, Maidstone Area Archaeological Group (MAAG) and Jonathan Garlick of the Society for the Protection of Ancient Buildings (SPAB) and asked if we would like to conduct a geophysical survey. With the owner's consent an Ancient Monuments and Archaeological Areas Act 1979 (as amended) section 42 licences were obtained from Historic England for the project. The fieldwork was undertaken in two stages. Firstly, between 13th July – 21st October 2020 and subsequently between 4th May – 29th July 2021.

The magnetometer and resistivity surveys have demonstrated the location of buried remains.

Within the garden the resistivity results have been compared with P. J. Tester's (1973, Fig. 1) excavation plan and new features have been identified which may be interpreted as the Abbot's house, Abbot's guest hall, infirmary and additional buildings associated with the west range. In the field to the west a large circular feature with a 24m diameter was identified plus an earlier alignment of the inner precinct wall. Across the site numerous buildings were identified, culverts and a wall enclosure.

The magnetometer survey revealed the location of 10+ furnaces or lime kilns in the field to the north of the Abbey and a lime kiln in the field to the west.

Surface finds of Romano-British ceramic building material (tegulae) and pottery (Dressel 20, amphora) plus medieval glass were also noted.

Cover Photograph – Maidstone Area Archaeology Group members Stephen Clifton and Nicholas Hill assisting with the resistivity survey in the Garden of Boxley Abbey, Boxley, Kent – photograph by Kevin Cornwell.

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Appendix 1

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- 2 Table of the magnetometer surveys, codes, location, area covered, no. of readings, distance covered and survey date(s).

1.0 Introduction

Hastings Area Archaeological Research Group (HAARG) was approached by Stephen Clifton, Maidstone Area Archaeological Group (MAAG) and Jonathan Garlick of the Society for the Protection of Ancient Buildings (SPAB) and asked to undertake resistivity and magnetometer surveys on land within the inner precinct wall of the Cistercian Abbey at Boxley, Kent ME14 3BT (centred on NGR TQ 76122 58723; Figure 1 & 2).



Figure 1 – Boxley Abbey in relation to Boxley, Maidstone and the surrounding area (Google Earth Image 2021).



Figure 2 – The geophysical survey areas within the inner precinct wall of the Cistercian Abbey, Boxley. The Scheduled Ancient Monument (No. 1012264) and inner precinct wall are outlined in red (Google Earth Image 2021).

In 2020 an Ancient Monuments and Archaeological Areas Act 1979 (as amended) section 42 licence to undertake the surveys was obtained from Historic England (HE) as the site is listed as a Scheduled Monument (Monument No. 1012264 - HE Case No. SL00234002) and this expired on 31 December 2020.

The surveys took place over 19 days between 13th July – 21st October 2020 with consideration to the owner’s privacy, Covid-19 restrictions, the HE licence, weather and availability of the HAARG/MAAG members to assist with this project. Due to the complexity, size of the project and these restrictions an extension to the section 42 licence (SL00234107) was obtained in 2021. The second phase of the project took place over 21 days between 4th May – 29th July 2021.

This final report replaces the interim report submitted in March 2021 (Cornwell & Cornwell).

2.0 Geology and Landscape Topography

Boxley Abbey is situated on the south facing slope of the North Downs, north of Maidstone and between the M2 and M20 motorways. The River Medway passes through the landscape 1km south-west of the Abbey. The Pilgrim’s Way runs in a north-west to south-east direction 1.4km to the north and the Rochester to Beauport Park Roman Road (Cornwell et al 2010; Cornwell et al 2012), Margary’s Route 1 (1965) runs north to south, passing the Abbey 600m to the west, and underlies the present A229 trunk road. The M20 passes the Abbey on a similar alignment to Grange Lane but is raised up on an embankment. The inner precinct

consists of an oval shaped area of gentle sloping land covering c.23 acres with the centre of the enclosure at approximately c.28m Above Ordnance Datum (AOD). The underlying geology is of Gault Formation – Mudstone (British Geological Survey 2021). The ground conditions at the time of surveys taking place were ideal. The lawns within the garden were cut short and the meadows (Fields A, B & C on Figure 2) had recently been grazed by sheep. Any remaining overgrown vegetation was removed prior to commencing the surveys.

3.0 Background History

A programme of architectural surveys and selective excavations have been undertaken by Kent Archaeological Society (KAS) and interested amateur antiquarians (Elliston-Erwood 1953 & Tester 1973). The site reports include a comprehensive background history of the Abbey and therefore only a summary and selected plans have been included in this report to assist with the interpretation of the results.

George Payne excavated and recorded the general layout of the presbytery and transepts in 1897-8 and reported his findings to Kent Archaeological Society on 31st July 1901. Tester (1973, 129) was unable to locate any additional records for this fieldwork.

A very rough sketch-plan was made by Hubert Bensted and a photographic copy was produced in 1926 by Rev. W. Gardner-Waterman. A tentative reconstruction was drawn by A. W. Clapham and F. C. Elliston-Erwood. This was later updated and published by Elliston-Erwood (1953, Fig. 1).

In 1971-2 Kent Archaeological Society undertook a series of excavations at Boxley Abbey to establish the general plan of the church and claustral buildings. Tester excavated 42 trenches and their location has been annotated on Tester's (1973, Fig. 1) see Figure 3)) plan by Hill (2020). No excavations were undertaken in consideration of the ancillary buildings making up the domestic and commercial life of the abbey.

Tester (1973, 141) wrote 'In the foundations of the north transept and the presbytery many fragments of Roman roofing-tiles were incorporated. There were also clearly recognizable large pieces of box-tiles and fragments of opus signinum. This discovery substantiates the note on Bensted's sketch-plan where he wrote 'Roman debris found all over this area' on the crossing, and implies the presence of a Roman building near the site of the Abbey'.

During her studies for a postgraduate research degree at the University of Winchester, Elizabeth Eastlake (December 2014) investigates the history of the Cistercian Abbey at Boxley (1146-1538). Using the surviving written archive for Boxley Abbey, Eastlake compared these with other existing studies of individual other similar houses. The documents considered include early deeds, household records and estate accounts that date to the late fourteenth century. Debbie Goacher, KAS has since completed a summary of the Eastlake (December 2014) thesis relating to the buildings at Boxley.

The history and background information associated with Boxley Abbey was brought up to date by Graham Keevill, Keevill Heritage Ltd. as part of the planning process for St

Andrew's Chapel Desk Based Assessment (DBA) (Keevill 2020). A review of Tester's archive box 3 by Hill (2020) has produced additional information used in this report.

In July 2020 as part of the Society for the Protection of Ancient Buildings summer working party Terra Measurements conducted a series of Ground Penetrating Radar (GPR) surveys within the inner precinct, Boxley Abbey (Rose 2020). The equipment used was a Mala GPR system with a mid-range frequency of 450mhz. Their findings and comments have been included in the relevant sections.

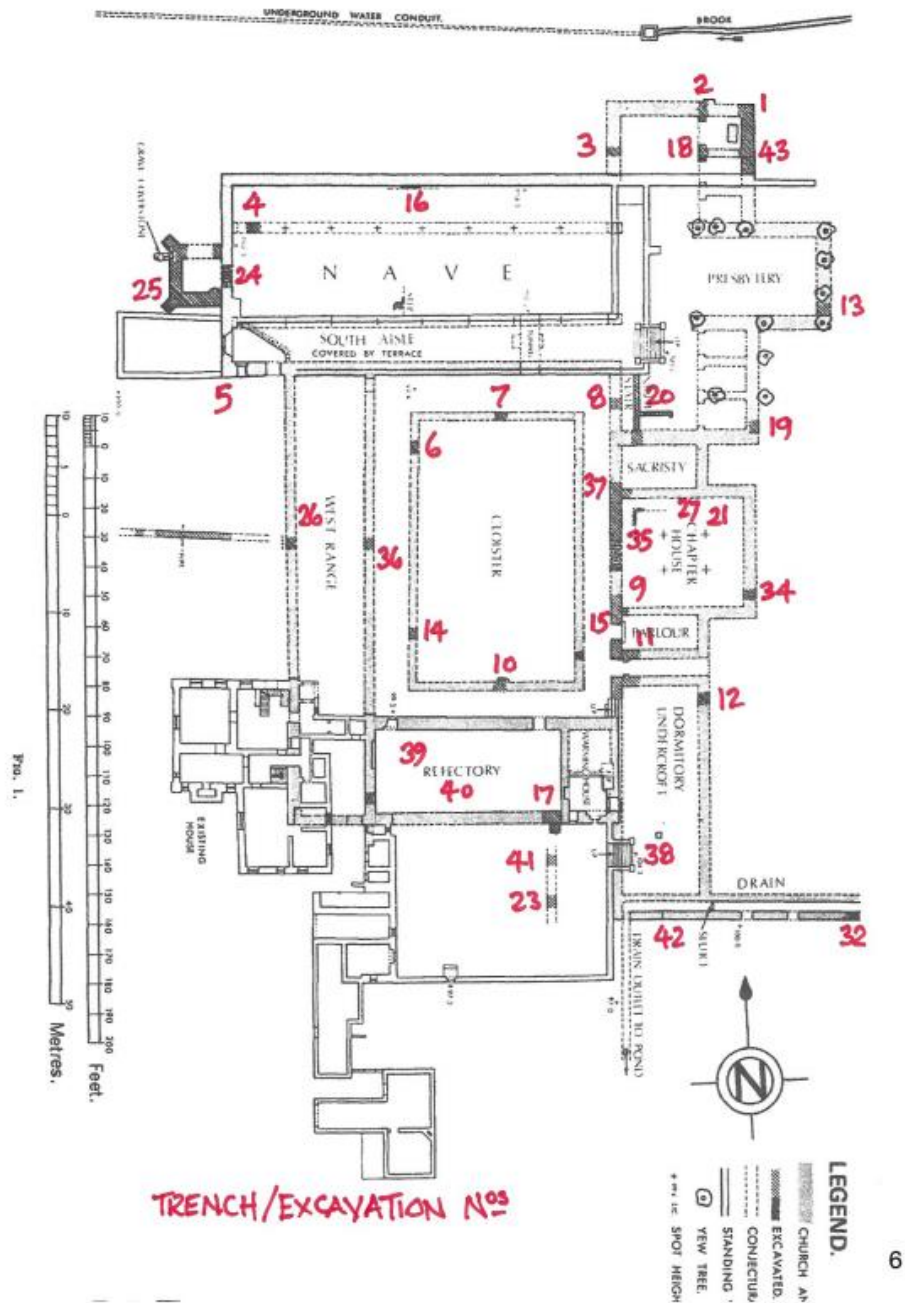


Figure 3 - Tester's (1973, Fig. 1) plan of the Boxley Abbey, Boxley, Kent with the approximate location of the trenches annotated by Hill (2020).

4.0 Methodology

The plan was to conduct detailed surveys using both resistivity and magnetometer equipment of all the accessible areas. After the initial site visit the survey was broken down into four areas (Garden, Field A, Field B and Field C – see Figure 2).

The fieldwork took place in a number of phases due to the size and complexity of the project, Health and Safety concerns (Coronavirus (Covid-19)), the weather and availability of the HAARG and MAAG membership was also taken into account.

The geophysical surveys were conducted using Geoscan RM15 Advanced resistivity equipment and a Bartington Dual Sensor Grad 601-2 magnetometer with the results being processed in Geoplot version 4.01.

The survey grids were set out using Ordnance Survey co-ordinates derived from the National Grid Reference (NGR) Finder website (NGR Finder 2021) or a Grid Reference mobile phone app (Grid Reference v2.6.0 (installed from the Google Play Store)). Both these applications have a ‘margin of error’ and this should be taken into consideration when reading this report. All geophysical results will be referenced to the Ordnance Survey NGR.

All field work was conducted in accordance with the Written Schedule of Investigations (Cornwell & Cornwell 2020), as well as the Chartered Institute for Archaeologists (CIfA), Institute of Field Archaeologists Code of Conduct (CIfA December 2014a), Standards and Guidance for Archaeological Geophysical Survey (CIfA December 2014b) and EAC Guidelines for the use of Geophysics in Archaeology – Questions to Ask and Points to Consider, EAC Guidelines 2 (Schmidt et al 2016).

A summary of the surveys which includes details of sites codes, locations using national grid references, areas covered and the date(s) these surveys were undertaken can be found at Appendix 1 in Table 1 and 2 (page 88).

4.1 Resistivity

The resistivity surveys were conducted using Geoscan RM15 Advanced resistivity equipment with readings recorded at every 0.5 metre on 0.5 metre traverses in a zig-zag recording mode within a 20-metre square grid or partial grid (detailed survey) (Schmidt et al 2016).

Geoscan RM15 Resistivity equipment settings:

1. Map	Grid size	20m	5. Comms	Band Rate	9600
	Sample Intervals	0.5m		Data Separator	No Space
	Traverse Intervals	0.5m			
	Traverse Mode	Zig-Zag			
2. Range	Gain	x 1	6. Program	Program Number	1
	Current	10mA		Probe Configuration	1
	Frequency	85Hz		Colours	GR highlighted

3. Set-Up	Output Voltage	40V	7. Status	Battery Voltage 10V
	Auto log speed	Medium		RM15 Adv 15000,
	High Pass Filter	13Hz		Version 2.00
	Mains Frequency	50Hz		
4. Array	Hardware PA1			

As part of the data processing using Geoplot version 4.01, to minimise interference from surface scatters of modern ferrous materials and ceramics, the data was ‘de-spiked’ prior to the grid ‘edge matching’ process being applied. Finally, ‘high and low pass filters’ were used with the ‘interpolate’ option.

A total of four resistivity surveys were conducted and the results can be seen at Figure 6, 7, 34, 35, 49, 50, 65 & 66.

The surveys took place from July – October 2020 and May – July 2021.

Taking 35 days

Covering 5.78 hectares/14.28 acres

The team walked 115.577km

Totalling 231,155 readings

The grey-scale resistivity results (see Figure 6, 34, 49 & 65) have letters marking the ‘baseline’ of the survey areas which relate to National Grid Reference co-ordinates listed in Table 1 Appendix 1 (see page 88).

4.2 Magnetometer

The magnetometer surveys were conducted using a Bartington Dual Sensor Grad 601-2 consisting of two high stability fluxgate gradiometers suspended on a single frame. Readings relate to the different localised magnetic anomalies compared with the local soils magnetic background. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

An important consideration when conducting a magnetometer survey is the locality of any fencing. Multi-stranded wire fencing can produce a large distortion in the local magnetic field so magnetic data should be collected at least 1m away from each strand of wire but the disturbance can usually be detected up to 5m away (Gaffney & Gater 2011, 81). When conducting a survey, we maintain an ‘exclusion zone’ around the edge of the field.

The magnetometer was set to record 8 readings per 0.5 metre transverse, surveying in a zig-zag pattern with the magnetometer set to a ‘full scale range of $\pm 100\text{nT/m}$ (resolution 0.03nT/m (max effective))’. This Level 2 investigation (Delineation) method is recommended by Schmidt et al (2016) and used by HAARG on significant sites.

Bartington 601-2 Magnetometer equipment settings:

Grid size	30m
Sample Intervals	0.125m
Traverse Intervals	0.5m
Traverse Mode	Zig-Zag
Resolution	0.01nT
Frequency	50Hz
Operating Temperature	-20°C to +70°C
Rating	IP65
Sensor element spacing	1m
Power supply current	60mA
Drift	<1nT in 24 hours
Gradient range	±100nT/m or ±1000nT/m full-scale
Bandwidth	DC to 14Hz with -40dB 5-Hz/600Hz rejection
Sensitivity	0.03nT/m (max effective)
Calibration error	±2%
Maximum ambient field	±100µT

DL601 Data Logger with download via RS232 converter and a BC601 Battery Case.

A balance station was set up on site in a 'metal free area' and the magnetometer was prepared for use at this point in accordance with the manufacturers guidelines with regular re-zeroing at this point to prevent distortion of results.

As part of the data processing using Geoplot version 4.01, to minimise interference from surface scatters of modern ferrous materials and ceramics, the data was 'de-spiked' and 'clipped' to remove any large 'spikes' or 'peaks'. This was followed by the 'step correction', 'zero mean grid' and 'zero mean traverse' applications. Finally, the 'low pass filters' and 'interpolate processes' were used to produce an interpretable image.

A total of three magnetometer surveys were conducted and the results can be seen at Figure 42, 43, 59, 60, 72 and 73.

The surveys took place from July – October 2020 and July 2021.

Taking 6 days

Covering 4.43 hectares/10.94 acres

The team walked 44.232km

Totalling 707,714 readings

The grey-scale magnetometer results (see Figure 42, 59 & 72) have letters marking the 'baseline' of the survey areas which relate to National Grid Reference co-ordinates listed in Table 2 Appendix 1 (see page 88).

5.0 Results and Interpretation

The results of the areas surveyed can be seen in Section 5 of this report. These results have been divided to show the findings for individual areas/fields to aid interpretation for the reader.

5.1 The Garden, Boxley Abbey, Kent.

5.1.1 Resistivity survey

Introduction

Archaeological features have been identified. These have been overlaid on Tester's (1973, Fig. 1) and can be seen at Figure 6 & 7. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels of resistance with black being the higher readings. The red and blue-scale indicates low resistances in blue, increasing levels through white to red being a reading of high resistance. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Resistivity raw data:

Mean	49.54678
SD	25.19122
3 SD	75.57366
Minimum	10.2 ohm
Maximum	204.7 ohm
Dummy Value	2047.5 ohm

Processing filters applied:

Despike
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing levels of resistance.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing levels of resistance.

Prior to commencing the survey of the garden at Boxley Abbey a 'base line' measuring 31.0m in length was set up between two well defined features (see Figure 4 & 5). These have been labelled 'A' and 'B' on Figure 6.



Figure 4 - Baseline reference point 'A' situated at the base of the western arch at NGR TQ 76104 58718.

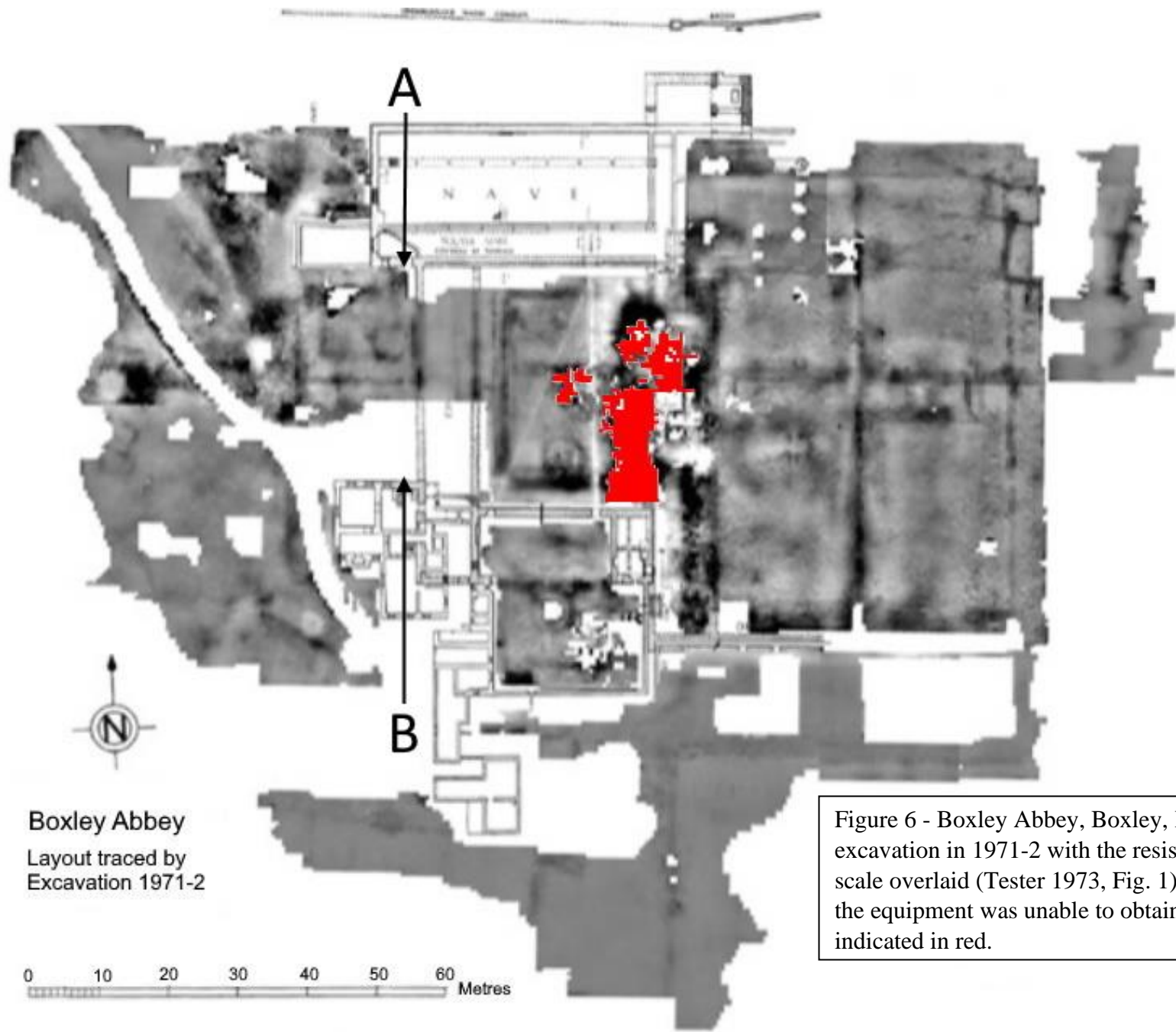


Figure 5 - Baseline reference point 'B' is situated on the western edge of the bricked up window at TQ 76105 58685.

Terra Measurements conducted a GPR survey of the grass bank between the cloister and east range. Their report comments 'The grass bank was scanned but no conclusive feature was located. The bank may be on top of lots of former site rubble from previous construction/demolition projects. This would concur with the GPR results as lots of anomalies in the data were noted but no pattern could be interpreted' (Rose 2020).

