

ARCHAEOLOGICAL
SERVICES
DURHAM UNIVERSITY

on behalf of
Rev Dr Helen Savage
Blanchland Parish Council

Blanchland Abbey Church
Blanchland
Northumberland

geophysical survey

report 5237
February 2020

Contents

1.	Summary	1
2.	Project background	2
3.	Historical and archaeological background	3
4.	Landuse, topography and geology	5
5.	Geophysical survey	6
6.	Conclusions	12
7.	Sources	12
Appendix: HE Geophysical Survey Database Questionnaire		14

Figures

Figure 1:	Site location
Figure 2:	Geophysical survey areas
Figure 3:	GPR depth-slices approximately 0.25m
Figure 4:	GPR depth-slices approximately 0.5m
Figure 5:	GPR depth-slices approximately 1m
Figure 6:	GPR profiles, Area 13
Figure 7:	Resistance survey and geophysical interpretation
Figure 8:	Archaeological interpretation

1. Summary

The project

- 1.1 This report presents the results of geophysical surveys conducted at Blanchland Abbey Church, Northumberland. The works comprised ground-penetrating radar (GPR) and earth electrical resistance surveys.
- 1.2 The works were commissioned by Rev Dr Helen Savage on behalf of Blanchland Parish Council and conducted by Archaeological Services Durham University.

Results

- 1.3 Several features of probable archaeological origin have been identified, including probable wall footings or foundations relating to earlier buildings, both in the church interior and in the churchyard.
- 1.4 A small rectilinear feature to the east of the tower could represent the remains of the northern part of the former chantry chapel.
- 1.5 Two parallel features in the church interior, crossing the north transept in line with the choir and the tower, probably represent foundations associated with the earlier church.
- 1.6 Parallel features identified outside the western side of the tower probably represent the remains of the former school building or chapel.
- 1.7 Possible evidence of putative acoustic pits has been identified in the choir.
- 1.8 Several possible unmarked graves have been identified in the churchyard.
- 1.9 Possible services and landscaping works have been identified.

2. Project background

Location (Figure 1)

- 2.1 The study area was both within and outside the Abbey Church of God and St Mary the Virgin, Blanchland, Northumberland (NGR centre: NZ 9662 5041). Surrounding the church to the north, south and west was housing, while further north was Blanchland Moor. Beyond the housing to the south was the River Derwent, flowing from Baybridge in the west and continuing on to the Derwent Reservoir in the east.
- 2.2 Twelve ground-penetrating radar (GPR) surveys and one electrical resistance survey were conducted: eight GPR surveys were undertaken within the church, covering as much of the interior floor space as possible; surveys outside the church covered two small areas outside the two doors at the north end of the church and narrow strips along the north wall, the road verge along the north churchyard wall, and a path in the rear churchyard. A small part of the survey outside the church's west entrance was within a Scheduled Ancient Monument (SAM, List Entry no. 1017683).

Development proposal

- 2.3 Possible future development proposals might include the construction of a kitchen and toilet facilities, installation of a ground source heat pump and associated infrastructure, underfloor heating and possible path-widening.

Objective

- 2.4 The aim of the surveys was to assess the nature and extent of any sub-surface features of potential archaeological significance within the survey areas. In this instance it was anticipated that sub-surface features of interest might include graves, acoustic features and structural remains. The results would contribute to ongoing research and inform management and conservation issues, particularly with regard to any future proposed development.
- 2.5 The regional research framework *Shared Visions: The North-East Regional Research Framework for the Historic Environment* (Petts & Gerrard 2006) contains an agenda for archaeological research in the region, which is incorporated into regional planning policy implementation. In this instance, the scheme of works was designed to address the following research priorities: High and Late Medieval periods: MDv. Churches and religion, and MDvi. Death and burial.

Methods statement

- 2.6 The surveys have been undertaken in accordance with instructions from the client and national standards and guidance (see para. 5.1 below).
- 2.7 Since part of the study area lay within the scheduled monument the surveys were undertaken in accordance with a licence granted by Historic England under Section 42 of the Ancient Monuments and Areas Act 1979 (as amended by the National Heritage Act 1983). A Historic England Geophysical Survey Database Questionnaire is included as an Appendix to this report.