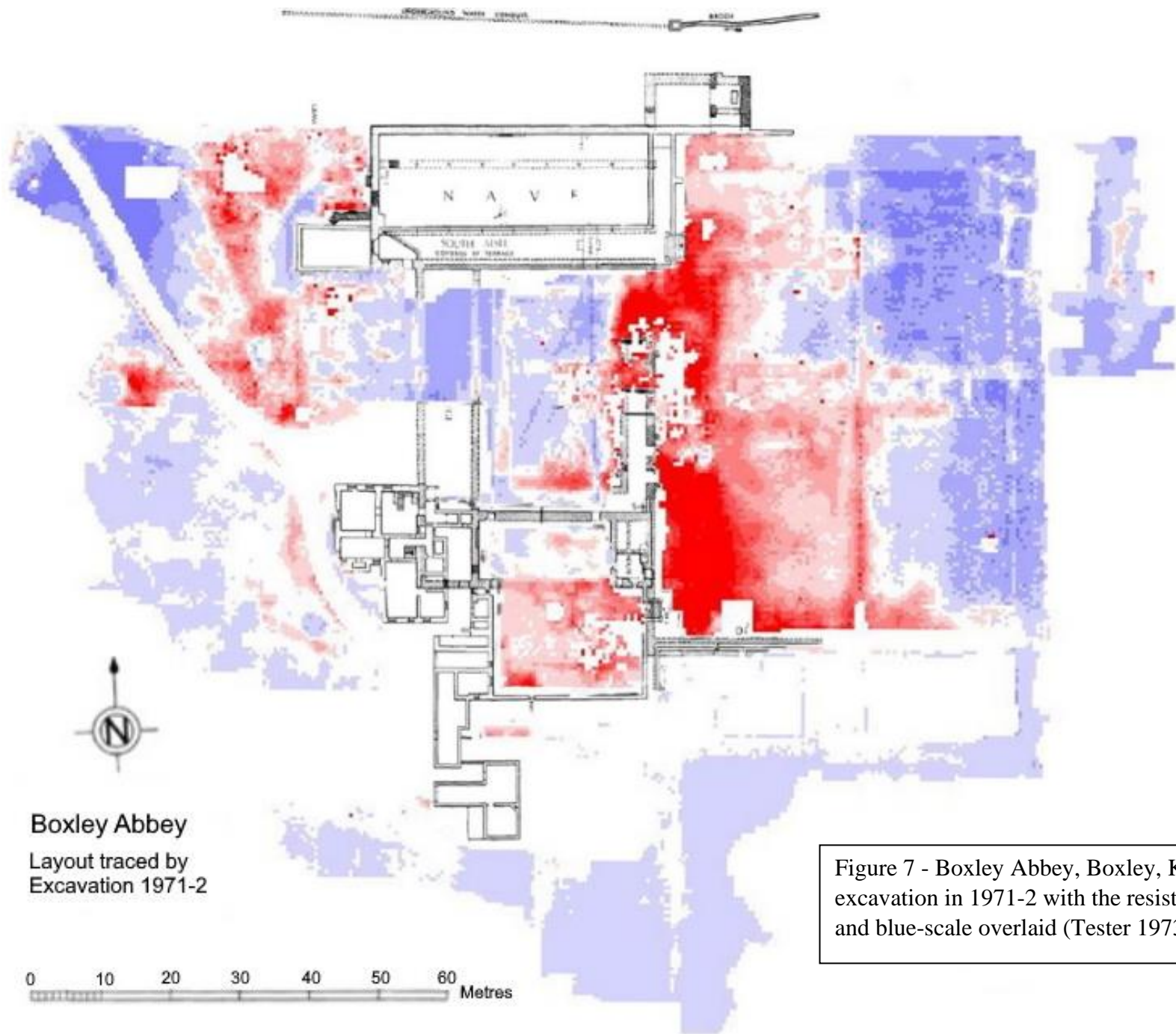
Note relating to The Cloister, Sacristy, Chapter House, Parlour, Passage or Day Stair and Dormitory Undercroft.

On Figure 6 & 7 there are squares where the equipment was unable to obtain a reading. The readings were unobtainable due to the dry and sandy ground conditions plus large amounts of building debris just below the surface of the ground. The equipment was checked electronically for faults as part of the troubleshooting. No faults present, the failed readings being caused by being either too high to register or failure to complete an electrical circuit due to the ground conditions and underlying demolition debris (Geoscan RM15 manual (Geoscan Research April 2009)).



Boxley Abbey
 Layout traced by
 Excavation 1971-2

Figure 6 - Boxley Abbey, Boxley, Kent layout traced by excavation in 1971-2 with the resistivity results in grey-scale overlaid (Tester 1973, Fig. 1). The squares where the equipment was unable to obtain a reading are indicated in red.



Boxley Abbey
Layout traced by
Excavation 1971-2

Figure 7 - Boxley Abbey, Boxley, Kent layout traced by excavation in 1971-2 with the resistivity results in red and blue-scale overlaid (Tester 1973, Fig. 1).

5.1.1.1 The Presbytery

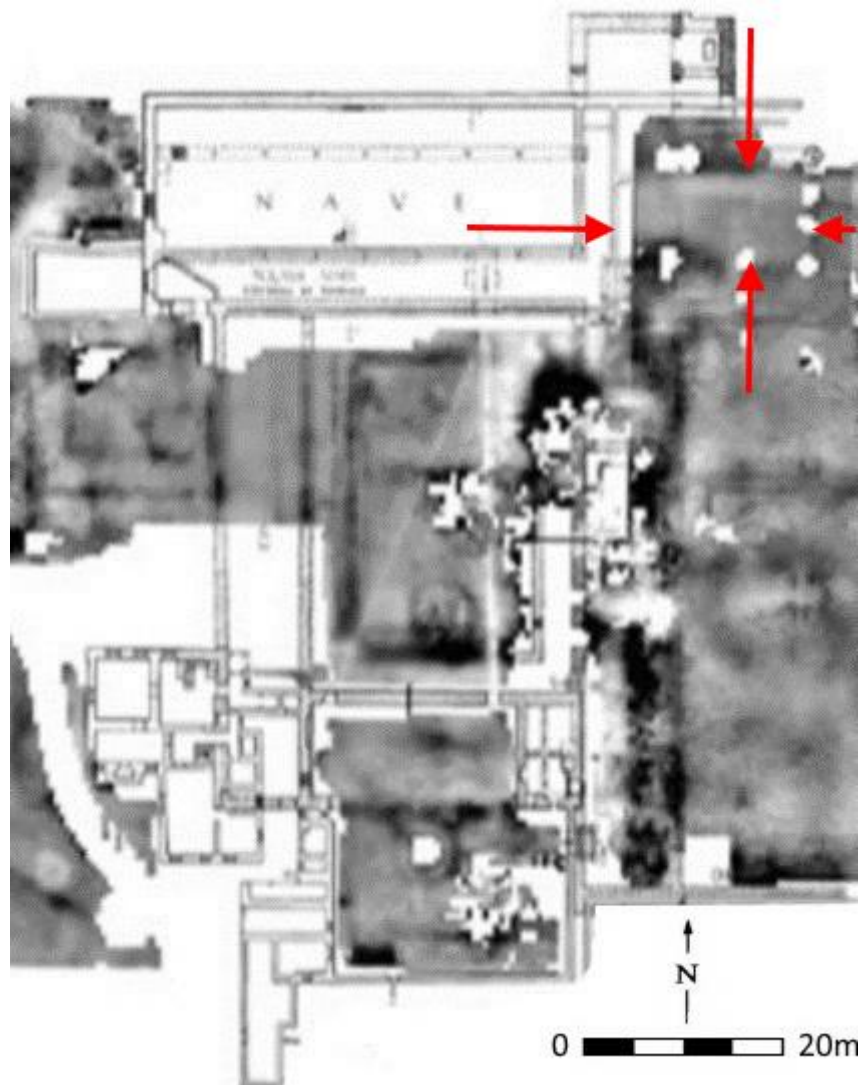


Figure 8 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The presbytery is highlighted by the red arrows.

The east limb of the church (the presbytery) was identified on three sides (north, east and south) by the resistivity survey (see Figure 8). It is now covered by raised lawn and bordered by clipped yew trees (see Figure 9 & 10). The latter are shown on the grey-scale resistivity results (see Figure 8) as a series of 'white patches' where no readings were taken. The presbytery received limited attention from Tester (1973, 132-133) who excavated a single trench (no. 13) in the south-east corner. The west wall was not identified by the survey and Tester's (1973, Fig. 1) alignment was used to calculate the size of the presbytery. It measures 16 x 9m and is centred on NGR TQ 76154 58728.



Figure 9 - Hastings Area Archaeological Research Group members Bob Washington and Richard Axe conducting the resistivity survey of the presbytery, Boxley Abbey.



Figure 10 - The presbytery's clipped yew trees and lawn in early 1970. Photograph from Tester's 1971-2 excavations archive and reproduced courtesy of Kent Archaeological Society (Hill 2020).

5.1.1.2 The West Tower or Porch

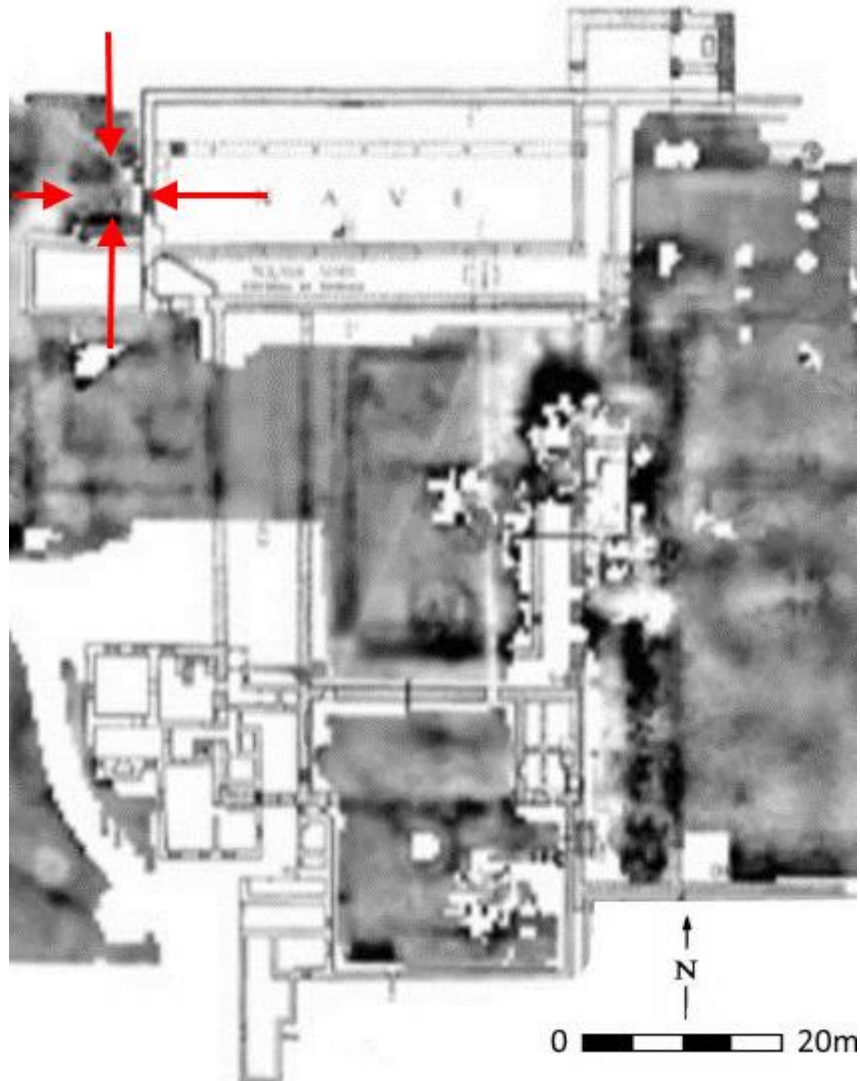


Figure 11 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The west tower or porch is highlighted by the red arrows.

The west tower or porch (centred on NGR TQ 76113 58722) can clearly be seen on Figure 11. Measuring 6 x 5m and with a water course running through the middle on a east-west alignment. It splits into two drainage channels before heading south (Hall 2020). These drains were not identified on the resistivity results.

The survey results confirm Tester's (1973, 134-135) findings from his 1971-2 excavations (trench no. 24 & 25).

5.1.1.3 The Cloister

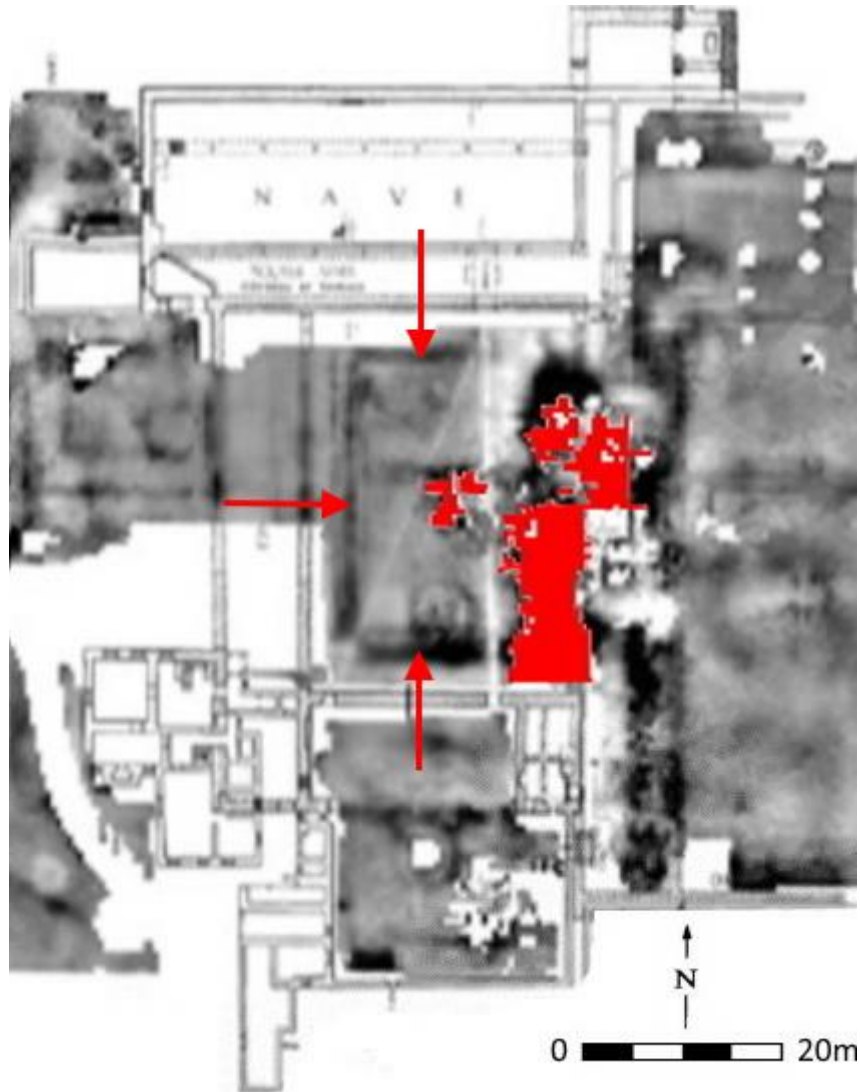


Figure 12 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The cloister's north, south and west walls are highlighted by the red arrows.

The cloister (centred on NGR TQ 76125 58700) can clearly be seen on three sides (north, south & west) on the resistivity results (see Figure 12). Measuring 27 x 16m the east wall was not identified by the survey and Tester's (1973) alignment was used to calculate the size of this feature. The red areas on the eastern edge of the cloister (see Figure 12) are when the resistivity equipment fails to obtain a reading due to the dry and sandy ground conditions plus large amounts of building debris just below the surface of the ground (Geoscan RM15 manual (Geoscan Research April 2009)).

Terra Measurement GPR survey along the eastern edge of the cloister produced no conclusive results (Rose 2020).

Tester (1973) excavated 5 trenches (no. 6, 7, 10, 14 & 15) in this area to confirm the location and size of the cloister.

5.1.1.4 The South Transept

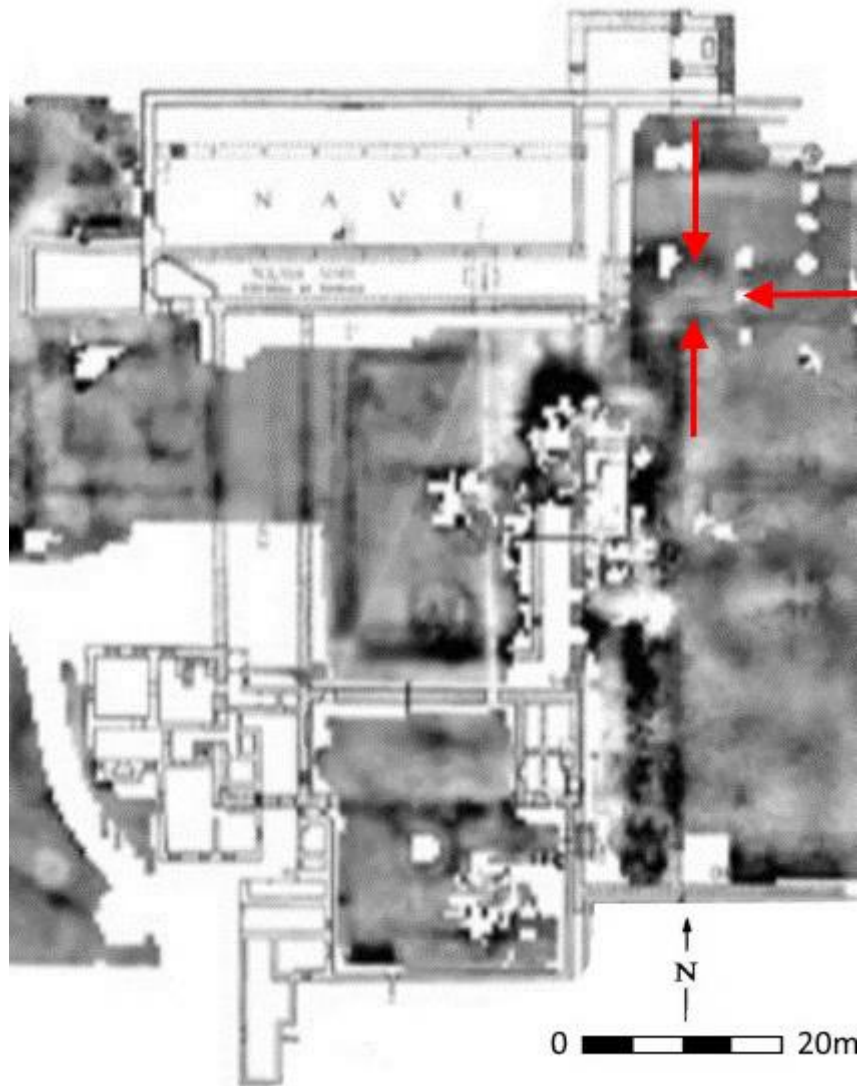


Figure 13 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The south transept's north, south and east walls are highlighted by the red arrows.

The south transept (centred on NGR TQ 76143 58706) can clearly be seen on three sides (north, south & east) on the resistivity results (see Figure 13). Tester (1973, 132-133) excavated 3 trenches (no. 8, 19 & 20) to confirm the location and size of the south transept. Measuring 11 x 8m the west wall was not identified by the survey and Tester's (1973) alignment was used to calculate the size of this feature. Over the east wall 3 clipped yew trees have been planted. These are shown as a series of 'white patches' as it was not possible to take readings in these areas.

5.1.1.5 The East Range (containing The Sacristy, Chapter House, Parlour, Passage or Day Stair and Dormitory Undercroft)

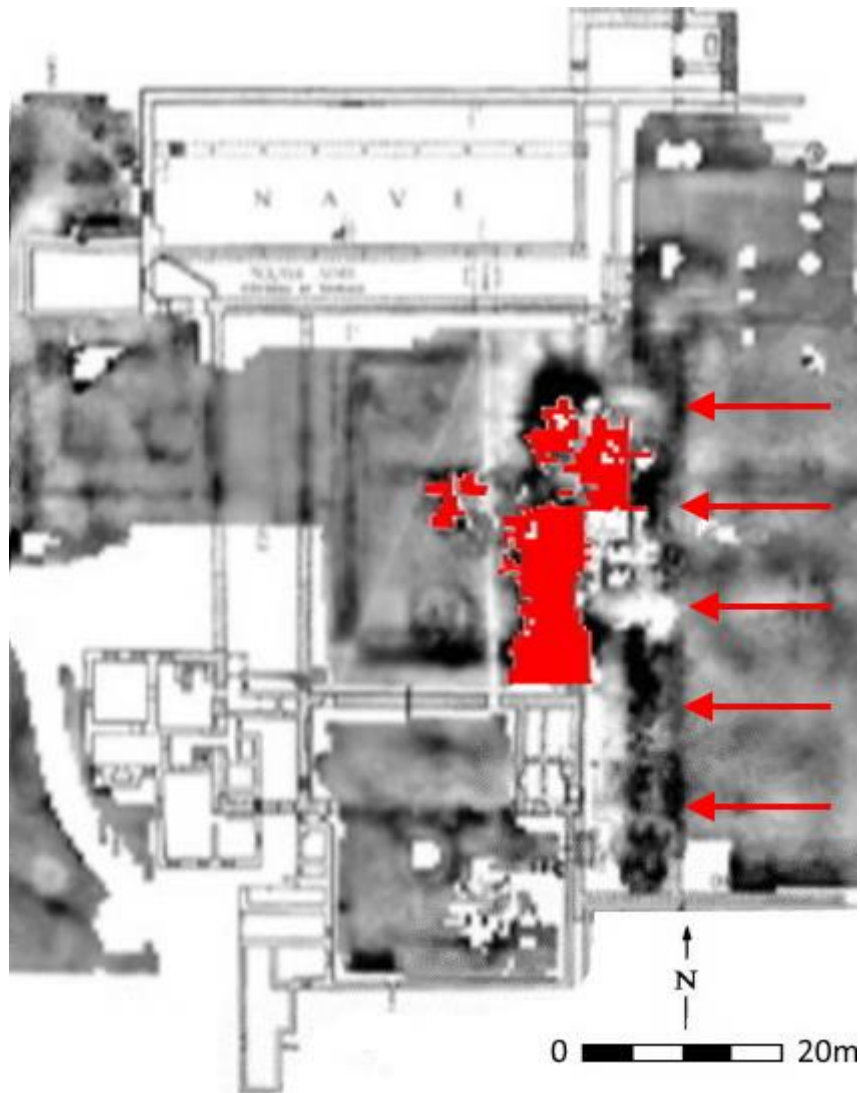


Figure 14 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The east wall of the east range is highlighted by the red arrows.

The lower floor of the east range at Boxley Abbey comprises of a number of smaller rooms including the sacristy, chapter house, parlour, passage or day stair and dormitory undercroft. Tester (1973, 135-137) conducted extensive excavations (trench no. 9, 11, 12, 21, 27, 34, 35, 37 & 38) in this area to confirm the alignment of the walls.

The east wall can clearly be seen on the grey-scale resistivity results (see Figure 14). A few metres to the west along the full length of the east range high resistance was recorded (darker areas) and the survey was unable to identify any internal walls. Terra Measurements conducted a GPR survey in this area and reported no conclusive features were located (Rose 2020). The report also suggested the area contained a large quantity of buried rubble from the demolition of former buildings.

The resistivity survey failed to identify the west wall recorded by Tester (1973, 135-137). For a majority of this area the equipment was unable to obtain a reading (see the red area on Figure 14). This was probably due to the dry and sandy ground conditions plus large amounts of building debris just below the surface of the ground (Geoscan RM15 manual (Geoscan Research April 2009)).

The Dormitory upper floor would have extended over the full length of the range (measuring 46m north-south and 8m east-west (26' 3" - Tester 1973, 136)), passing over the chapter house up to the south transept. The range is centred on NGR TQ 76143 58676.

5.1.1.6 The Reredorter and Drain



Figure 15 - The grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The reredorter drain is highlighted by the red arrows.

The reredorter (communal toilet) at Boxley Abbey sat above the vaulted drain and would have been flushed by the water course originating in Field A (labelled blue on Figure 15). This flowed in a southerly direction to the south-east pond and was clearly visible on John Smith's 1801 survey of the inner precinct, Boxley Abbey (see Figure 16).

A 'branch' from this drain runs in a westerly direction through the reredorter vaulted area before turning 90° and heading south for sixty yards across the field into the south west pond (Tester 1973, 137) (NGR TQ 76139 58656 – TQ 76138 58625). This feature is visible on the ground as a shallow depression. Smith only records the southern part of this open drain on his 1801 map of the estate (see Figure 16).

Tester (1973, 137) excavated a test pit (trench no. 42) close to the feature according to his working note books, however, no information regarding the results from this excavation have been located (pers. comm. Nicholas Hill).

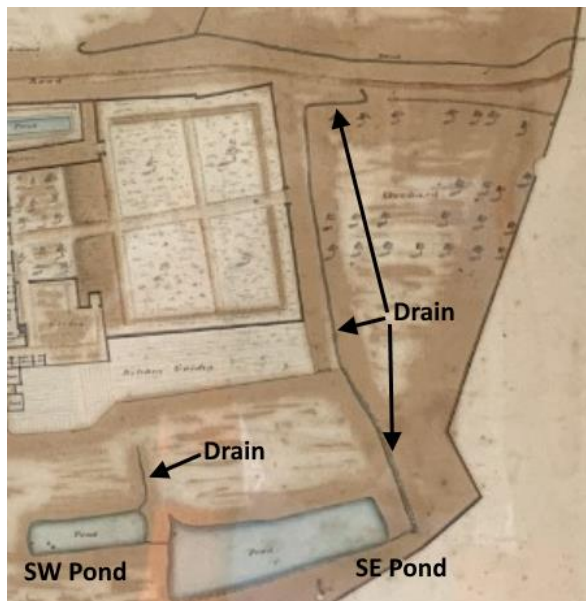


Figure 16 - Extract from John Smith's 1801 survey of the inner precinct, Boxley Abbey, Kent.

One of the Terra Measurements GPR survey objectives was to investigate how the water (and waste) flowed out of the reredorter into the south west pond. The survey results were inconclusive (Rose 2020).

5.1.1.7 The Refectory

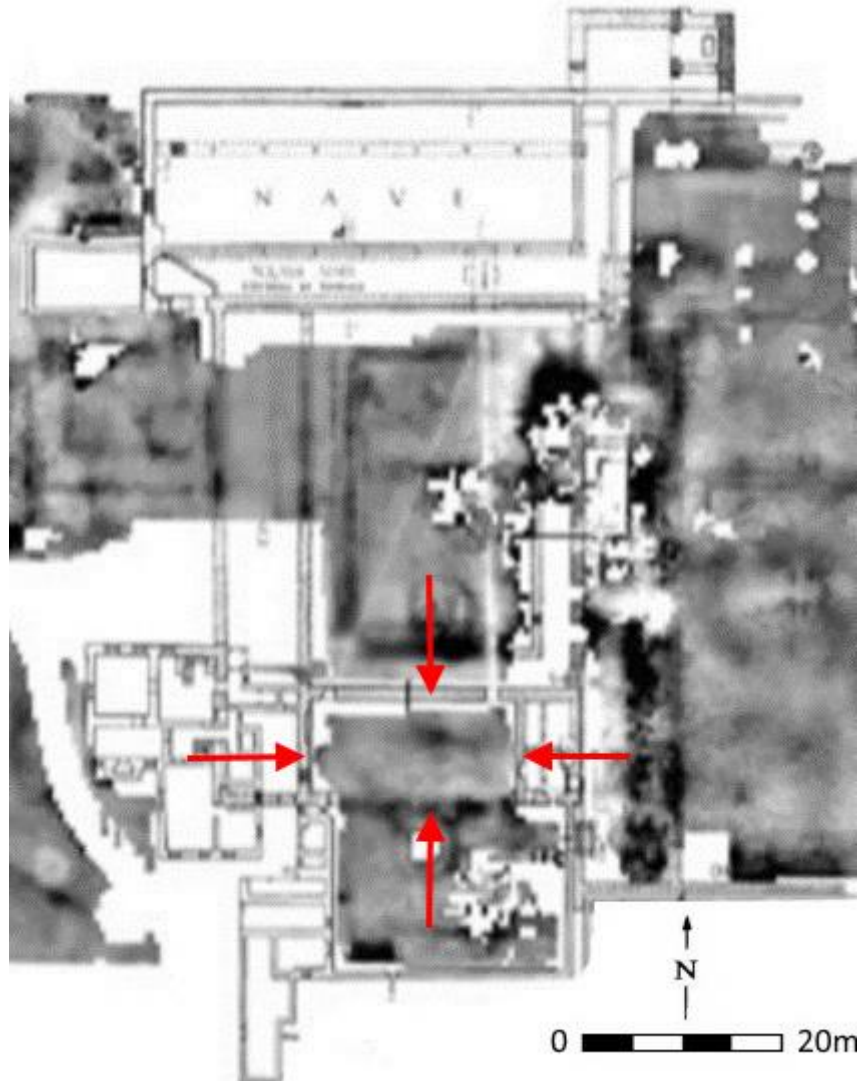


Figure 17 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The refectory is highlighted by the red arrows.

Mr. E. L. Caiger (KAS) (Tester 1973, 137) conducted a resistivity survey and excavated three trenches (no. 17, 39 & 40) in this area to confirm the layout of the refectory. In his report (1973, 137) he comments 'Neither a resistivity survey nor trenching in positions where a north-south refectory would have stood produced any positive indications'. The current survey identified the demolished south wall and it is therefore possible to confirm the refectory's size as 18 x 10m. It is centred on NGR TQ 76125 58678.

The Warming House

The Warming House was inaccessible and therefore not surveyed.

5.1.1.8 The West Range

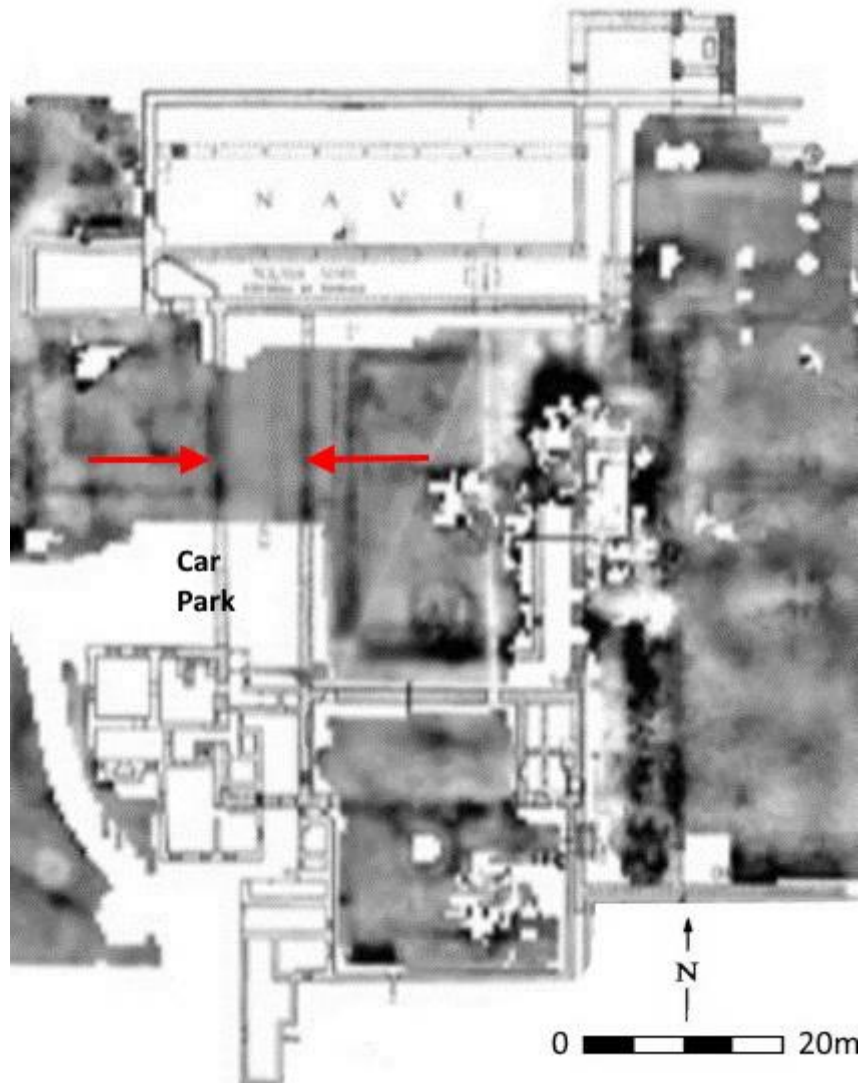


Figure 18 - Extract of the grey-scale resistivity survey results within the garden at Boxley Abbey, Kent overlaid on the 1971-2 layout interpretation (Tester 1973, Fig. 1). The west range is highlighted by the red arrows.

Tester's (1973, 140) excavations (trench no. 26 & 36) in 1971-2 confirmed the correctness of Elliston-Erwood's (1953) Abbey plan. Measuring 16m in length and 8m apart these parallel features run in a north-south direction from the nave (NGR TQ 76107 58718 & TQ 76115 58718) to the car park. They are clearly visible in the lawn as a shallow ridge. To the south these features continue under the car park until they meet the main house at NGR TQ 76109 58689 and TQ 76117 58682. It was not possible to survey this area as it had been gravelled over to form an all weather parking area (see Figure 18).

5.1.1.9 Other Features

The resistivity survey in the garden at Boxley Abbey has covered areas beyond the claustral buildings investigated previously (Elliston-Erwood 1953; Tester 1973). This survey has identified a number of features and these have been labelled 1 – 13 on the grey-scale resistivity results at Figure 19 and the graphic interpretation at Figure 20.

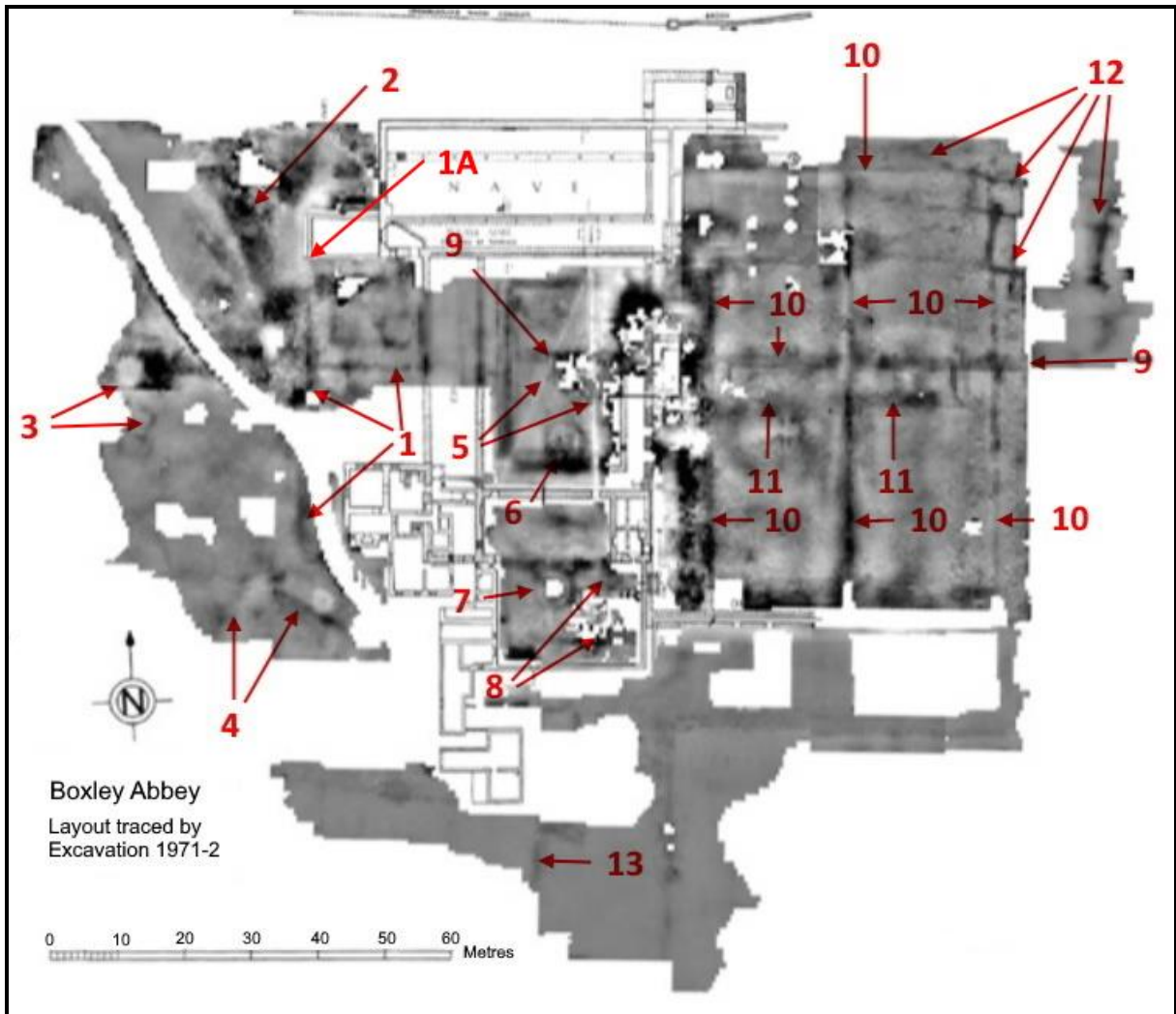


Figure 19 - Boxley Abbey, Boxley, Kent layout traced by excavation in 1971-2 with the resistivity results in grey-scale overlaid (Tester 1973, Fig. 1). The features identified by the resistivity survey have been annotated.

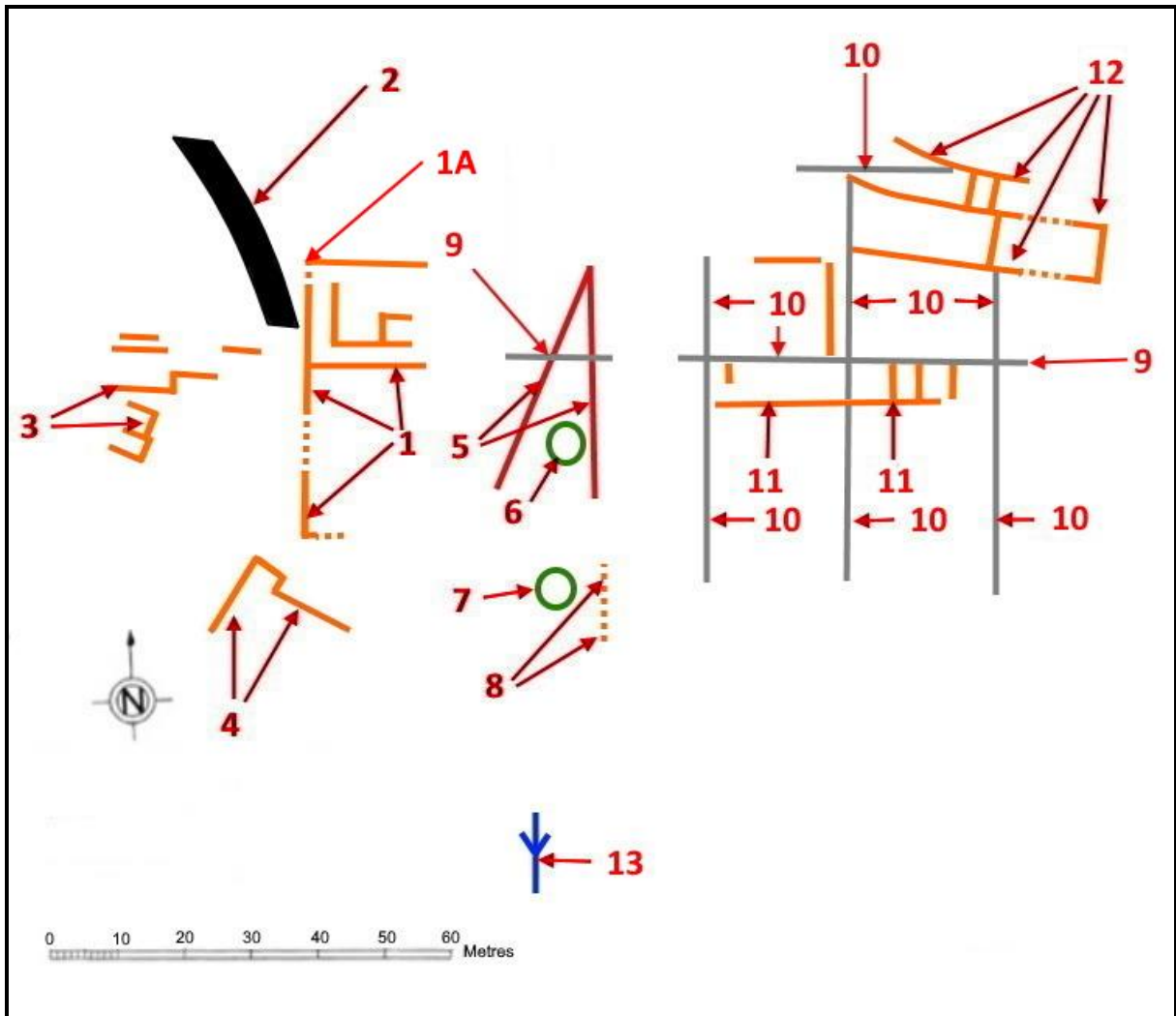


Figure 20 - Graphic interpretation of the resistivity survey results showing the features identified in the garden at Boxley Abbey, Kent.

1. The northern area of feature 1 is indicative of a rectangular shaped building measuring approximately 17 x 12m. The building clearly shows internal features/walls on the grey-scale resistivity results at Figure 19. A thin rubble wall (2' feet wide) running at right angles to the west range was identified by Tester (1973, 140 – trench no. 26 – see Figure 21 & 22). By analysing Tester's excavation notes held by Kent Archaeological Society (archive box no. 3) and comparing with the grey-scale resistivity results (see Figure 19) the thin rubble wall may be indicated running east-west from the west range. This is likely to be one of the walls in feature 1.

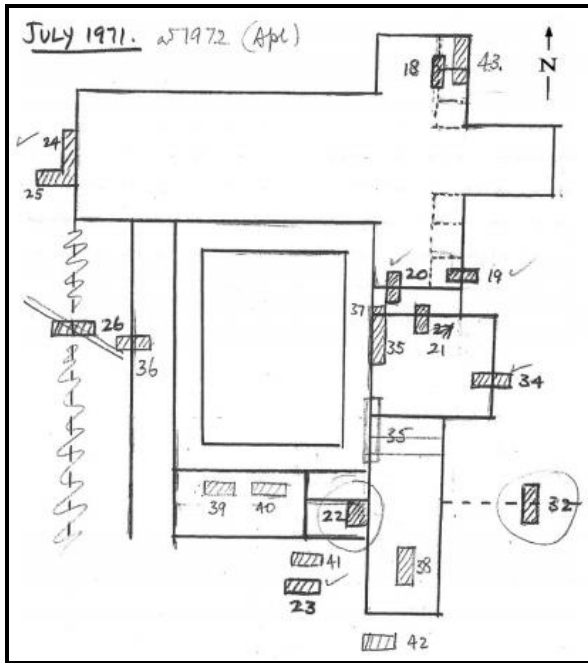


Figure 21 - Tester's excavation plan for the fieldwork in 1972 at Boxley Abbey (Tester archive & Hill 2020).

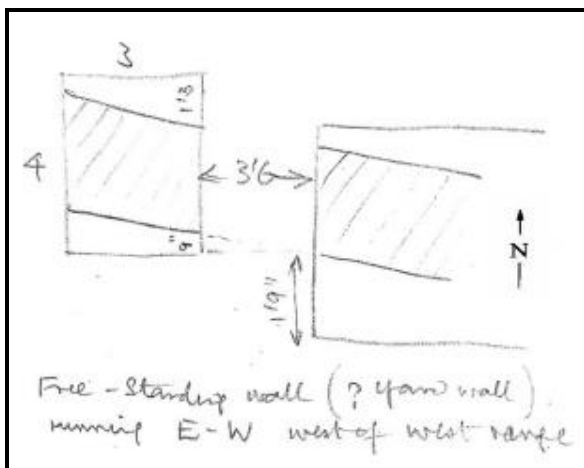


Figure 22 - Tester's plan of his 1972 trench no. 26 (Tester archive & Hill 2020).

A wall can be seen running in a north-south direction beneath the modern drive (orange 'dots' on Figure 19 & 20) before reappearing on the survey results to the south. It runs for approximately 27m from the south-west corner of the 'bowling alley' (labelled 1A on figure 19 & 20) before turning 90° and heading east. This part of the feature has similarities to the layout at other Cistercian Abbeys ie. Roche Abbey in Yorkshire (see Figure 23). At Roche Abbey this area contained a store room, Lay brothers' parlour and the Lay brothers' refectory. At Boxley Abbey these rooms could represent a widening of Tester's (1973, Fig. 1) west range.

It is worth noting that on Tester's excavation plan (see Figure 21) the north-south wall through the centre of trench no. 26 has been scribbled out. No explanation was located within the Tester archive but may merely be a drafting error.