Dates

- 2.8 Fieldwork was undertaken on 9th-11th December 2019. This report was prepared for February 2020.

Personnel

- 2.9 Fieldwork was conducted by Richie Villis (supervisor) and Mark Woolston-Houshold. The geophysical data were processed by Richie Villis. This report was prepared by Richie Villis, Duncan Hale and Mark Woolston-Houshold. The illustrations were prepared by Dr Helen Drinkall and David Graham. The project manager was Duncan Hale.

Archive/OASIS

- 2.10 The site code is **BAC19**, for **Blanchland Abbey Church 2019**. The survey archive will be retained at Archaeological Services Durham University and a copy supplied on CD to the client for deposition with the project archive in due course. Archaeological Services Durham University is registered with the **Online Access to the Index of archaeological investigations project (OASIS)**. The OASIS ID number for this project is **archaeol3-383968**.

Acknowledgements

- 2.11 Archaeological Services Durham University is grateful for the assistance of Dr Helen Savage and Dr Andrew Newton in facilitating this scheme of works.

3. Historical and archaeological background

- 3.1 The following summary information is taken from a draft version of a Conservation Management Plan for the Abbey Church, which is being prepared by Dr Robert Young (Young forthcoming) for the Blanchland Community Development Organisation/Parish Council's *Blanchland Abbey 'Resilient Heritage' Project*. Readers are directed to Young's report for a detailed historical background and comprehensive bibliography.
- 3.2 The Abbey Church sits at the heart of the Blanchland Conservation Area, designated in October 1972 by the then Tynedale District Council. The church is of a highly unusual form. Its L-shaped plan is the result of its formation in the mid-18th century from the ruins of the north transept (with the tower at its north end) and the eastern arm of the medieval Premonstratensian Abbey Church. The fabric is a mixture of medieval, mid-18th century and late 19th-century restoration (when the eastern aisle of the transept was reinstated).
- 3.3 There is some debate over whether an earlier ecclesiastical establishment existed at Blanchland before the founding of the abbey; Ryder has pointed to a fragment of a Romanesque capital amongst the stones preserved in the garden of the Lord Crewe Arms, which is stylistically earlier than any carved stone visible in the current church (Ryder 2017).
- 3.4 The abbey was founded in 1165 by Walter de Bolbec and dedicated to God and to St Mary the Virgin by a charter which made provision for the maintenance of 12 canons of the Praemonstatensian order. The canons came from Croxton Abbey in Leicestershire and were initially granted a considerable block of land, together with the churches of Harle and Bywell St Andrew's, the chapels of Styford, Shotley and Appletree, and other grants and concessions. Over the coming decades the abbey grew in wealth, being enriched by further grants, some from the powerful Neville family, and in 1215 King John confirmed all the landed and other bequests bestowed upon the abbey to date. The continuing importance of Blanchland is evident when in

1295 Edward I summoned the Abbot of Blanchland to attend parliament as one of the few invited ecclesiastical members (Wade 1967).

- 3.5 However, in July 1327 a large Scottish army crossed the South Tyne and ravaged the western part of the Bishopric of Durham, burning the abbey at Blanchland. In response to this, King Edward III, who was at Durham, marched to Haydon Bridge, hoping to cut off the Scottish retreat. On the night of July 31st Edward stayed in the Abbey, preparing to do battle with the Scottish army camped at Stanhope in Weardale, an aim in which he was frustrated by the flooded River Wear, which divided the two armies when they eventually located each other. The depredations of the Scots and the necessity of hosting a visit by the English king and his army, followed a few years later by the Black Death, reduced the abbey to an impoverished state, and various requests for assistance are recorded. Although some recompense was awarded in October 1331, the abbey remained poor from this point onward. Evidence from late 15th-century visitations shows that the number of resident canons had fallen to eight and that the abbey buildings, especially the chapter house, were in poor condition (Ryder 2017).
- 3.6 Blanchland was dissolved under a statute passed in 1536, in the reign of Henry VIII. The house was re-founded the following year, however, and the king granted that William Spragen be reinstated as abbot and chief governor. Blanchland was dissolved for a second time in December 1539.
- 3.7 Six years later, in 1545, Blanchland was among properties granted to John Bellow and John Bloxham, and from this point onward the site becomes entangled with the fortunes of some of the north-east's strongest, and for a time, richest families, including the Forsters of Bamburgh. When Sir Claudius Forster died in 1623 Blanchland passed into the hands of his widow, Dame Elizabeth Forster. At this time, it seems that the church had fallen into dis-use and much of its stone may well have been used for building works in the village. A chapel, built against the west wall of the tower, may have continued in use, however, and the old Abbott's House became the Manor House. Other abbey buildings were also probably adapted as dwellings for the villagers at this time (CACA 2008). In the Blanchland Hearth Tax Roll in 1665, Elizabeth Forster was taxed on no less than 10 chimneys and at her death, also in 1665, an inventory of her possessions in Blanchland lists several apartments including her own 'chamber', 'the Tower Chamber', 'the Cloister Chambers and Parlers' and 'the Kitchen' (Hodgson 1902). Clearly this was a substantial property and it probably included the west and south ranges of the old claustral buildings in addition to the Abbott's House.
- 3.8 In 1709, Nathaniel, Lord Crewe, Bishop of Durham, purchased the Forster family estates, including Blanchland and Bamburgh. However, having no heir, he set up the Lord Crewe Trust to which all of his holdings and estates (including Blanchland and Bamburgh) were left upon his death in 1721. The Blanchland Estate still remains with the Lord Crewe Trust to the present day (though Bamburgh Castle was sold to Lord Armstrong in 1894).
- 3.9 When John Wesley preached at Blanchland in 1747, the church was in a ruinous state, so much so that five years later in 1752 the Lord Crewe Trustees built a house for the new vicar, re-constructed the choir of the Abbey Church so that it could

function as the parish church, and re-built and converted many of the abbatial outbuildings into houses.

- 3.10 Between 1813-1818, Lord Crewe's Trustees spent almost £3,500 on repairs and improvements to the church and the village, including in 1815 a new roof and paved floor for the church (Hodgson 1902). As Ryder points out, while the general remodelling of Blanchland village is often placed in the later 18th century, it could equally well have taken place at this time (Ryder 2017).
- 3.11 Prior to 1828 a school house stood in the churchyard, joined to the north-west corner of the tower. By 1828 the school house had been re-established inside the church. Further 19th-century works are recorded by Featherstonehaugh in 1893 and Johnson in 1894. Johnson notes that in 1854 a baptistery, containing the ancient font, was built on the foundation of the chantry chapel, on the east of the transept, and that the east end of the church was rebuilt in 1884; a new ceiling was placed over the chancel and nave at the same time (Johnson 1894). Featherstonehaugh notes a 'marvellous system of drains devised by the canons' which was probably revealed during 1881 works. Ryder suggests that these could represent the remains of acoustic pits excavated beneath the choir stalls to amplify the buildings acoustics, as is known at Whalley Abbey in Lancashire (Ryder 2012).
- 3.12 Recent archaeological work on the church, the priory and the village in general, has predominantly been carried out by Peter Ryder and The Archaeological Practice (for example, see Ryder 2017; The Archaeological Practice 2014).

4. Landuse, topography and geology

- 4.1 At the time of fieldwork, the survey area comprised the church interior, part of the northern churchyard and a grass verge along the roadside to the north of the churchyard. The church interior was divided into open areas in the north, with mostly moveable furniture, and an area with fixed wooded pews in the south, with a font at the west end and altar at the east. There was an aisle along the central part of the present nave (originally the choir). The floor comprised stone flags laid in 1815, overlain with carpet in the aisle and by a low wooden platform north of the font. Many of the internal spaces were separated by one or two steps.
- 4.2 The surfaces in the external survey areas were variously stone flags, gravel and grass. Some trees, shrubs and gravestones about the churchyard grounds restricted survey of that area.
- 4.3 All the survey areas were predominantly level, with a mean elevation of approximately 240m OD.
- 4.4 The underlying solid geology of the area comprises strata of the Stainmore Formation (mudstone, sandstone and limestone), which are overlain by superficial alluvial deposits of clay, silt, sand and gravel.