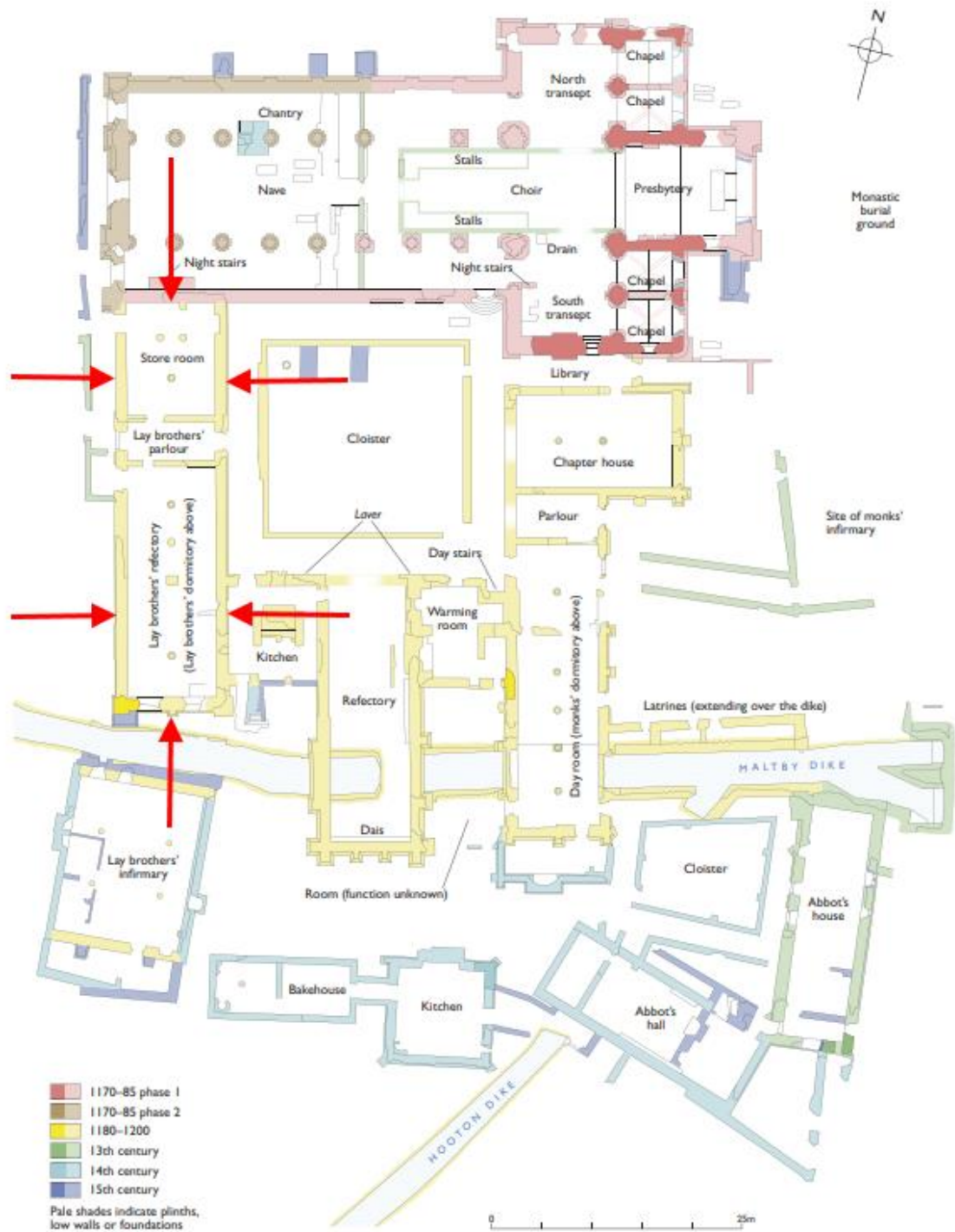


Figure 23 - Roche Abbey, Nr. Tickhill, Yorkshire ground plan. The feature to the west of the west range is similar to feature 1 at Boxley Abbey. These are highlighted by the red arrows. Reproduced courtesy of English Heritage (2021).

Dating of these features and sequencing the structural development of this area can only be established by excavation and finds analysis. This feature is centred on NGR TQ 76090 58702.

2. To the north-west of feature 1 a driveway can be seen leading into the Abbey complex. First depicted on the 1801 drawing by Smith (see Figure 24 (Tester 1973, Fig. 10)) the dating of this feature is not possible. This feature is centred on NGR TQ 76081 58723.



Figure 24 - South west view of the Boxley Abbey house and grounds drawn by John Smith, 'House and Land Surveyor', in 1801. Reproduced and redrawn by Mr. Caiger in 1972 (Tester 1973, Fig. 10).

3. Typically, to the west of an Abbey complex guests of the Abbot would be housed in the Abbot's guest hall (Hall May 2003). At Boxley's daughter-house of St Mary's in Robertsbridge, East Sussex the guest hall is situated a few metres to the west of the west range (see Figure 25). Still standing today, this Grade 1 Listed monument measures 17 x 9m (see Figure 26). At Boxley this is a good candidate for the guest hall and has been labelled '3' on Figure 19 & 20. The survey results would suggest flooring in-situ, however this can only be established by excavation. It is centred on NGR TQ 76059 58692.

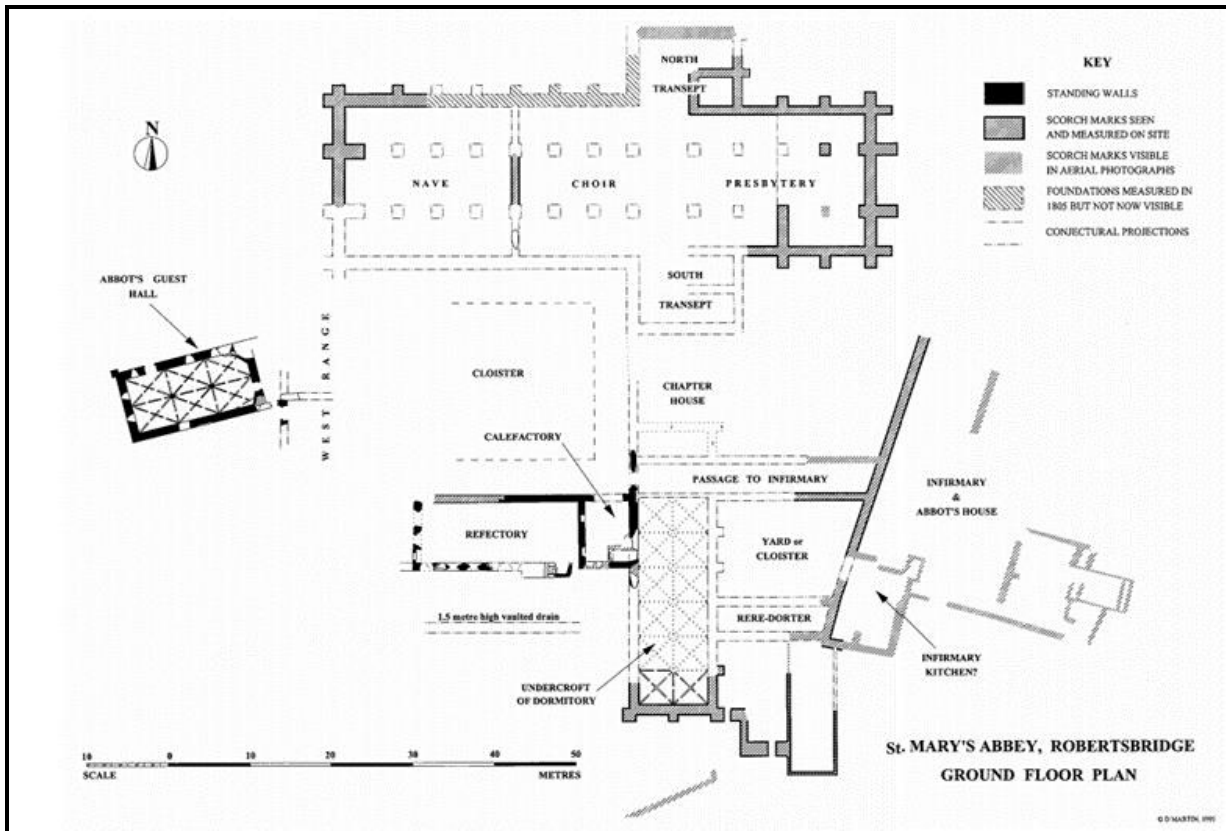


Figure 25 - St Mary's Abbey, Robertsbridge ground plan drawn by D. Martin 1995



Figure 26 - Abbot's guest hall at the Cistercian Abbey of St Mary's, Robertsbridge, East Sussex. The wooden extension to the right and the porch are modern 'add ons' (Cornwell & Cornwell May 2013).

4. This feature is the footprint of a building with suggestions of having had internal structures or rooms. It continued to the south under the cottage car park making interpretation difficult. A building in a similar position at Roche Abbey (see Figure 23) has been interpreted as the Lay brothers' infirmary. It is centred on NGR TQ 76078 58666 and not recorded on the OS maps (NLS 2021).

Eastlake (December 2014) wrote of offices to the west and could any of these be the features (1, 3 & 4) identified on the grey-scale resistivity results (see Figure 19)?

5. Two linear features have been identified originating from the round-headed doorway in the church wall at NGR TQ 76132 58721 (see Figure 27). The first runs for 30m in a north-south direction through the east gate (NGR TQ 76133 58682) in the north wall of the refectory. The other on a north-north-east to south-south-west alignment runs for 33m before entering the refectory's west gate (NGR TQ 76119 58683) in the north wall (both are labelled 5 on Figure 19 & 20). These features of low resistance have been interpreted as modern ditches possibly for electrical cables or water pipes (Gaffrey & Gater 2011).



Figure 27 - Round-headed doorway in the church wall Boxley Abbey, Kent looking south.

6. Towards the south edge of the cloister (labelled 6 on Figure 19 & 20) can be seen a 6m diameter circular feature of variable resistance. This feature has been interpreted as the lavatorium (communal washing area) (pers. comm. G Keevill). It is centred on NGR TQ 76129 58686.

7. A second 6m diameter circular feature was identified on the grey-scale resistivity results (labelled 7 on Figure 19 & 20). This encircles the ornamental pond in the rose garden to the south of the refectory (see Figure 28). The date and purpose of this feature is unknown. This feature is centred on NGR TQ 76127 58669.



Figure 28 - HAARG member Bob Washington conducting the resistivity survey in the refectory with the rose garden pond in the foreground.

8. A wall was identified on the grey-scale resistivity results (labelled 8 on Figure 19 & 20) and this coincides with Tester's (1973) trench no. 23 indicating a wall 2' 6" wide at a depth of 2' 3". This feature is centred on NGR TQ 76134 58665.

9. Running in an east-west direction (labelled 9 on Figure 19 & 20 (coloured grey)) through the centre of the cloister a linear feature was identified. This could be part of the 'formal garden' as it lines up with the central path to the east. It appears to terminate when it meets the west wall of the cloister. Alternatively it could be associated with Stephen Lomherst's demolition and rebuild of the cloister area in the 1370's (Tester 1973, 135). It is centred on NGR TQ 76169 58702.

10. The 'formal garden' is first recorded on the 1801 plan drawn by Smith (see Figure 29). Clearly visible on the grey-scale resistivity results (see Figure 19) it is divided into 4 segments by garden paths still in use today. These may have destroyed earlier structures in this area. It is centred on NGR TQ 76169 58702.

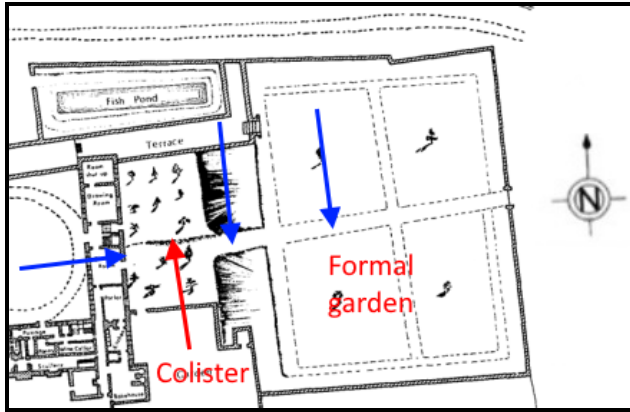


Figure 29 - Extract from the house and grounds drawn by John Smith, 'House and Land Surveyor', in 1801. Redrawn by Mr. Caiger in 1972 (Tester 1973, Fig. 9). Central garden path and the possible continuation into the cloister are highlighted by blue arrows.

To the east of Tester's plan (1973, Fig. 1) he comments 'The passage or day stair would give access to the infirmary and other buildings' and 'possibly the Abbot's house' (Tester 1973, 136 & 151). These have been interpreted as two separate features (ie. feature 10 & 11).

11. Feature 11 runs 6m to the south of the central path in the 'formal garden' in an east-west direction (see Figure 19 & 20). This linear feature commences at the east wall of the east range before running for approximately 36m in a easterly direction. With the north wall under the modern path it is not possible to measure its width. The building clearly shows internal features/walls on the grey-scale resistivity results at Figure 19. There appears to be other features to the south and these could be a chapel and infirmary kitchen. However these are not clear on the grey-scale resistivity results. It is centred on NGR TQ 76169 58702.

12. In the north-east corner of the survey area a rectangular shaped building measuring approximately 17 x 8m has been identified (see Figure 19 & 20 - NGR TQ 76196 58727). The east wall runs parallel to the drain clearly visible on Smith's 1801 survey of the inner precinct (labelled blue on Figure 16). This would be an ideal position for a garderobe (toilet) above the water course originating in Field A. This flowed in a southerly direction to the south-east pond and via a 'branch' drain through the reredorter (communal toilet) vaulted drain (see Section 5.1.1.6). Could this be the Abbot's house?

The footprint of additional buildings/walls can clearly be seen of the grey-scale resistivity results (see Figure 19) to the east. These may be the facilities for the abbot's kitchen, maybe accommodation for squires, grooms, pages, gardener, chamberlain, servant and abbot's stable (Eastlake December 2014)?

In 2020 Terra Measurements Ltd. undertook a 'scanning' GPR survey in the access lane between Field A and the east gate of the walled garden. The report comments 'a distinct linear feature was located, this feature lined up well with the previously sonde located third watercourse in the woodlands, this is likely to be the same drain' (Rose 2020). The route of this drain is highlighted on Figure 30 by the white flags.



Figure 30 – HAARG/MAAG member Nick Hill conducting the resistivity survey in the access lane to the east of the walled garden, Boxley Abbey, Kent. The route of the drain between Field A to south-east pond is indicated by the white flags.

More linear features have been identified on the grey-scale resistivity results (see Figure 19) to the north and west of the ‘Abbot’s house’. The date and purpose of these features are unknown. They are centred on NGR TQ 76176 58731.

During the survey a plough share (see Figure 31) was recovered from the surface of the access lane between Field A and the east gate of the walled garden. This would suggest the area was used for arable crops in the past. This method of farming would have had an adverse affect on the archaeological remains.



Figure 31 - Plough share found on the access lane between Field A and the east gate of the walled garden, Boxley Abbey, Kent. NGR TQ 76201 58718.

13. To the south of the cottage and running to the septic tank near the south west pond a linear feature was identified on the grey-scale resistivity results (labelled 13 on Figure 19 & 20). Running for 11m in a straight line between NGR TQ 76127 58630 – TQ 76127 58619 this has been interpreted as a modern waste pipe.

5.1.2 Magnetometer survey

A magnetometer survey within the garden area was not conducted as it was considered unsuitable for this survey method. This compacted area contained numerous trees, shrubs, flower beds, metal artefacts etc.

5.2 Field A, Boxley Abbey, Kent.

5.2.1 Resistivity survey

Introduction

Archaeological features have been identified on Figure 34 with numbers indicated on Figure 35 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels of resistance with black being the higher readings. The red and blue-scale indicates low resistances in blue, increasing levels through white to red being a reading of high resistance. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Resistivity raw data:

Mean	9.596661
SD	6.186001
3 SD	18.558
Minimum	3.95 ohm
Maximum	184.85 ohm
Dummy Value	2047.5 ohm

Processing filters applied:

Despike
High and Low Pass Filters applied
Interpolate
Clip Min =0, Max =40

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing levels of resistance.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing levels of resistance.

Prior to commencing the survey of Field A a 'base line' measuring 128.70m in length was set up between two well defined features (see Figure 32 & 33). These have been labelled 'A' and 'B' on Figure 34.



Figure 32 - Baseline reference point 'A' situated at the corner of the inner precinct wall to the north of the field at NGR TQ 76100 58864.



Figure 33 - Baseline reference point 'B' to the south of the field is situated at the base of the northern gatepost at NGR TQ 76070 58737.

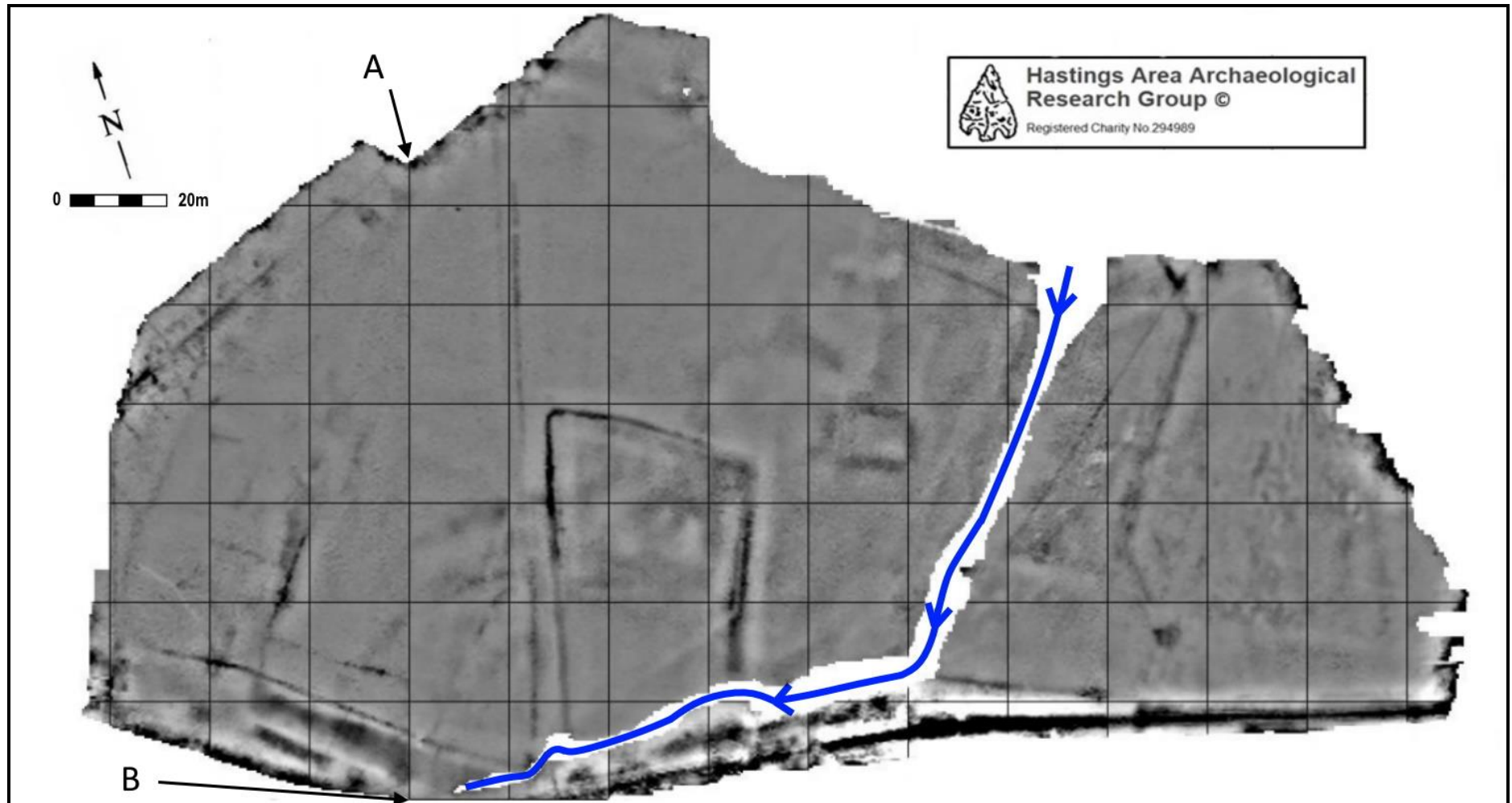


Figure 34 - Resistivity results in grey-scale for the survey conducted in Field A, Boxley Abbey, Kent. Grid sizes 20m square.

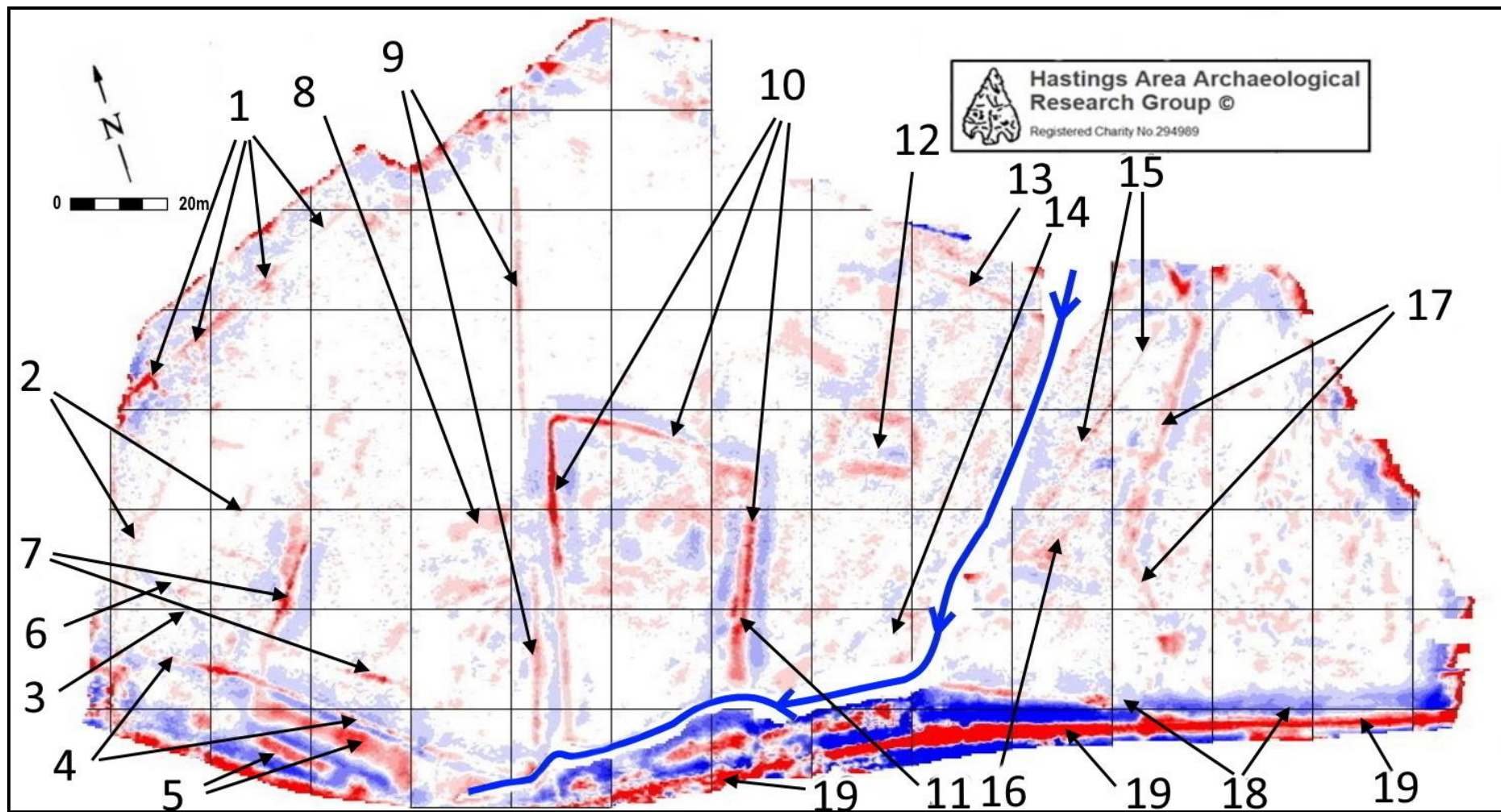


Figure 35 - Resistivity results in red & blue scale for the survey conducted in Field A, Boxley Abbey, Kent. Grid sizes 20m square.

Resistivity results (see Figure 34 & 35):

1. This feature runs parallel to the northern wall of the Boxley Abbey inner precinct between NGR TQ 76089 58875 – TQ 76027 58834. Aligned to the south of the wall the feature could be the footprint of a large building measuring 70m x 9m with internal walls on a north-south alignment. Additional areas of high resistance are recorded to the south-east of the range (centred on NGR TQ 76028 58823) and are suggestive of further buildings. These features are not recorded on the OS maps (NLS 2021).
2. The remains of possible animal enclosures or paddocks aligned with feature 7. These features would appear to be contemporary in date and are centred on NGR TQ 76033 58800.
3. The remains of a small ditch of unknown date. It is centred on NGR TQ 76023 58780.
4. Another ditch containing material with a high resistance. This is visible on the Google Earth of Boxley Abbey inner precinct image dated December 2003 (see Figure 36 - Google Earth 2021). It is centred on NGR TQ 76041 58769.



Figure 36 - Extract from Google Earth of Boxley Abbey inner precinct. Image dated December 2003 (Google Earth 2021).

5. The two features labelled 5 are the possible remains of a building(s) adjacent to the modern track leading to the Abbey. They are not recorded on the OS maps (NLS 2021) and centred on NGR TQ 76055 58757 & TQ 76064 58761.
6. The remains of enclosure ditches. This feature could be associated with feature 2 and is of unknown date. It is centred on NGR TQ 76028 58787.
7. The water culvert which can clearly be seen on the Google Earth (2021) image dated December 2003 and the Light Detection and Ranging (LiDAR) image of Boxley Abbey inner precinct. This feature runs between NGR TQ 76064 58814 - TQ 76089 58739 (see Figure 36 & 37).

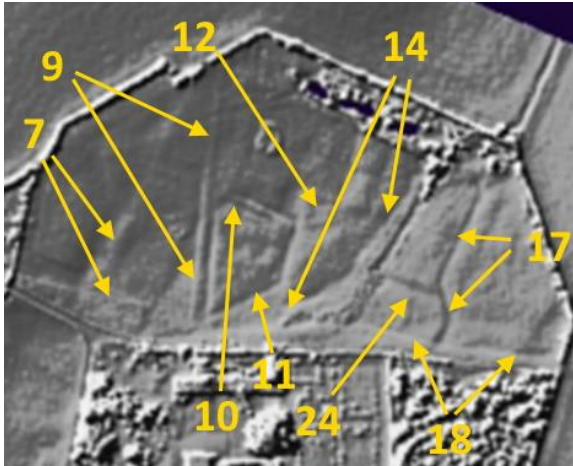


Figure 37 - Extract from the LiDAR image of the inner precinct of Boxley Abbey, Kent.

8. A short length of ditch running between NGR TQ 76080 58784 – TQ 76048 58782.

9. This feature runs along the ridge of a low raised bank between a small gateway in the Abbey inner precinct wall (see Figure 38 - NGR TQ 76120 58881) and the West Tower or Porch of the Abbey (centred on NGR TQ 76113 58722 - see Section 5.1.1.2). Interpreted as a path (or narrow track) the feature can clearly be seen on the LiDAR image (see Figure 37).



Figure 38 - Small gateway in Boxley Abbey inner precinct wall at NGR TQ 76120 58881.

10. Feature 10 is a well defined enclosure identified by high resistance (coloured black on Figure 34 or red on Figure 35). It is clearly visible on the LiDAR image of Boxley Abbey inner precinct (see Figure 37) with only the north-west corner identified on the Google Earth image dated December 2003 (Google Earth 2021 – see Figure 36). The feature is bordered by a shallow ditch which produced low resistance readings during the survey (coloured white or blue on Figure 34 & 35). The feature is centred on NGR TQ 76125 58790.

11. This feature can be seen as a white line on Figure 39 running approximately north-south along the centre of feature 10 for about 20m. Interpreted as a drain it turns 45° to the right before running across the inside of the enclosure (feature 10) to the stream. The latter section is clearly visible on the LiDAR image of Boxley Abbey inner precinct (see Figure 37). The feature is centred on TQ 76138 58770.

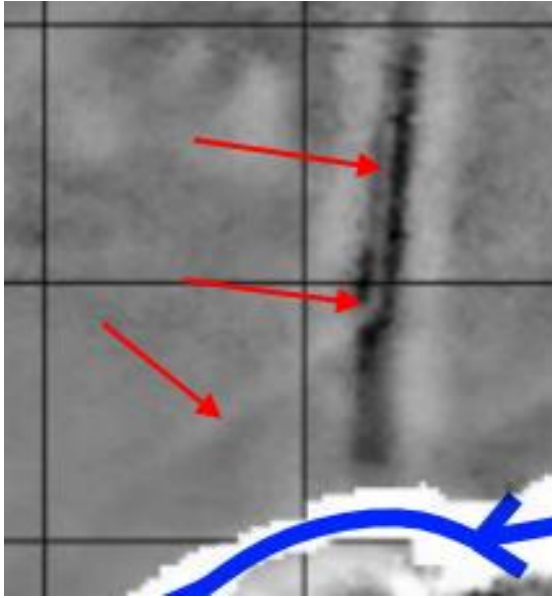


Figure 39 - Extract of the grey-scale resistivity survey results within Field A, Boxley Abbey, Kent with feature 11 indicated by red arrows. Grid sizes 20m square.

12. This feature could be the remains of a building identified on the LiDAR image of Boxley Abbey inner precinct (see Figure 37). It is not recorded on the OS maps (NLS 2021) and is centred on NGR TQ 76156 58799

13. A short length of a linear feature with high resistance readings to the north of the field could be the remains of a wall or infilled ditch. It is centred on NGR TQ 76193 58835.

14. The grey-scale resistivity survey has identified the ditch clearly visible on the LiDAR image of Boxley Abbey inner precinct (see Figure 34 & 37). This feature then flows into the stream at NGR TQ 76100 58750 prior to entering the culvert at NGR TQ 76086 58745 (see Figure 40). It is not visible on the red and blue-scale survey results (see Figure 35).



Figure 40 - Boxley Abbey Field A stream entering the culverts at TQ 76086 58745.

15. A linear feature with high resistance readings traverses the field between NGR TQ 76239 58822 – TQ 76200 58778. This could be the remains of a wall or infilled drainage ditch.

16. The remains of an unknown feature. This could be associated with a building or a deposit of modern material and is centred on NGR TQ 76204 58771.

17. A water culvert is clearly visible on the Google Earth (2021) image dated December 2003 and the LiDAR image of Boxley Abbey inner precinct (see Figure 36 & 37). Its aligned in a north-south direction between NGR TQ 76247 58817 - TQ 76220 58741.

18. This feature is the ‘Brook’ indicated on John Smith’s 1801 survey map of the inner precinct, Boxley Abbey (see Figure 41). This is visible on the Google Earth (2021) image dated December 2003 and the LiDAR image (see Figure 36 & 37). It can be seen on the ground as a shallow depression running in a east-west direction between NGR TQ 76281 58732 – TQ 76182 58753.

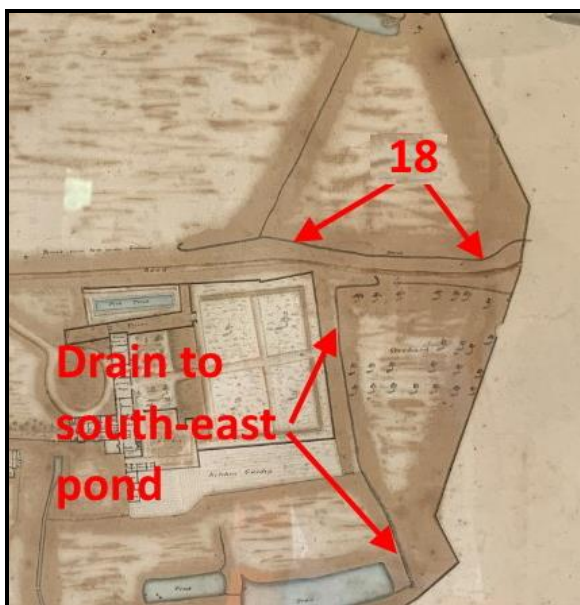


Figure 41 - Extract from John Smith’s 1801 survey of the inner precinct, Boxley Abbey, Kent.

19. This modern 'metalled' farm track is clearly visible on the ground in Field A. The large cobbles can be seen adjacent to the northern wall of the Nave and the Victorian walled garden between NGR TQ 76073 58742 – TQ 76280 58731.

5.2.2 Magnetometer survey

Introduction

Archaeological features have been identified on Figure 42 with numbers indicated on Figure 43 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels in the earth's magnetic field with black being the higher readings. The red and blue-scale indicates low magnetism in blue, increasing levels through white to red being a reading of high magnetism. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Magnetometer raw data:

Mean	0.6982898
SD	8.859138
3 SD	26.57742
Minimum	-100 nT
Maximum	100 nT
Dummy Value	2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -10nT, Max = +10nT
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing earth's magnetic readings.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing earth's magnetic readings.

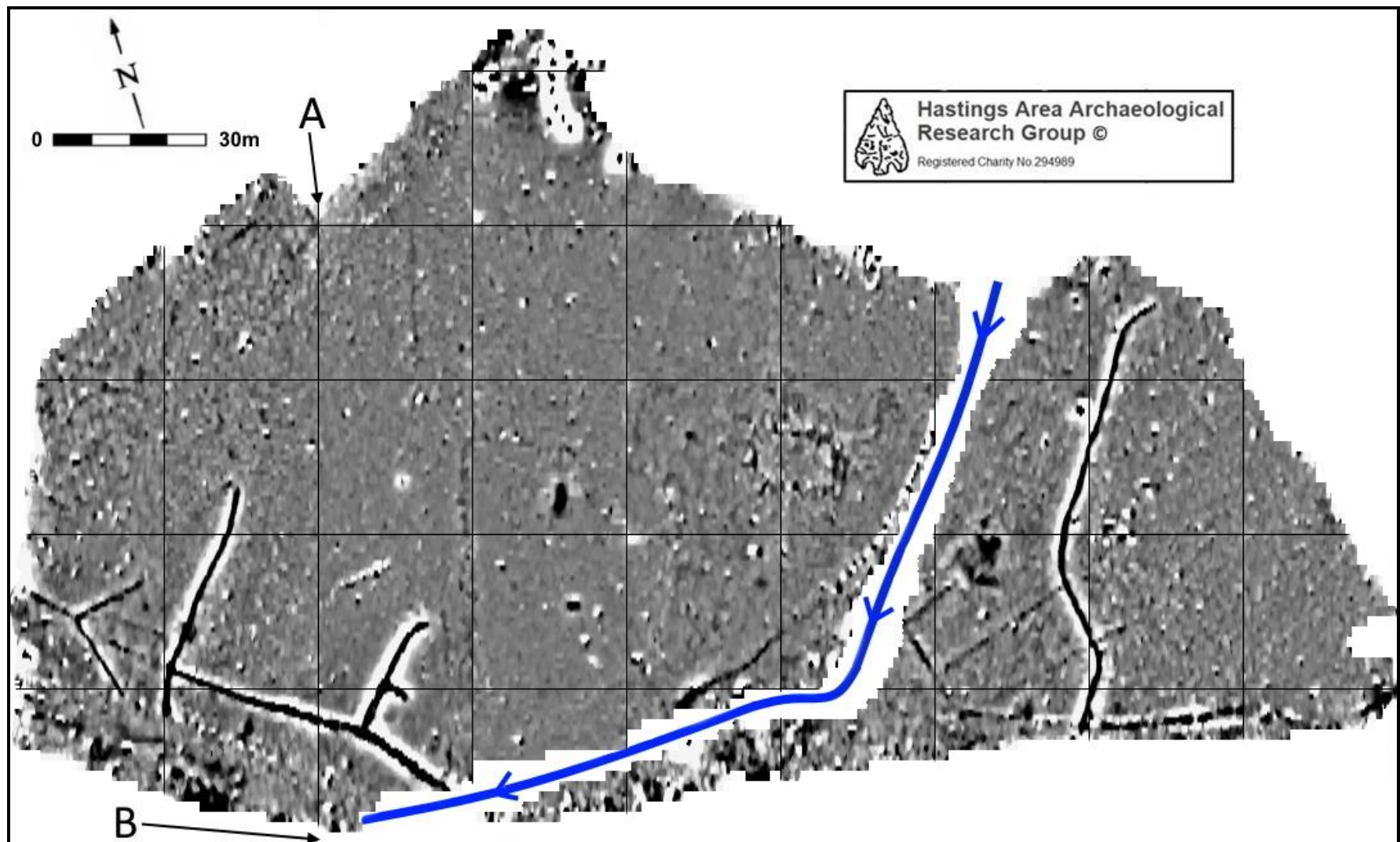


Figure 42 - Magnetometer results in grey-scale for the survey conducted in Field A, Boxley Abbey, Kent. Grid sizes 30m square.

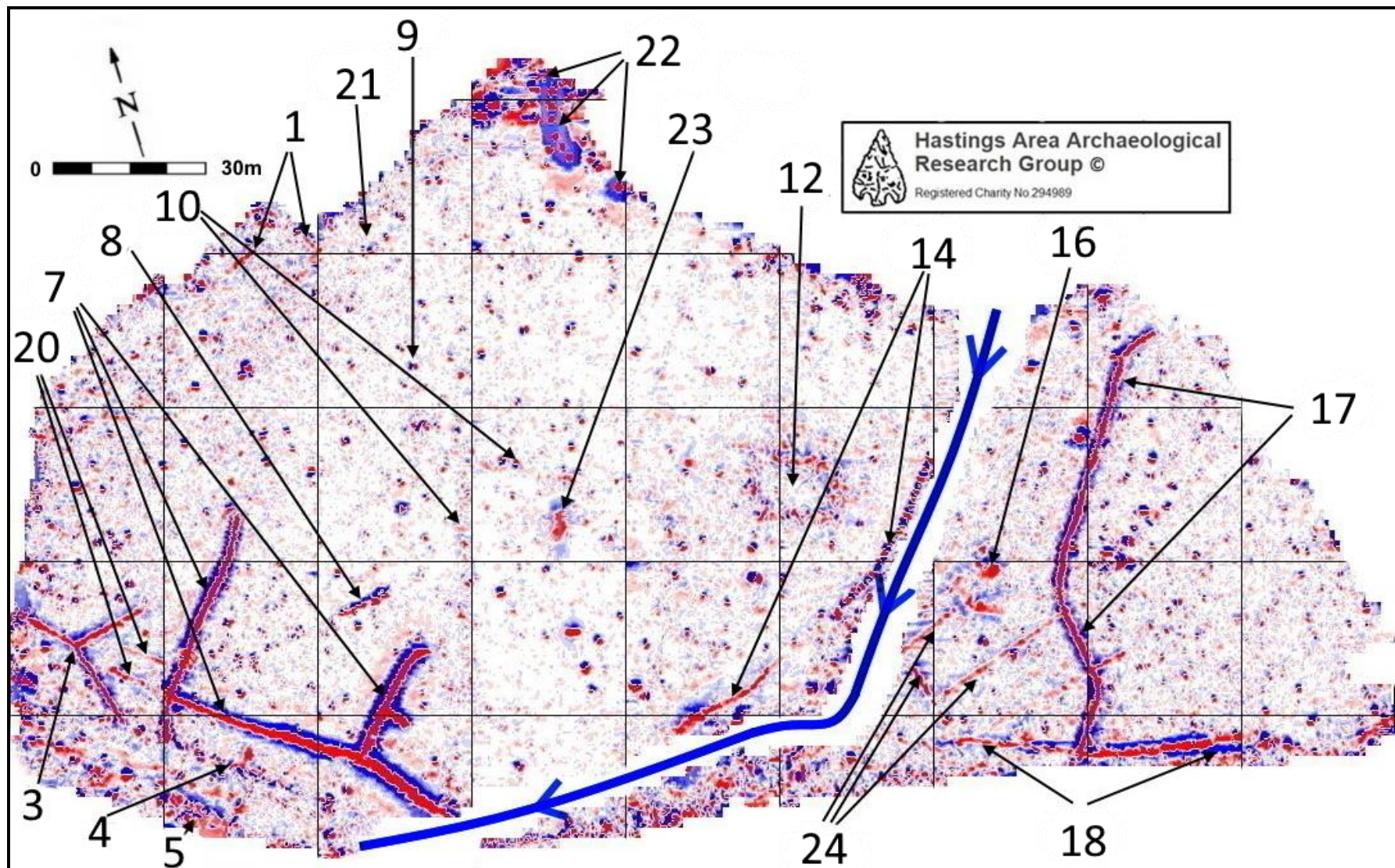


Figure 43 - Magnetometer results in red & blue-scale for the survey conducted in Field A, Boxley Abbey, Kent. Grid sizes 30m square.

Magnetometer results (see Figure 42 & 43):

1. The magnetometer survey only identified the eastern portion of the large building located by the resistivity survey (see Section 5.2.1). Measuring 13 x 6m with a western wing measuring 7 x 3m the feature is not recorded on the OS maps (NLS 2021). It is centred on NGR TQ 76078 58868.
2. Feature 2 on the resistivity survey results has not been identified on the magnetometer survey.
3. They are the remains of enclosure ditches of unknown date. It is centred on NGR TQ 76023 58780.
4. A small ditch is visible on the Google Earth (2021) image of Boxley Abbey inner precinct. It is centred on NGR TQ 76041 58769 (see Figure 36).
5. The possible remains of a building adjacent to the track leading to the Abbey. It is not recorded on the OS maps (NLS 2021) and centred on NGR TQ 76055 58757.
6. Feature 6 on the resistivity survey results has not been identified on the magnetometer survey.
7. The water culvert which can clearly be seen on the Google Earth (2021) image dated December 2003 and the LiDAR image of Boxley Abbey inner precinct. This feature runs between NGR TQ 76064 58814 - TQ 76089 58739 (see Figure 36 & 37).
8. A short length of ditch running between NGR TQ 76080 58784 – TQ 76048 58782.
9. Only a short section of the path (or narrow track) can be seen on the magnetometer results (see Figure 42 & 43 - NGR TQ 76117 58840).
10. The enclosure identified by the resistivity survey (see Section 5.2.1) is barely visible on the magnetometer results (see Figure 42 & 43). Only the north-west corner was recorded and this portion is visible on the Google Earth image dated December 2003 (Google Earth 2021 – see Figure 36). The feature is centred on NGR TQ 76125 58790.
11. This feature has not been identified on the magnetometer survey.
12. This feature could be the remains of a building identified on the LiDAR image of Boxley Abbey inner precinct (see Figure 37). It is not recorded on the OS maps (NLS 2021). The feature is centred on NGR TQ 76156 58799.
13. Feature 13 on the resistivity survey results has not been identified on the magnetometer survey.

14. The magnetometer survey has identified a modern pipeline (seen as alternating black-white lines (Figure 42) and alternating red-blue lines (Figure 43) (Gaffney & Gater 2011, 83). It runs parallel to the modern drainage ditch (coloured blue on both figures) between NGR TQ 76211 58817 – TQ 76183 58778. The southern end of this feature was identified during the resistivity survey and drains into a ditch clearly visible on the LiDAR image of Boxley Abbey inner precinct (see Figure 37). This feature then flows into the stream at NGR TQ 76100 58750 before flowing into culverts at NGR TQ 76086 58745 (see Figure 40).
15. Feature 15 on the resistivity survey results has not been identified on the magnetometer survey.
16. The remains of an unknown feature. This could be associated with a building or a deposit of modern material and is centred on NGR TQ 76204 58771.
17. A water culvert clearly visible on the Google Earth (2021) image dated December 2003 and the LiDAR image of Boxley Abbey inner precinct (see Figure 36 & 37). It runs in a north-south direction between NGR TQ 76247 58817 - TQ 76220 58741.
18. This feature is the 'Brook' indicated on John Smith's 1801 survey map and the resistivity results (see Section 5.2.1) of the inner precinct, Boxley Abbey (see Figure 34, 35 & 41).
19. Feature 19 on the resistivity survey results has not been identified on the magnetometer survey.
20. Two further ditches can be seen on the survey results (see Figure 42 & 43) and are centred on NGR TQ 76065 58780. Both of unknown date.
21. The magnetometer results suggest a further building centred on NGR TQ 76107 58875. This is not recorded on the OS maps (NLS 2021).
22. These features suggest an industrial process was taking place in this area (Gaffney & Gater 2011). A scanning survey of this area recorded readings of >1000nT. It is possibly a series of lime kilns associated with the construction of the wall or furnaces for iron production. A minimum of ten features have been identified and these are centred on NGR TQ 76138 58879 (see Figure 44).

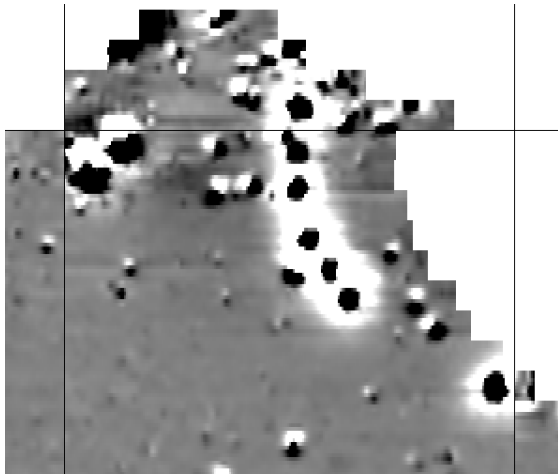


Figure 44 - Extract of the magnetometer results in grey-scale with the possible lime kilns (black 'dots') associated with the inner precinct wall construction or furnaces for iron production in the northern section of Field A, Boxley Abbey, Kent. Grid sizes 30m square.