5. Geophysical survey Standards

- 5.1 The surveys and reporting were conducted in accordance with Historic England guidelines, *Geophysical survey in archaeological field evaluation* (David, Linford & Linford 2008); the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for archaeological geophysical survey* (2014); the CIfA Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); the Archaeology Data Service & Digital Antiquity *Geophysical Data in Archaeology: A Guide to Good Practice* (Schmidt 2013); and the European GPR Association *Code of Practice* (www.eurogpr.org).

Technique selection

- 5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.
- 5.3 In this instance it was considered likely that features such as graves and wall footings might be present on the site, and that other types of feature such as trackways and possibly acoustic features might also be present.
- 5.4 Given the likely nature and depth of targets, and the physical environment of the surveys, ground-penetrating radar (GPR) was considered the most appropriate technique for this research. An earth electrical resistance technique was also appropriate for the small area outside the main, west, entrance.
- 5.5 GPR generates a short high-frequency radar pulse which is transmitted into the ground via an antenna; the energy is reflected by buried interfaces and the return signal is received by a second antenna. The amplitude of the return signal relates to the electromagnetic responses of different sub-surface materials and conditions, which can be features of archaeological or historic interest. The time which elapses between the transmission and return of radar pulses to the surface can be used to estimate the depth of reflectors. As well as conducting traditional 2D area surveys, GPR also has a depth component and so can be used to create pseudo 3D models of the data, provided sufficient data are collected at closely-spaced intervals; the data can then be viewed at different levels within the model, known as time-slices, or as depth-slices after time-depth conversion.
- 5.6 Earth electrical resistance survey can be particularly useful for mapping stone features. When a small electrical current is injected through the earth it encounters resistance which can be measured. Since resistance is linked to moisture content and porosity, stone features will give relatively high resistance values while soil-filled features, which typically retain more moisture, will provide relatively low resistance values.

Field methods

- 5.7 The GPR surveys were conducted using a Malå GeoScience RAMAC X3M radar control unit, mounted directly onto a 500MHz frequency shielded antenna. The antenna and control unit were mounted on a tow-plate with an odometer wheel to trigger the GPR pulses, and attached to a RAMAC XV11 monitor and power supply carried by the operator. All GPR data were collected using a 500MHz frequency antenna.
- 5.8 Returned energy wavelets were recorded from many depths in the ground to produce a series of reflections at each point location, called a reflection trace. Series of traces collected along each traverse produce a radar profile or radargram. For Areas 1-12, data traces were logged at 0.05m intervals along parallel traverses spaced 0.25m apart. Areas 9 and 10 covered the same space in perpendicular traverses to maximise data coverage. Area 13 consisted of independently collected profiles collected along the line of each row of pews in the former choir; these were too widely spaced to be viably stacked into a 3D data cube.
- 5.9 The start and end points of the traverses were recorded using a Leica TS15i total station survey instrument related to the Ordnance Survey (OS) National Grid, using a complementary Leica GS15 global navigation satellite system (GNSS) with real-time kinematic (RTK) corrections, typically providing 5-10mm accuracy. The survey points and stations were then tied-in to existing features, typically the church walls.
- 5.10 GPR data were initially stored and inspected on-site using the Malå Ramac XV11 system, backed up on removable media and subsequently transferred to a desktop computer for processing, interpretation and archiving.
- 5.11 For the resistance survey, a small grid was established outside the west door and related to the OS as above (para. 5.9).
- 5.12 Measurements of earth electrical resistance were determined using a Geoscan RM15D Advanced resistance meters with an MPX15 multiplexer and a mobile twin probe separation of 0.5m. The instrument sensitivity was 0.1ohm, the sample interval was 0.25m and the traverse interval was 0.5m; this is considered to be a high-resolution resistance survey, with a greater chance of detecting small features such as graves.
- 5.13 Electrical resistance data were downloaded on site into a laptop computer for initial processing and storage, backed up on removable media and subsequently transferred to a desktop computer for processing, interpretation and archiving.