23. An area of highly magnetic material with readings up to 20nT. This could be the remains of the feature identified on the December 1960 aerial image of Boxley Abbey inner precinct (Google Earth 2021) (see Figure 45). It is centred on NGR TQ 76115 58809. The other features (labelled A) are understood to be chicken pens.

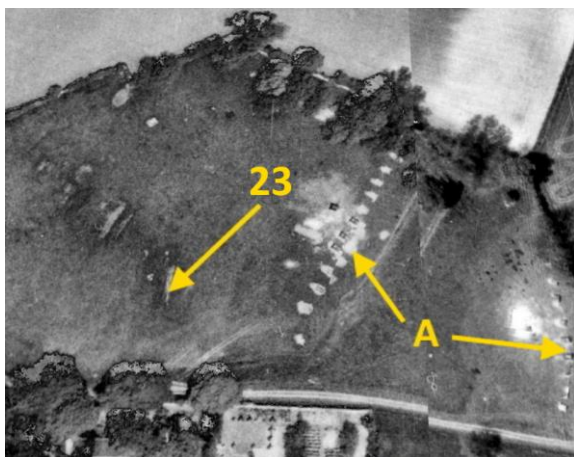


Figure 45 - Extract from Google Earth of Boxley Abbey inner precinct. Image dated December 1960 (Google Earth 2021).

24. The remains of possible animal enclosures or paddocks are partly visible on the Google Earth (2021) image dated December 2003 and the LiDAR image of Boxley Abbey inner precinct (see Figure 36 & 37). These features would appear to pre-date the water culvert (feature 17) as they underly it. They are centred on NGR TQ 76203 58758.

Tester (1973, 133-4) excavated 5 trenches (no. 1, 2, 3, 18 & 43) in Field A and these have not been identified during the resistivity or magnetometer surveys.

5.2.3 Surface Finds



Figure 46 - Surface finds of two pieces of Romano-British ceramic building material recovered from Field A, Boxley Abbey, Kent. NGR TQ 76165 58734.

The examples at Figure 46 were recovered from the surface of Field A during the magnetometer survey reported at Section 5.2.2. The irregular fragment on the left measures 70 x 52mm with the flat part 20mm thick and weighs 97g. The example on the right measures 112 x 73mm with the flat part 22mm thick and weighs 213g.

Both tegulae fragments are made of a fabric of fine sandy texture with no visible inclusions. Both examples have Medieval mortar residual to all surfaces and coloured brick red/brown with no signature/tally marks or cutaways present. Found at edge of the field in the vicinity of Tester's (1973) trenches it would suggest they were redeposited during his excavation.

5.3 Field B, Boxley Abbey, Kent.

5.3.1 Resistivity survey

Introduction

Archaeological features have been identified on Figure 49 with numbers indicated on Figure 50 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels of resistance with black being the higher readings. The red and blue-scale indicates low resistances in blue, increasing levels through white to red being a reading of high resistance. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Resistivity raw data:

Mean	22.22601
SD	17.93638
3 SD	53.80915
Minimum	1 ohm
Maximum	204.7 ohm
Dummy Value	2047.5 ohm

Processing filters applied:

Despike
Clip Min =0, Max =50
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing levels of resistance.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing levels of resistance.

Prior to commencing the survey of Field B a 'base line' measuring 109.20m in length was set up between two well defined features (see Figure 47 & 48). These have been labelled 'A' and 'B' on Figure 49.



Figure 47 - Baseline reference point 'A' situated at the junction of a buttress and the inner precinct wall along the northern edge of the field at NGR TQ 76006 58769. Altitude 30.50m AOD.



Figure 48 - Baseline reference point 'B' to the south of the field at NGR TQ 75970 58668. Altitude 26.13 AOD.

Above Ordnance Datum (AOD) was measured by Dale Rose, Utilities Survey Manager, Terra Measurement using Ordnance Survey Network (OS Net) with survey grade Global Navigation Satellite Systems (GNSS) on 14 July 2020.

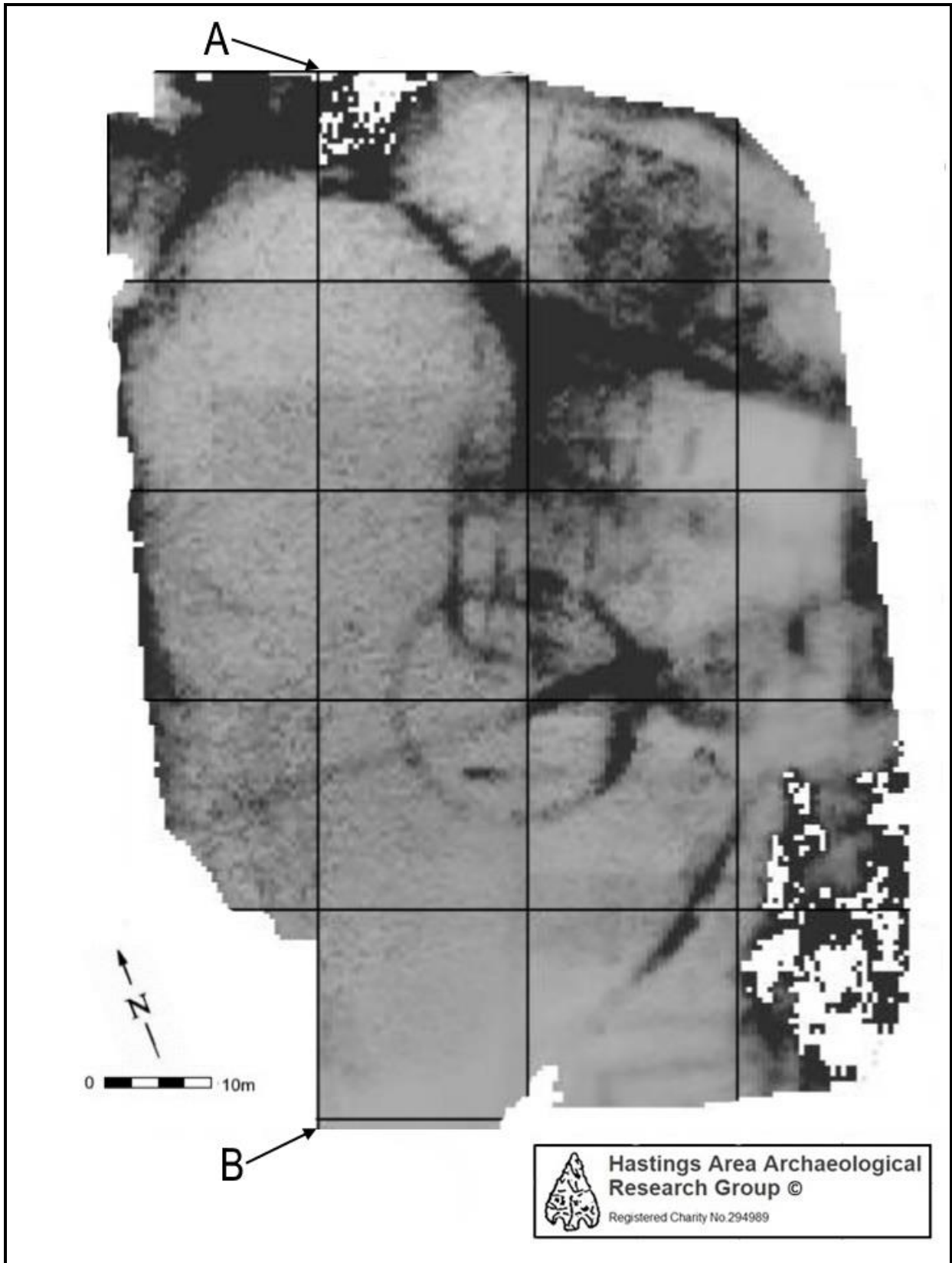


Figure 49 - Resistivity results in grey-scale for the survey conducted in Field B, Boxley Abbey, Kent. Grid sizes 20m square.

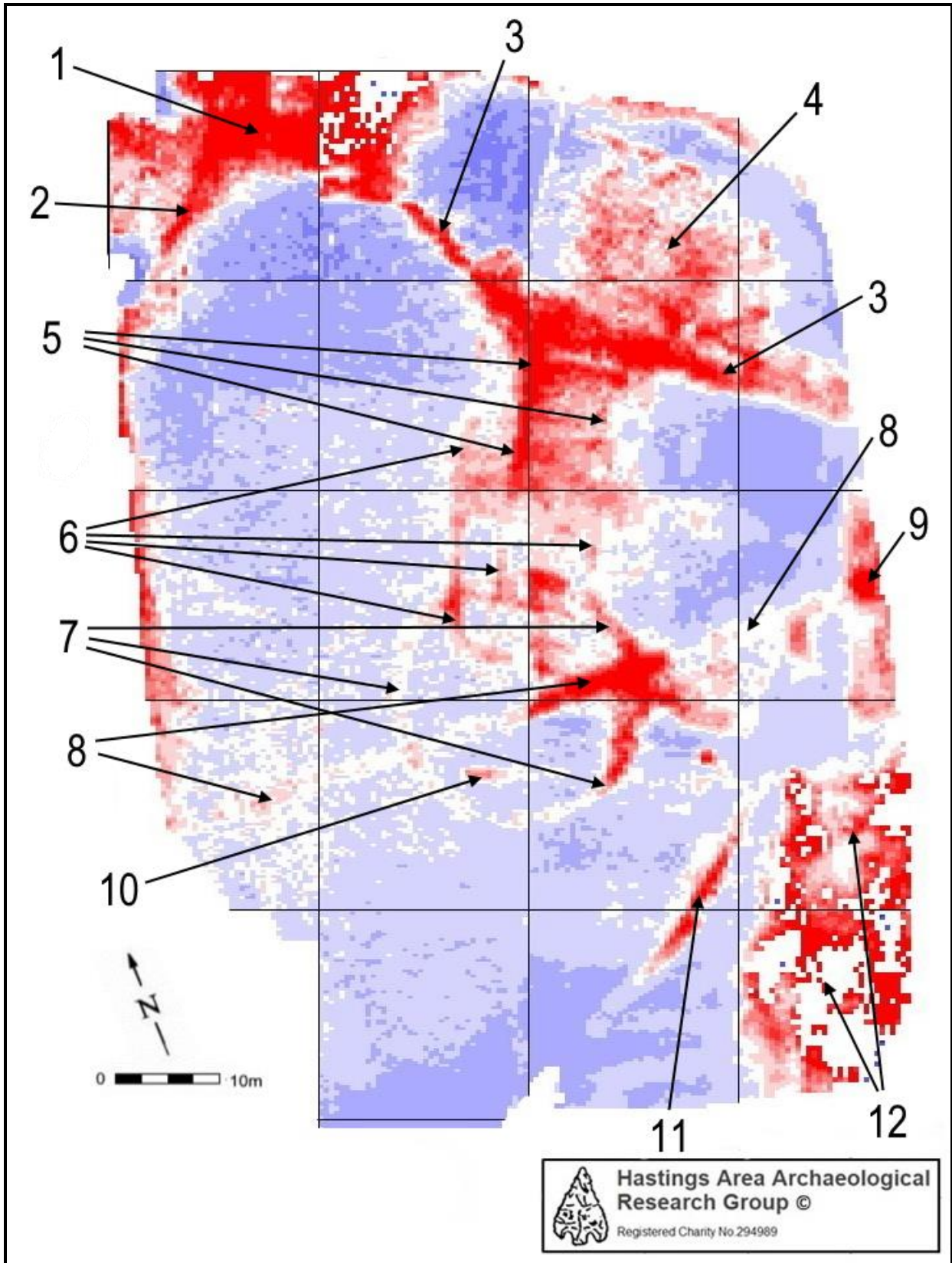


Figure 50 - Resistivity results in red & blue scale for the survey conducted in Field B, Boxley Abbey, Kent. Grid sizes 20m square.

Resistivity results (see Figure 49 & 50):

1. Remains of a building abutting the gateway and inner precinct wall, measuring approximately 10 x 8m in size with suggestions of in-situ floors. These features are clearly visible on John Smith's 1801 survey of Boxley Abbey inner precinct, centred on NGR TQ 75999 58765 (see Figure 51). The 'white' blank areas more clearly indicated on the grey-scale results are when the resistivity equipment fails to obtain a reading due to the lack of moisture and soil present and the probes are in contact with a hard or solid surface.

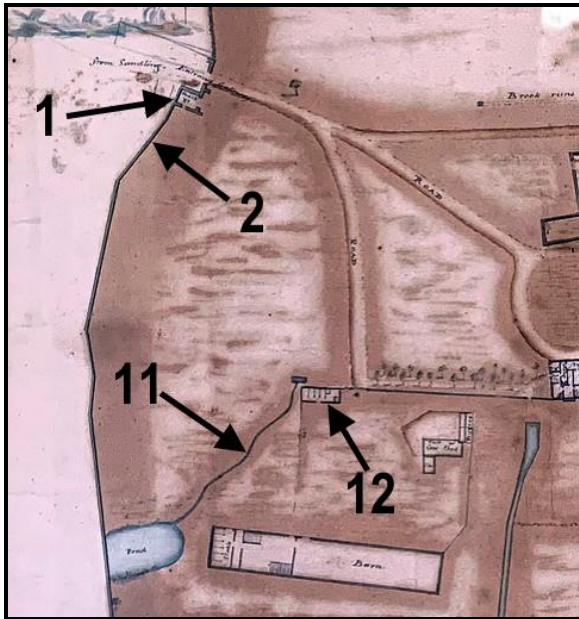


Figure 51 - Extract from John Smith's 1801 survey of the inner precinct, Boxley Abbey, Kent.

2. This feature is an earlier alignment of the Abbey inner precinct wall. The results indicate that the wall turns at an angle of 33° degrees at a point approximately 22m from the gateway and associated building/s. OS mapping evidence suggests that the re-alignment to the present day position took place between 1895 and 1907 (NLS 2021). See Figure 52 & 53. The buttress is at NGR TQ 76006 58769 with the southern end at TQ 75976 58749.

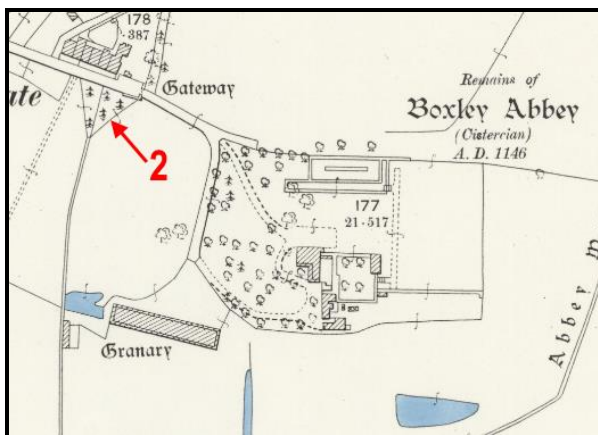


Figure 52 - Extract from the Kent XXXI.15 OS 25 inch England and Wales, Revised: 1895, Published: 1897 (NLS 2021).

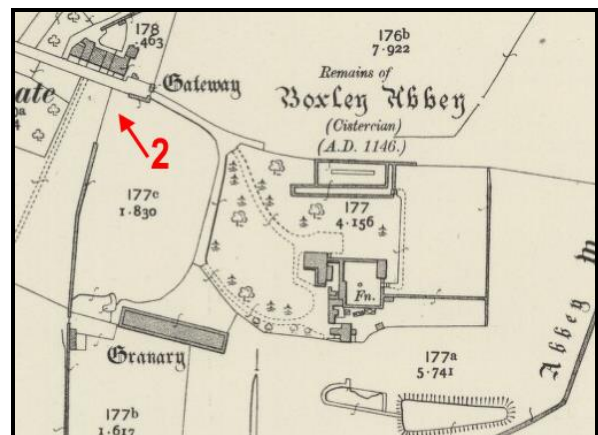


Figure 53 - Extract from the Kent XXXI.15 OS 25 inch England and Wales, Revised: 1907, Published: 1908 (NLS 2021).

3. Identified on LiDAR (see Figure 54) as a small lynchet and visible on the ground surface, high resistance readings are suggestive of the presence of wall foundations with a scatter of demolition debris. The wall is in two sections, a 20m and a 30m length with the join having an angle of approximately 35° degrees. NGR TQ 76041 58721, TQ 76017 58737 (turn) to TQ 76006 58769.

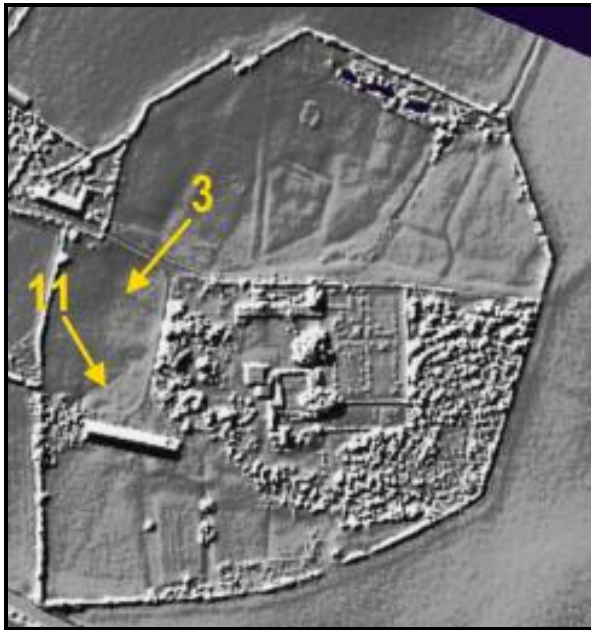


Figure 54 - LiDAR image of the inner precinct of Boxley Abbey, Kent.

4. Area of irregular high resistance possibly demolition debris or hardstanding debris. This feature abutts feature 3 suggesting that they may be contemporary however a hardstanding area could have been constructed following demolition of the wall. There is a suggestion that the feature may have had clearly defined edges lying parallel to the north of the wall. It is centred on NGR TQ 76028 58746.

5. This feature is the footprint of a building with suggestions of having had internal structures or rooms, however it overlies an earlier structure (feature 6) making interpretation difficult. This building on its northern edge is parallel to the proposed wall (feature 3) suggesting that these two features are contemporary. It measures approximately 13 x 10m and is centred on NGR TQ 76014 58725.

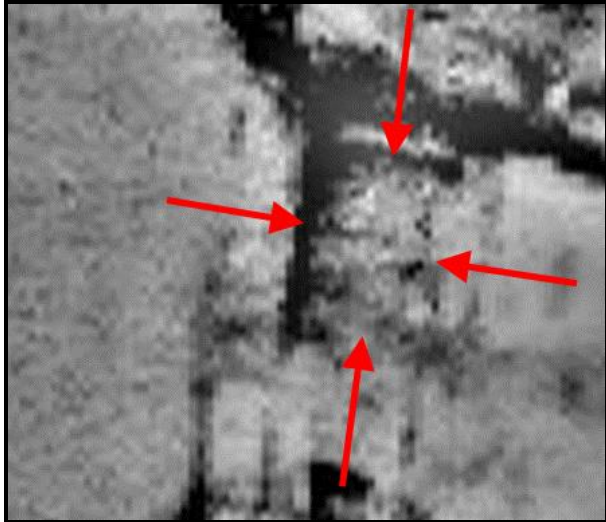


Figure 55 - Extract from the resistivity results in grey-scale showing a building (feature 5) in Field B, Boxley Abbey, Kent.

6. Feature 6 is indicative of a rectangular shaped building measuring approximately 21 x 13m. Its exact dimensions are difficult to establish due to the overlying sequence of building that have been constructed in this area. It is transected by or transects features 5 and 7. The building clearly shows internal features/walls. Dating of these features and sequencing the structural development of this area within the Abbey inner precinct can only be established by excavation and finds analysis. This feature is centred on NGR TQ 76011 58719.

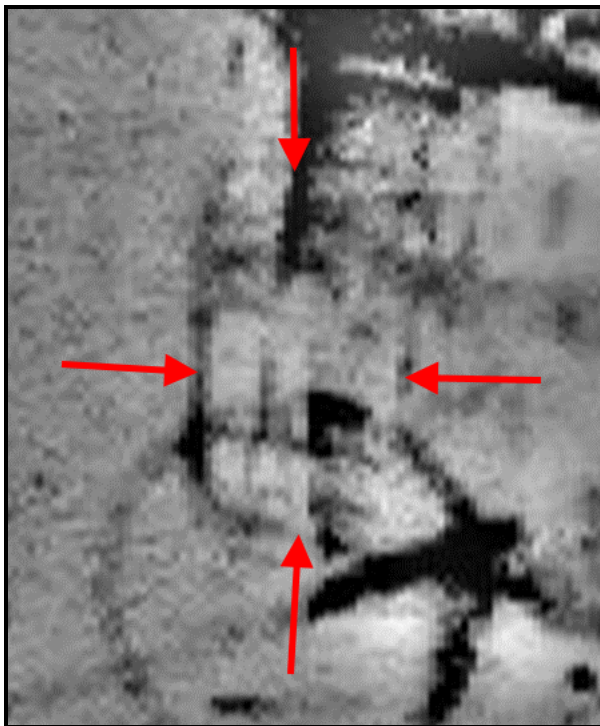


Figure 56 - Extract from the resistivity results in grey-scale showing the building (feature 6) in Field B, Boxley Abbey, Kent.

7. A 24m diameter circular feature of variable resistance. It transects or is transected by the building feature 6 and is bisected by feature 8. Feature 10 intrudes across the southern part of this feature 7. This circular feature is not present on the magnetometer results. If this is a pre-historic ring ditch it would be expected for it to be evident on the magnetometer results (Gaffney & Gater 2011). Lead archaeologist for the Boxley project Graham Keavill has suggested that this feature may possibly relate to a type of Iron Age building that has

previously been found in Kent however the large size of the feature may cast this suggestion into doubt. Its position in the sequence of building constructions in this area of the survey can only be established by excavation. It's position is centred on NGR TQ 76005 58702.

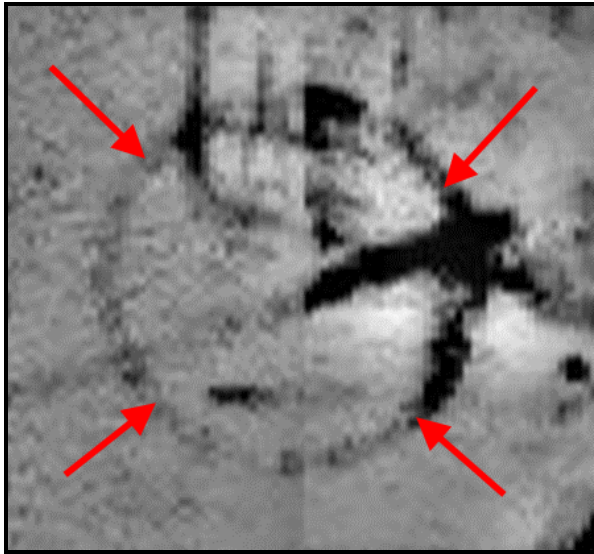


Figure 57 - Extract from the resistivity results in grey-scale showing the circular feature (feature 7) in Field B, Boxley Abbey, Kent.

8. Probably foundations for a wall which was not identified on the magnetometer survey (see Figure 59 & 60). If it had been a ditch, it would have been present on the magnetometer survey results (Gaffney & Gater 2011). It is approximately 70m in length and extends at an angle across the width of the survey area. It appears to connect with the inner precinct wall on the western boundary of Field B and extends to a possible demolished building (feature 9). It's position is NGR TQ 75969 58697 – TQ 76042 58708.

9. Demolition spread from another possible building or hardstanding debris. There is no historical map evidence for a building in this location (NLS 2021). This feature is centred on NGR TQ 76042 58705.

10. Possible wall foundations from a building or boundary wall, measuring 40m in length positioned east-west. It aligns with the northern edge of feature 12 which is a building suggesting that these two features may be contemporary in date. It's centred on NGR TQ 76003 58692.

11. Water culvert clearly visible on John Smith's 1801 survey and LiDAR image of Boxley Abbey inner precinct (see Figure 51 & 54). Water still flows freely through the culvert with it coming to the ground surface and entering a small pond feature at the southern edge of the survey area. This feature has been investigated by KURG (Hall 2020). This feature runs between NGR TQ 76020 58688 and TQ 75996 58671.

12. Demolition debris spread from a building with associated hardstanding. A building is present on the 1st OS map 1797 of this area. It is indicated as still standing on the 1869 OS map (see Figure 58). It has been demolished prior to the publication of the OS 25 inch map revision of 1895 (Published: 1897) (NLS 2021). It is centred on NGR TQ 76027 58684.



Figure 58 - Extract from the 1869 OS map (NLS 2021) showing Boxley Abbey. The building (feature 12) is still standing and is highlighted by the red circle.

Notes:

Resistivity readings. On the Figure 49 & 50 there are squares of white in areas of features 1 and 12. The readings were unobtainable due to the dry and sandy ground conditions plus large amounts of building debris just below the surface of the ground. The equipment was checked electronically for faults as part of the troubleshooting. No faults present, the failed readings being caused by being either too high to register or failure to complete an electrical circuit due to the ground conditions and underlying demolition debris (Geoscan RM15 manual (Geoscan Research April 2009)).

5.3.2 Magnetometer survey

Introduction

Archaeological features have been identified on Figure 59 with numbers indicated on Figure 60 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels in the earth's magnetic field with black being the higher readings. The red and blue-scale indicates low magnetism in blue, increasing levels through white to red being a reading of high magnetism. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Magnetometer raw data:

Mean	-0.3041629
SD	14.00308
3 SD	42.00924
Minimum	-100 nT
Maximum	100 nT
Dummy Value	2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -10nT, Max = +10nT
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing earth's magnetic readings.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing earth's magnetic readings.

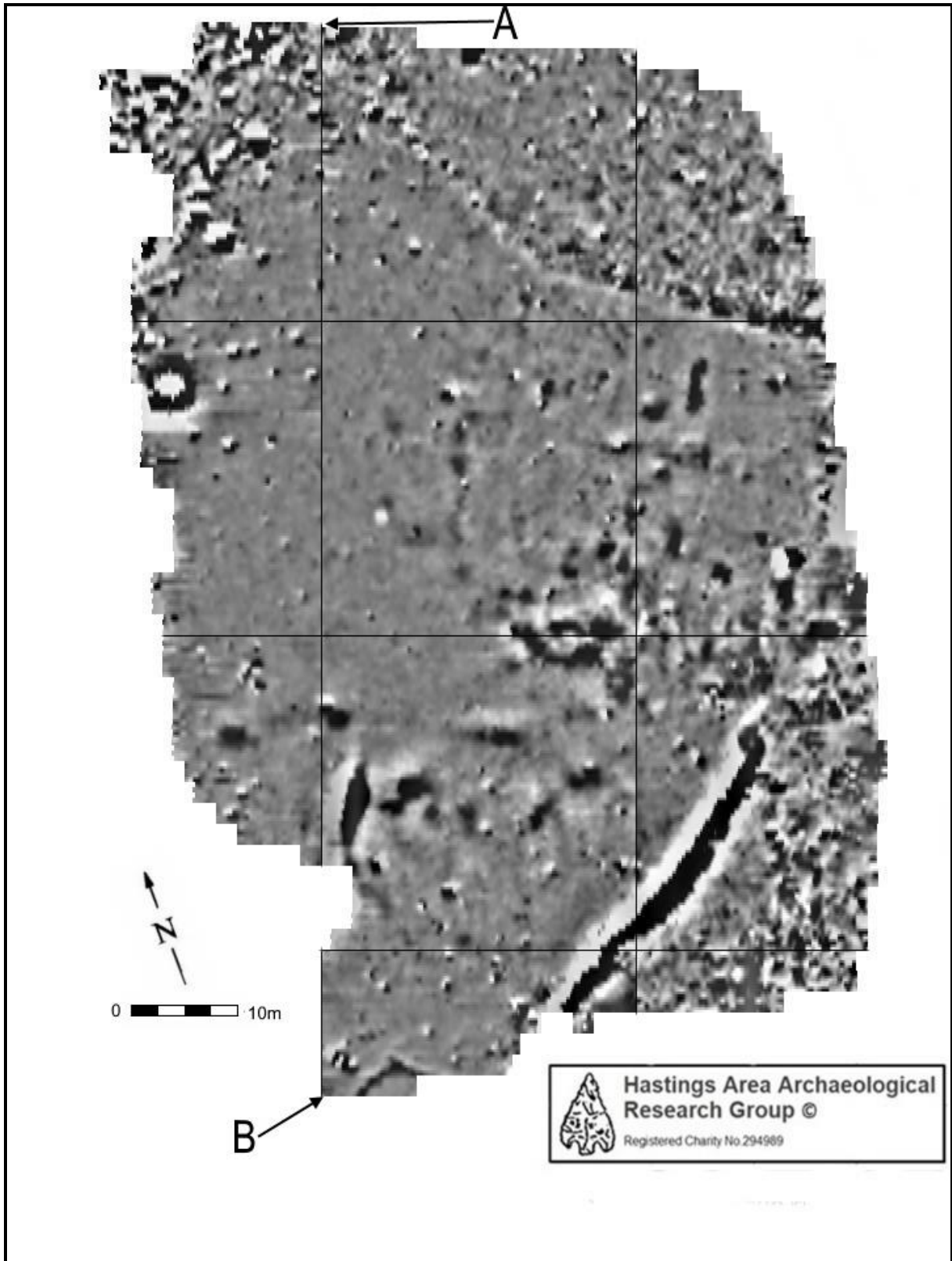


Figure 59 - Magnetometer results in grey-scale for the survey conducted in Field B, Boxley Abbey, Kent. Grid sizes 30m square.

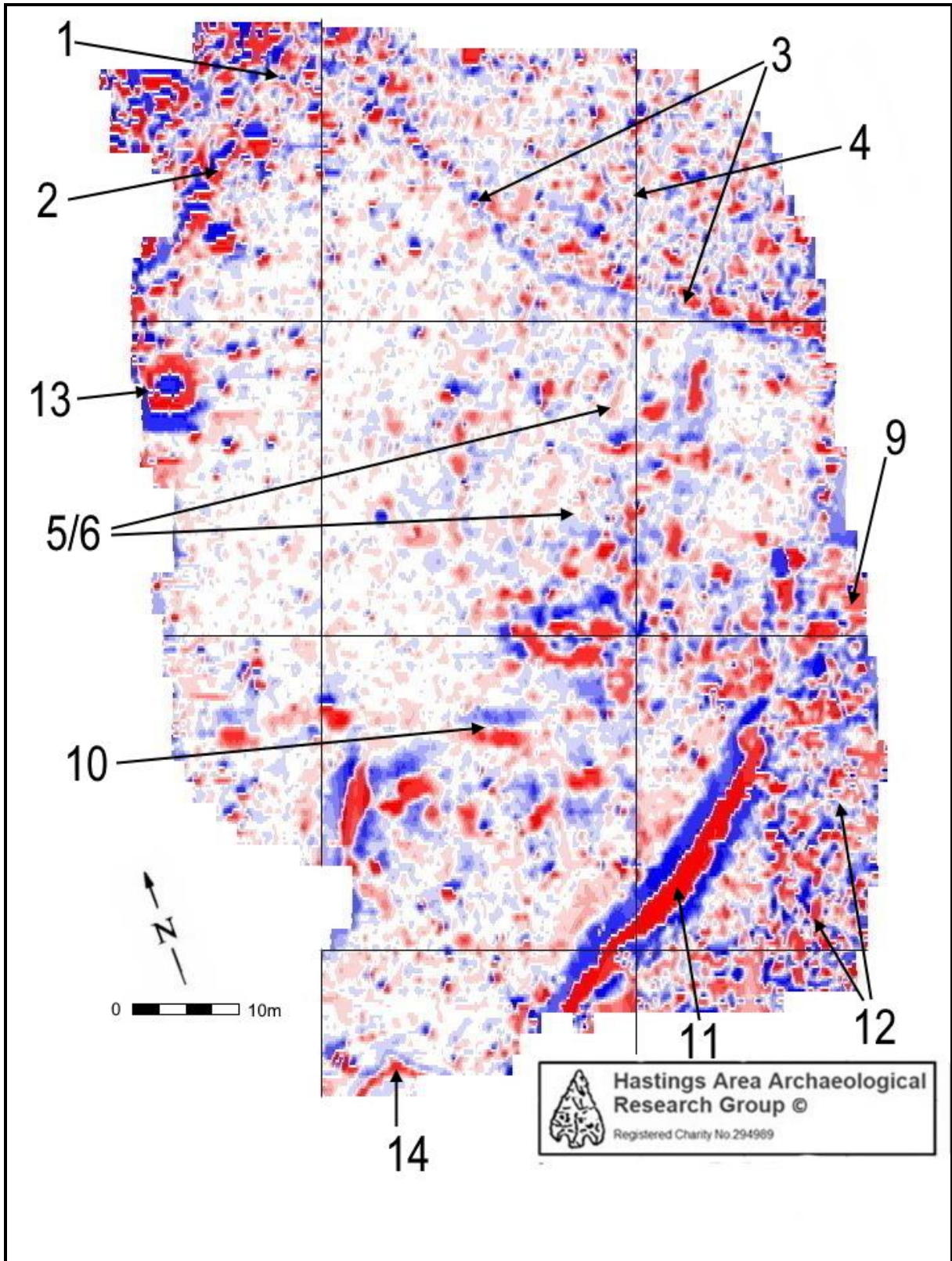


Figure 60 - Magnetometer results in red & blue-scale for the survey conducted in Field B, Boxley Abbey, Kent. Grid sizes 30m square.

Magnetometer results (see Figure 59 & 60):

1. Indications for building demolition debris. This building is clearly visible on John Smith's 1801 survey of Boxley Abbey inner precinct (see Figure 51), being centred on NGR TQ 75999 58765.
2. Abbey inner precinct wall re-routed between 1895-1907 (OS mapping evidence (NLS 2021) see Figure 52 & 53). The buttress is positioned at NGR TQ 76006 58769 with the southern end at TQ 75976 58749.
3. Identified on LiDAR (see Figure 54) as a small lynchet and is visible on the ground. Indications suggest this to be a wall. Positioned on NGR TQ 76041 58721, TQ 76017 58737 (the turn) to TQ 76006 58769.
4. An area of disturbance possibly demolition debris or hardstanding debris which is centred on NGR TQ 76028 58746.
- 5 & 6. Responses are indicative of buildings, centred on NGR TQ 76014 58725 and TQ 76011 58719.
- 7 & 8. Feature 7 and 8 on the resistivity survey results have not been identified on the magnetometer survey.
9. Demolition spread from another possible building or hardstanding debris positioned at NGR TQ 76042 58705.
10. Possible wall foundations for a building at NGR TQ 76003 58692.
11. The water culvert clearly visible on John Smith's 1801 survey and LiDAR image of Boxley Abbey inner precinct positioned between NGR TQ 76020 58688 and TQ 75996 58671 (see Figure 51 & 54).
12. Demolition spread from a building and/or hardstanding debris. A building is present on the 1st OS original map of this area in 1797 (NLS 2021) and still indicated as standing on the 1869 OS map (NLS 2021) (see Figure 54). It has been demolished by the OS 25 inch map revision in 1895 (Published: 1897) (NLS 2021). Sited at NGR TQ 76027 58684.
13. This feature has indications for an industrial process (Gaffney & Gater 2011). A scanning survey of this area recorded readings of >1000nT. It is possibly a lime kiln associated with the wall construction/re-routing and is not identified on the resistivity survey results. It is centred on NGR TQ 75979 58737.
14. This feature is possibly associated with the end of the culvert and has not been identified on the resistivity survey results. It is centred on NGR TQ 75990 58665.

5.3.3 Surface Finds



Figure 61 - Surface find of a piece of Romano-British tegula recovered from Field B, Boxley Abbey, Kent. NGR TQ 76010 58658.

The example at Figure 61 was recovered from the surface of Field B during the resistivity survey which is reported at Section 5.3.1. The irregular edged Romano-British tegula roof tile fragment retains part of the flange, measuring 98 x 89mm with the flange to a height of 47mm with a width of 20mm, sloping to 15mm in height on inside of the flange. The flat part of the tile is 20mm in thickness and weighs 303g. The fabric has a fine sandy texture with no visible inclusions but it has residual mortar to all surfaces. The colour is brick red/brown, even throughout tile with no signature/tally marks or cutaways present. It was found at the edge of pond at the southern end of the medieval culvert. With mortar attached all over the fragment, this would indicate it has been re-used and re-deposited.



Figure 62 - Surface find of a piece of possible Medieval window glass recovered from Field B, Boxley Abbey, Kent. NGR TQ 76008 58760.

The example at Figure 62 is a pale blue/white coloured fragment found on the ground surface in the location of the demolished gate house and additional buildings. There is a degree of ground disturbance present in this area. The fragment has a 'rainbow' iridescence patina present. It measures 38 x 37mm in maximum dimensions being irregular in shape being 2mm in thickness with a weight of 2g. This fragment is predominately flat but has a slight curve. It is not part of a bottle and may be window glass. Its age can be speculated but its location suggests that it was part of the fabric of the gatehouse or associated buildings.

5.4 Field C, Boxley Abbey, Kent.

5.4.1 Resistivity survey

Introduction

Archaeological features have been identified on Figure 65 with numbers indicated on Figure 66 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels of resistance with black being the higher readings. The red and blue-scale indicates low resistances in blue, increasing levels through white to red being a reading of high resistance. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Resistivity raw data:

Mean	12.75269
SD	3.758409
3 SD	11.27523
Minimum	5.4 ohm
Maximum	204.7 ohm
Dummy Value	2047.5 ohm

Processing filters applied:

Despike
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing levels of resistance.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing levels of resistance.

Prior to commencing the survey of Field C a 'base line' measuring 98.9m in length was set up between two well defined features (see Figure 63 & 64). These have been labelled 'A' and 'B' on Figure 65.



Figure 63 - Baseline reference point 'A' is situated on the fence post 6m south of the south-west corner of Boxley Abbey Hospitium at NGR TQ 75992 58637.



Figure 64 - Baseline reference point 'B' is 6m east of the south-west corner of Boxley Abbey inner precinct wall at NGR TQ 75974 58542.

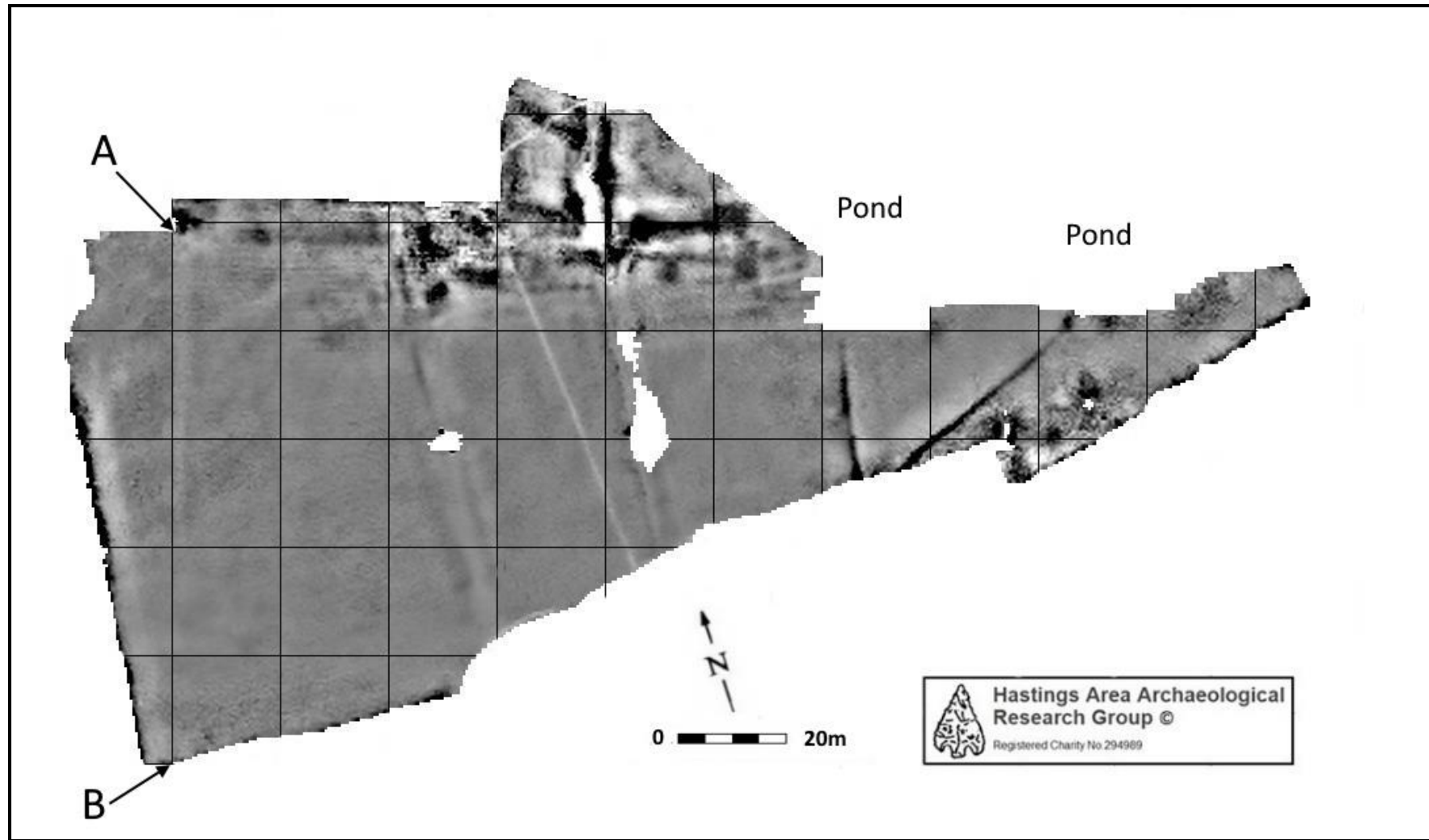


Figure 65 - Resistivity results in grey-scale for the survey conducted in Field C, Boxley Abbey, Kent. Grid sizes 20m square.

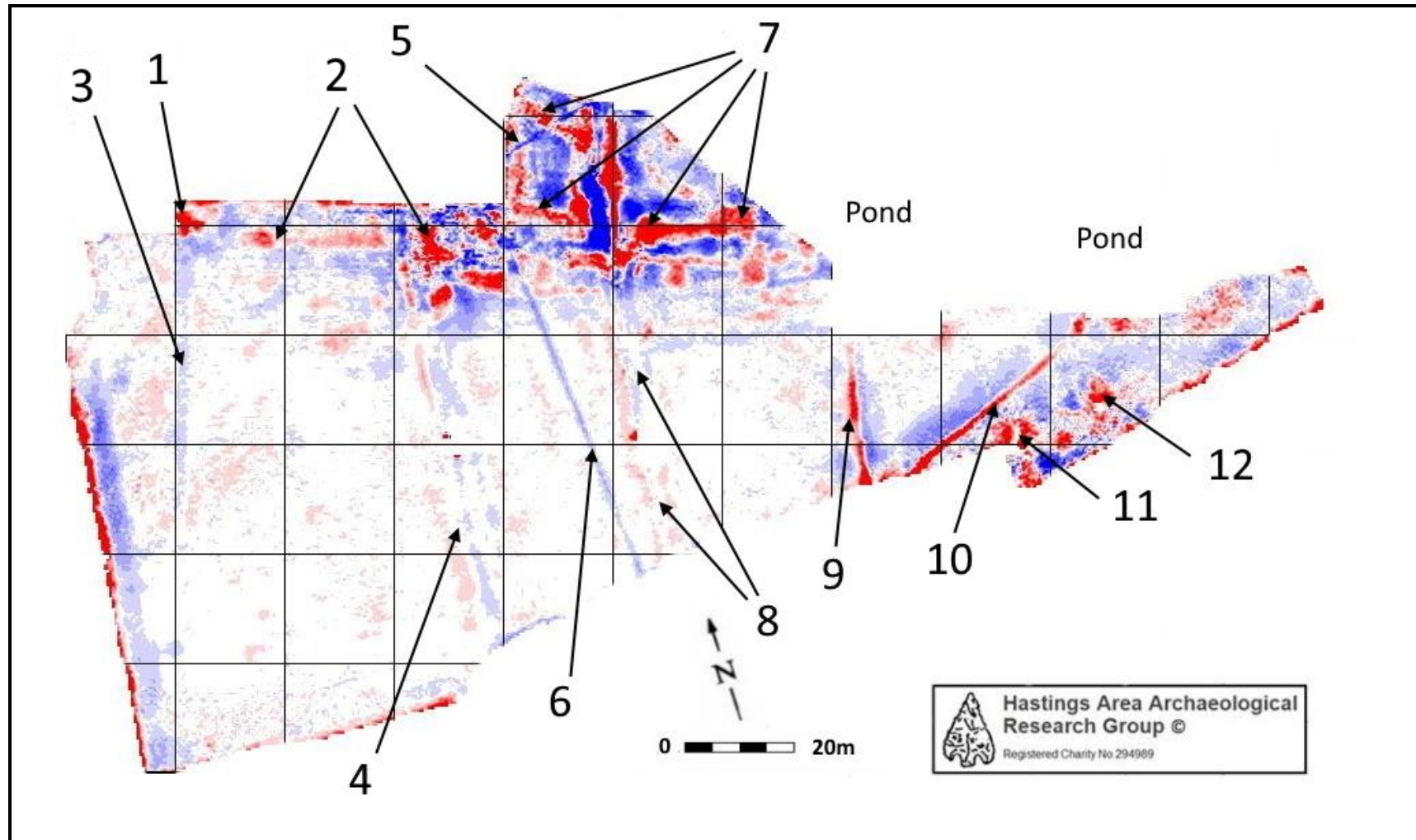


Figure 66 - Resistivity results in red & blue scale for the survey conducted in Field C, Boxley Abbey, Kent. Grid sizes 20m square.