Data processing

- 5.14 The data were processed and analysed using ReflexW and Geoplot 4 software.
- 5.15 ReflexW v7.5 software was used to process the GPR 2D radargrams, to stack and interpolate the radargrams to produce a 3D data cube for Areas 1-12, and to produce greyscale images of profiles and time-slices.
- 5.16 Combinations of the following processing functions have been applied to the 2D radargrams:

<i>dewow</i>	removes very low frequency components by subtracting the mean from each trace
<i>static correction</i>	moves the start times for traces in each profile to OnS
<i>gaining the data</i>	compensates for amplitude loss as the radio pulse penetrates deeper and/or amplifies the area of interest by adding a determined value
<i>bandpass filter</i>	removes low-amplitude frequencies
<i>background removal</i>	reduces data ringing

5.17 GPR profiles and time-slices have been examined; representative profiles, time-slices and interpretations are presented in Figures 3-6. In this instance, the time-depth conversion is based on a soil velocities of between 0.05 – 0.1m/ns; the velocity is only an estimate based on a hyperbola fitting technique and therefore any depths below ground level (BGL) mentioned in the text below are only approximate.

5.18 Geoplot v4 software was used to process the resistance data and to produce a continuous tone greyscale image of the raw (minimally processed) data. The greyscale image and geophysical interpretation is presented in Figure 7. In the greyscale image, high resistance anomalies are displayed as dark grey and low resistance anomalies as light grey. A palette bar relates the greyscale intensities to anomaly values in ohm.

5.19 The following basic processing functions have been applied to the resistance data:

<i>clip</i>	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
<i>de-spike</i>	locates and suppresses spikes in data due to poor contact resistance
<i>interpolate</i>	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

Interpretation: anomaly types

5.20 A colour-coded geophysical interpretation plan is provided.

5.21 Two types of resistance anomaly have been distinguished in the data:

<i>high resistance</i>	regions of anomalously high resistance, which may reflect foundations, tracks, paths and other concentrations of stone or brick rubble
<i>low resistance</i>	regions of anomalously low resistance, which may be associated with soil-filled features such as pits and ditches

Interpretation: features

General comments

- 5.22 A colour-coded archaeological interpretation plan is provided (Figure 8), which can be used in conjunction with the depth-slice images and profiles (Figures 3-6), and the relevant digital video file for each area supplied with this report.
- 5.23 Across every area small, high frequency point reflections have been detected in the GPR data. Typically these reflect small stones, tree roots and other natural components in the soil and are not considered to be of archaeological significance.

Area 1

- 5.24 The clearest reflections recorded in the GPR data for this area occur in the very surface to approximately 0.3m BGL. These correspond to the path through the churchyard and the small area of gravel outside the eastern door of the tower. The eastern and northern edges of the gravel area are particularly well defined. The clear reflections detected here could represent the remains of wall footings associated with the former chantry chapel. The baptistery, to the immediate south of the area, was built in 1854 on the foundations of the former chantry chapel, which may have extended northwards alongside the south-eastern side of the tower.
- 5.25 The western arm of the survey area, to the immediate north of the church tower, is characterised by relatively high concentrations of high amplitude reflections in the GPR data. This could indicate a mixed composition of the ground here, and is consistent with the sloping, presumably landscaped, ground up to the road to the north.
- 5.26 Several discrete high amplitude reflections have been detected across this area. None of these are particularly characteristic of archaeological features or graves, but the absence of such features cannot be guaranteed. A selection of anomalous reflections, most clearly visible in the depth-slices around approximately 0.5m BGL, which could indicate possible grave location have been identified on the archaeological interpretation plan.
- 5.27 A relatively well-defined, straight and narrow, high amplitude reflection has been identified at depths of between 0.5m to 1m BGL, aligned approximately north-west/south-east. This probably reflects a service.