Resistivity results (see Figure 65 & 66):

1. Between the baseline reference point 'A' (see Figure 63) and the south-west corner of Boxley Abbey Hospitium the resistivity survey recorded a series of high resistance readings. This is modern material deposited in the gateway to form a hard standing. It is centred on NGR TQ 75993 58640.
2. A further area of high resistance is indicated in black (see Figure 65) or red (see Figure 66) on the resistivity results. Situated to the rear of the Hospitium this feature runs in an east-west direction and is likely to be either a trackway or debris following repairs to the roof. It is centred on NGR TQ 76020 58623.
3. This feature is a ditch of unknown date. It originates a few metres to the east of reference point 'A' and runs across the field for approximately 60m between NGR TQ 75994 58637 & TQ 75987 – 58578.
4. Identified on LiDAR (see Figure 67) and by OS mapping evidence (see Figure 68) this ditch runs between NGR TQ 76033 58636 – TQ 76036 58555.

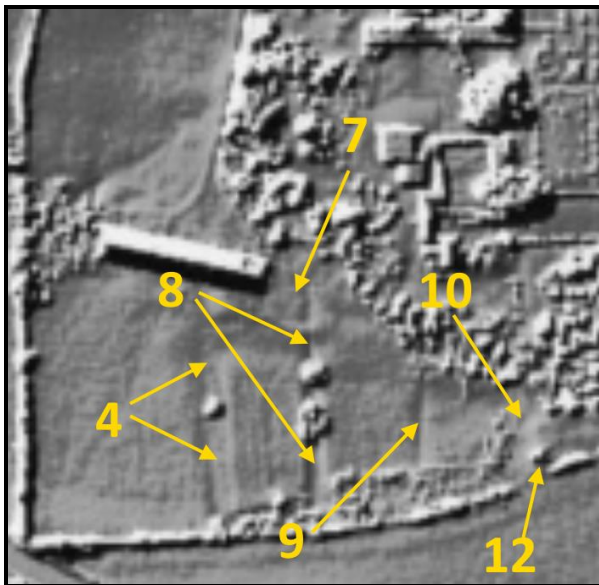


Figure 67 - LiDAR image of the south-west portion of Boxley Abbey inner precinct.

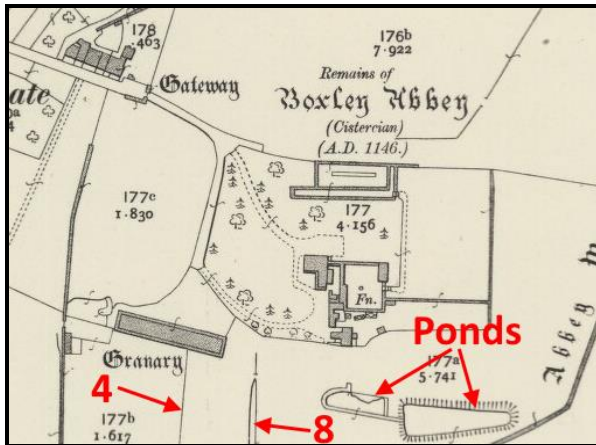


Figure 68 - Extract from the Kent XXXI.15 OS 25 inch England and Wales, Revised: 1907, Published: 1908 (NLS 2021).

5 & 6. Two linear features of low resistance were identified during the resistivity survey (see Figure 65 & 66). These ditches are likely to contain services for the Hospitium and the residential properties at Boxley Abbey. They run between NGR TQ 76047 58644 – TQ 76068 58644 & TQ 76051 58629 – TQ 76065 58565.

7. This feature is the area to the east of the Hospitium measuring 40m x 30m. It contains a large percentage of high resistance readings suggestive of demolished buildings or an area of hardstanding. It is visible on the LiDAR image at Figure 67 and is centred on NGR TQ 76065 58630.

8. A drainage ditch running in a north-south direction between NGR TQ 76073 58639 - 76071 58563. This feature is visible on the LiDAR image (Figure 67), historic maps (Figure 68 & 69).

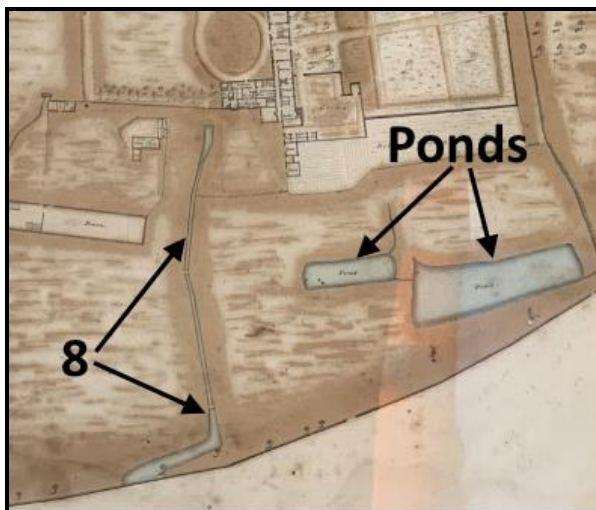


Figure 69 - Extract from John Smith's 1801 survey of the inner precinct, Boxley Abbey, Kent.

9 & 10. These water culverts are clearly visible on the LiDAR image at Figure 67. They are aligned in an approximate north-south direction between the ponds (see Figures 68 & 69) and a small stream running along the inside of the Abbey inner precinct. Feature 9 runs between NGR TQ 76108 58594 - TQ 76113 58566 and feature 10 between TQ 76149 58593 – TQ 76113 58575. Worked stones from feature 10 can be seen on the ground at TQ 76113 58575 (see Figure 70).



Figure 70 – Worked stones at the southern end of the water culvert (feature 10) at NGR TQ 76113 58575.

11. An upturned tree plus the surrounding area produced high resistance readings and no archaeological features could be interpreted on the survey results (see Figure 65 & 66). From the base of the upturned tree Romano-British material was recovered (see Section 5.4.3). The feature is centred on NGR TQ 76139 58569.



Figure 71 – The upturned tree containing Romano-British material and flint within the root bole. NGR TQ 76139 58569.

12. A series of high resistance readings we noted around the base of a tree at NGR TQ 76154 58569. This feature is visible on the LiDAR image at Figure 67.

5.4.2 Magnetometer survey

Introduction

Archaeological features have been identified on Figure 72 with numbers indicated on Figure 73 to be referred to in the text. The use of grey-scale and red & blue-scale images can aid identification and interpretation. The grey-scale (white to black) demonstrates increasing levels in the earth's magnetic field with black being the higher readings. The red and blue-scale indicates low magnetism in blue, increasing levels through white to red being a reading of high magnetism. Each archaeological feature has been interpreted in this report with reference to historical sources, archaeological texts, site comparisons, Google Earth and LiDAR images plus expert opinions. Definitive identification of these features may be obtained from excavation, however some features on the results may be due to the natural geology (Gaffney & Gater 2011).

Magnetometer raw data:

Mean	-1.110731
SD	22.30325
3 SD	66.90974
Minimum	-100 nT
Maximum	100 nT
Dummy Value	2047.5 nT

Processing filters applied:

Despike
Zero Mean Grid
Zero Mean Transverse
Clip Min = -50nT, Max = +50nT
High and Low Pass Filters applied
Interpolate

Palette selection:

Grey-scale (grey 8)	White (lowest) to Black (highest) indicates increasing earth's magnetic readings.
Red and Blue-scale (colour 11)	Blue (lowest), through White (middle) to Red (highest) indicates increasing earth's magnetic readings.

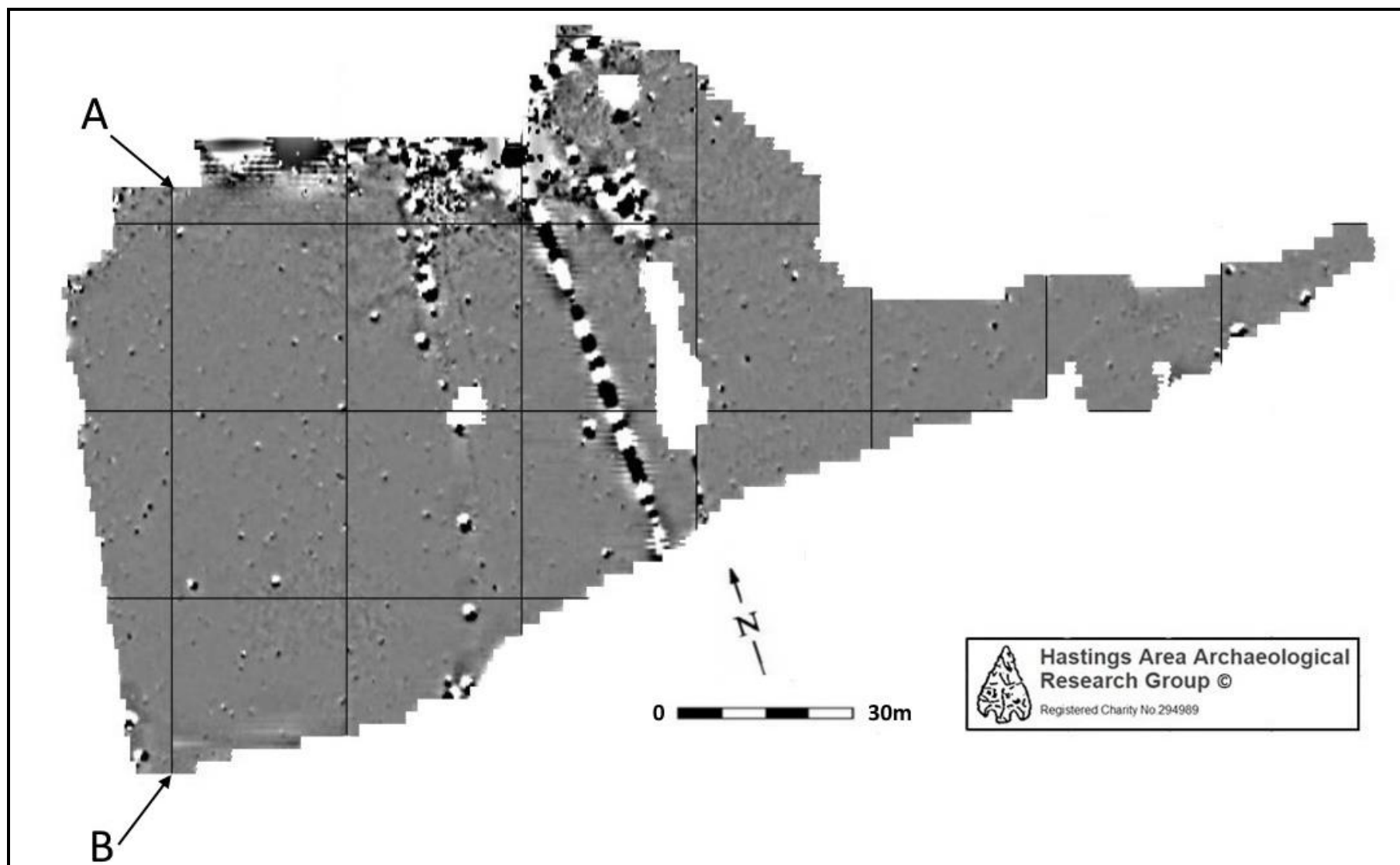


Figure 72 - Magnetometer results in grey-scale for the survey conducted in Field C, Boxley Abbey, Kent. Grid sizes 30m square.

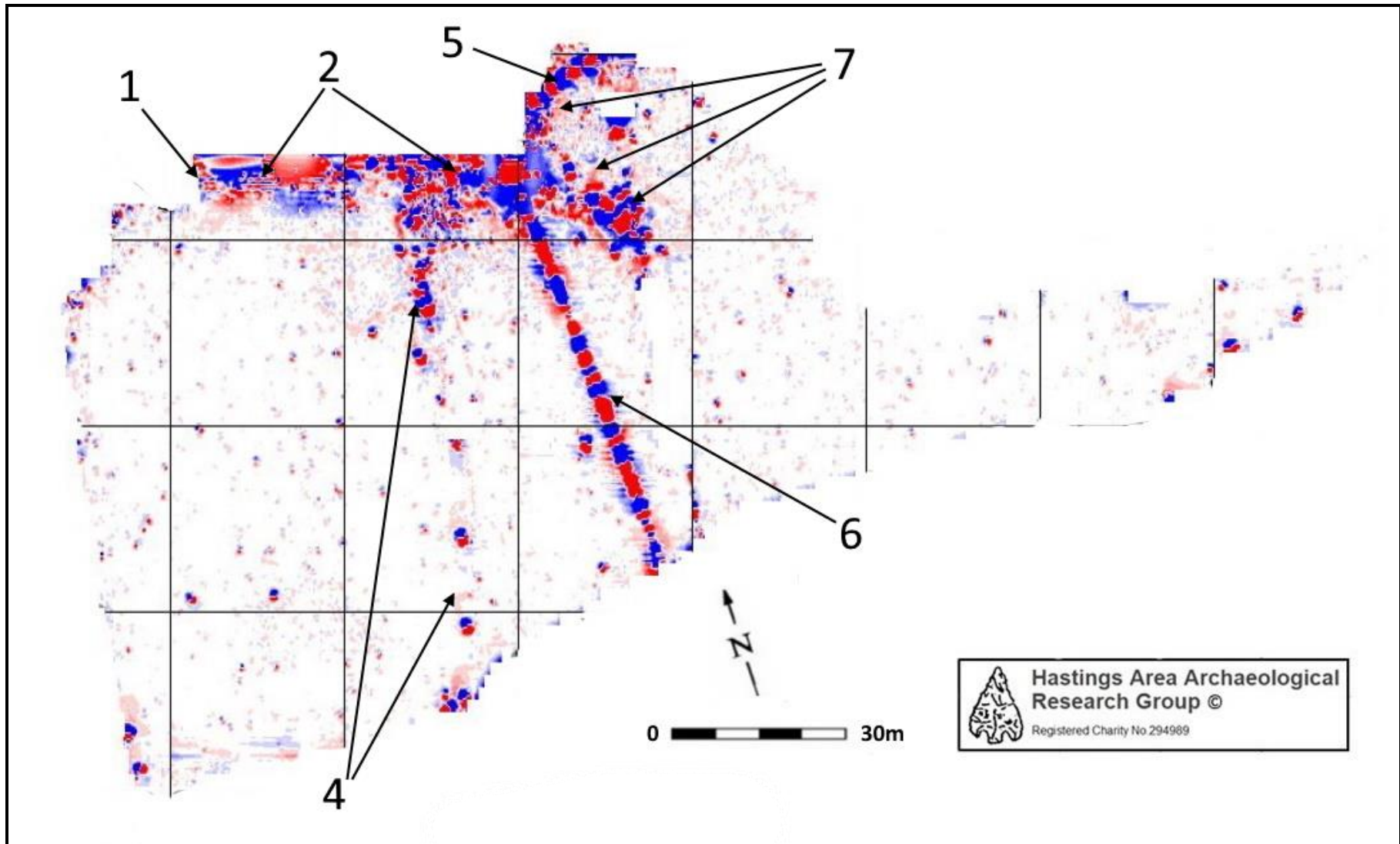


Figure 73 - Magnetometer results in red & blue-scale for the survey conducted in Field C, Boxley Abbey, Kent. Grid sizes 30m square.

Magnetometer results (see Figure 72 & 73):

1 & 2. Highly magnetic material was recorded to the rear of the Hospitium and this coincides with features 1 & 2 on the resistivity survey (see Figure 65 & 66). These have been interpreted as modern material deposited in the gateway to form a hard standing, a trackway and/or debris following repairs to the roof. These features are centred on NGR TQ 75993 58640 and TQ 76020 58623.

3, 8-12. These features on the resistivity survey results have not been identified on the magnetometer survey.

4. The ditch identified on the LiDAR image (see Figure 67) and by OS mapping evidence (see Figure 68) this clearly visible on the magnetometer results at Figure 72 & 73. It runs between NGR TQ 76033 58636 – TQ 76036 58555.

5 & 6. The magnetometer survey has identified two modern pipelines (seen as alternating black-white lines (Figure 72) and alternating red-blue lines (Figure 73) (Gaffney & Gater 2011, 83). Feature 5 runs between NGR TQ 76047 58644 – TQ 76068 58644 and feature 6 between TQ 76051 58629 – TQ 76065 58565.

7. Feature 7 on the resistivity results (see Figure 65 & 66) is only partially visible on the magnetometer results at Figure 72 & 73. It is visible on the LiDAR image at Figure 67 and is centred on NGR TQ 76065 58630.

5.4.3 Surface finds



Figure 74 - Two pieces of Romano-British ceramic building material recovered from the roots of an upturned tree in Field C, Boxley Abbey, Kent. NGR TQ 76139 58569.

The examples at Figure 74 were recovered from the roots of an upturned tree in Field C during the magnetometer survey reported at Section 5.4.2. The irregular fragment on the left measures 82 x 57mm with the flat part 18mm thick and weighs 96g. The example on the right measures 49 x 46mm with the flat part 18mm thick and weighs 44g.

Both tegulae fragments are made of a fabric of fine sandy texture with no visible inclusions. Both examples are coloured brick red/brown with no signature/tally marks or cutaways present.



Figure 75 - A piece of Dressel 20, Amphora recovered from the roots of an upturned tree in Field C, Boxley Abbey, Kent. NGR TQ 76139 58569.

The example of pottery at Figure 75 was recovered from the roots of an upturned tree in Field C with the Romano-British ceramic building material at Figure 74. The irregular fragment measures 76 x 62mm with the flat part 16mm thick and weighs 76g. The example was referred to pottery expert Dr. Malcolm Lyne and he described the sherd as a 'late Dressel 20, Amphora body sherd dated between 170 - 250 AD. The example contains a large fragment of stone (possibly iron stone) and would have originated from southern Spain'.

6.0 Comments

This report is submitted in accordance with the Ancient Monuments and Archaeological Areas Act 1979 (as amended) section 42 licence (Scheduled Monument No. 1012264 - HE Case No. SL00234002 & SL00234107) as requested by Historic England. It replaces the interim report submitted in March 2021 under Case No. SL00234002 (Cornwell & Cornwell).

The fieldwork was undertaken in two stages. Firstly, between 13th July – 21st October 2020 and subsequently between 4th May – 29th July 2021. Due to the Coronavirus (Covid-19) pandemic and a series of national lockdowns plus bad weather and group commitments the project took longer than originally planned (see Table 1 & 2 on page 88).

A few of the features identified during the geophysical surveys may be interpreted as the Abbot's house, Abbot's guest hall, infirmary and additional buildings associated with the west range. In the field to the west (Field B) a large circular feature with a 24m diameter was identified plus an earlier alignment of the inner precinct wall. The magnetometer survey revealed the location of 10+ furnaces or lime kilns in the field to the north (Field A) of the Abbey and a lime kiln in the field to the west (Field B). Numerous buildings, a large walled enclosure and culverts were also identified across the site.

Surface finds including Romano-British ceramic building material (tegulae) and pottery (Dressel 20, amphora) plus medieval glass was recovered.

Further archaeological investigations of the site, with Historic England's approval would be beneficial to our understanding of this complex series of geophysical anomalies.

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9.0 Report Distribution

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Archaeology Data Service via their online OASIS Data Collection form.

Debbie Goacher, Kent Archaeological Society.

Richard Axe, Stephen Clifton, Steve & Eva Corbett, Nicholas Hill & Bob Washington.

HAARG Archive.

Appendix 1

Table 1 – Table of the resistivity surveys, codes, location, area covered, no. of readings, distance covered and survey date(s).

Survey Area	Survey Code	National Grid Reference	Area Surveyed (Hectares)	Resistivity Readings	Distance Covered (kms)	Survey Date(s)
Boxley Garden	BOXABBR	A – TQ 76104 58718 B – TQ 76105 58685	0.9394	37,576	18.788	1, 4, 8, 15, 28, 29 Sep, 6, 14 & 21 Oct 20
Field A	BOXABB1R	A – TQ 76100 58868 B – TQ 76070 58737	2.8605	114,420	57.210	4, 6, 11, 18, 20, 25, 27 May, 1, 3, 8, 15, 19, 29 Jun & 28 Jul 21
Field B	BOXABB2R	A – TQ 76006 58769 B – TQ 75970 58668	0.6303	25,212	12.606	14, 15, 20, 22, 27 & 29 Jul 20
Field C	BOXABB3R	A – TQ 75992 58637 B – TQ 75974 58542	1.3487	53,947	26.973	22 Jun, 6, 10, 13, 21, 28 & 29 Jul 21
Totals			5.7789	231,155	115.577	35 Days

Table 2 – Table of the magnetometer surveys, codes, location, area covered, no. of readings, distance covered and survey date(s).

Survey Area	Survey Code	National Grid Reference	Area Surveyed (Hectares)	Magnetometer Readings	Distance Covered (kms)	Survey Date(s)
Boxley Garden	A magnetometer survey within the garden area was not conducted as it was considered unsuitable for this survey method. This compacted area contained numerous trees, shrubs, flower beds, metal artefacts etc.					
Field A	BOXABB1M	A – TQ 76100 58868 B – TQ 76070 58737	2.6336	421,376	26,336	18 Sep, 9 & 15 Oct 20
Field B	BOXABB2M	A – TQ 76006 58769 B – TQ 75970 58668	0.5871	93,942	5.871	13 Jul 20
Field C	BOXABB3M	A – TQ 75992 58637 B – TQ 75974 58542	1.1962	192,396	12.025	16 & 21 Jul 21
Totals			4.4169	707,714	44.232	6 Days