Area 2

- 5.28 A semi-circular region of high amplitude GPOR reflections has been identified in the east of this area, at depths of between 0-0.5m BGL, just to the south of the outbuilding. This almost certainly represents landscaping or other disturbance associated with the structure.
- 5.29 As in Area 1 there are no clear and obvious anomalies that could represent graves or other archaeological features, but at least two GPR reflections could represent possible graves, based purely on size (c. 1.5m x 0.5m) and orientation (approximately east/west). These have been indicated on the archaeological interpretation plan.

Area 3

- 5.30 No features of archaeological significance have been identified in this area. Linear high amplitude reflections have been detected at depths of approximately 0.5m, which could possibly indicate the presence of a buried service. This would be aligned almost parallel with the traverse direction, which can hinder interpretation, particularly if the putative service is relatively narrow (less than 0.5m wide).

Area 4

- 5.31 Two parallel, high resistance anomalies have been detected in this area, broadly aligned east/west from the church's main entrance. These types of anomaly often reflect features such as wall footings and could represent the remains of walls or foundations associated with the former chapel or school room. High amplitude anomalies have been detected in the GPR data in this area which broadly correspond to these features, with reflections at depths from the very near surface to approximately 0.5m BGL. This would be consistent with stone wall footings.
- 5.32 Several discrete high amplitude reflection anomalies have been returned by the GPR in this area, at depths of approximately 0.5 – 1m BGL. Many of these are apparently oriented east/west and measure approximately 1.5m x 0.5m. These types of anomalies can often be associated with graves, and that may well be the case here. Some of these, particularly in the centre of the area, also correspond to areas of anomalously low electrical resistance, which could be an indication of back-filled soil such as might be associated with a possible grave-cut.

Area 5

- 5.32 The clearest and most easily defined anomalies present in this area are two parallel lines of high amplitude anomalies visible most clearly at depths of approximately 1m. Between 1m and 2m wide these anomalies probably reflect significant structural foundations, and may represent the remains of an earlier layout of the nave/choir and north-transept, possibly prior to the addition of the tower.
- 5.33 At depths of between 0.25 – 0.5m the clearest anomalies visible in the data appear to represent the moved grave stones on the eastern side of the transept. Several other high amplitude anomalies are also present across this area, the vast majority of which probably reflect areas of rubble or other material used to level the area prior to laying the 19th century flagstones. The majority of high amplitude reflections have been detected in close proximity to the existing church walls and almost certainly reflect foundations and rubble associated with the church walls.
- 5.34 A broadly north/south aligned anomaly has been detected across the centre of the area, particularly visible in data at depths of approximately 0.5m, from the doorstep in the north-west corner to the dais in the south-west. This almost certainly reflects the line of a cast iron service pipe, which can be seen cutting the door-step to the north-west.

Area 6

- 5.35 High amplitude reflections detected at approximately 0.5m+ BGL could represent foundations associated with the current church walls.

Area 7

- 5.36 The vast majority of reflections detected in this area almost certainly represent rubble and other materials used for levelling and in-filling ground prior to the laying of the flagstones.

Area 8

- 5.37 Whilst the majority of anomalies detected in this probably correspond to rubble and other ground levelling materials, there is a possibility that reflections detected between approximately 0.25m – 0.5m BGL in the north and south, which would be either side of the old choir's central aisle, could possibly reflect former graves. These anomalies are very small, due to the size of the survey area. Whilst these would also be roughly in the correct location for the putative acoustic pits mentioned by Ryder, the nature of the anomalies is not consistent with what would be the expected reflection of a feature similar to those found at Whalley Abbey in Lancashire.

Areas 9, 10 and 11

- 5.38 GPR reflections detected here almost certainly represent mixed materials associated with the construction of the altar steps. Strong reflections detected at the edges of Areas 9 and 10 represent the change from stone to wooden boards in the current choir stalls.

Area 12

- 5.39 The vast majority of the anomalies detected in this area are almost certainly related to demolition and construction material associated with the building of the baptistery on the foundations of the former chantry chapel. Whilst there are many reflections across the area, none of them appear to form coherent structural remains. Very few of these reflections have the characteristics expected of archaeological features. Despite this, a broadly circular anomaly is visible at depths of approximately 0.25m BGL in the north-west of the area, with a diameter of approximately 1m. This broadly corresponds to the former location of the ancient font.
- 5.40 High amplitude GPR reflections detected at depths of approximately 1m+ BGL in the south-eastern corner of the area could represent the remains of features associated with the former chantry chapel, such as old foundation remains.

Area 13 (profiles between the pews across the choir)

- 5.41 The clearest features on these profiles correspond to the change in signal attenuation between the wooden boards on which the pews sit and the carpeted aisle in the centre.
- 5.42 GPR reflections recorded across several profiles in this area may indicate a possible feature, consistent with the putative acoustic pit, along the southern side of the choir, approximately 1m north of the southern choir wall. This feature would appear to measure somewhere between 0.5m to 1m wide. There is also some evidence of a similar feature on the northern side of the choir, as would be expected from the evidence at Whalley Abbey (above, para. 3.11). These possible features have been indicated on profiles 13.1-13.10 (Figure 6) and the expected line has also been indicated on the archaeological interpretation plan. It should be noted that the evidence of these possible pits has not been detected in all of the profiles, nor has it

been identified in the GPR data for Areas 5, 6 or 8. It is probable that these possible features survive in varying states of repair after so much later work in the church.

6. Conclusions

- 6.1 A programme of GPR and earth electrical resistance survey was undertaken at Blanchland Abbey Church, Northumberland prior to proposed infrastructure improvements.
- 6.2 Several features of probable archaeological origin have been identified, including probable wall footings or foundations relating to earlier buildings both in the church interior and in the churchyard.
- 6.3 A small rectilinear feature to the east of the tower could represent the remains of the northern part of the former chantry chapel.
- 6.4 Two parallel features in the church interior, crossing the north transept in line with the choir and the tower, probably represent foundations associated with the earlier church.
- 6.5 Parallel features identified outside the western side of the tower probably represent the remains of the former school building or chapel.
- 6.6 Possible evidence of putative acoustic pits has been identified in the choir.
- 6.7 Several possible unmarked graves have been identified in the churchyard.
- 6.8 Possible services and landscaping works have been identified.

7. Sources

- CACA 2008 *Blanchland: Conservation Area Character Appraisal*. Consultation Draft, Dec. 2008. Tynedale Council and North Pennines AONB Partnership
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Community Development Organisation /Parish Church Council

Appendix: Geophysical Survey Database Questionnaire



Historic England

English Heritage Geophysical Survey Database Questionnaire

Survey Details

Name of Site: BLANCHLAND PREMONSTRATENSIAN ABBEY

County: NORTHUMBERLAND

NGR Grid Reference: NGR north: NZ 9662 5041

Start Date: 9 DECEMBER 2019 **End Date:** 31 JANUARY 2020

Geology at site (Drift and Solid):

Stainmore Formation (mudstone, sandstone and limestone), overlain by alluvium of clay, silt, sand and gravel.

Known archaeological Sites/Monuments covered by the survey

Scheduled Monument: 'Blanchland Premonstratensian Abbey' (HE List Entry no. 1017683)

Listed Building Grade I: 'Church of St Mary' (Abbey Church of God and St Mary the Virgin) (HE List Entry no. 1304226)

Archaeological Sites/Monument types detected by survey

Possible walls/foundations of the older church and associated buildings

Possible graves

Possible 'acoustic-pits'

Surveyor (Organisation, if applicable, otherwise individual responsible for the survey):

ARCHAEOLOGICAL SERVICES DURHAM UNIVERSITY

Name of Client, if any:

Rev Dr H Savage, Blanchland Parish Council

Purpose of Survey: RESEARCH

Location of:

a) Primary archive, i.e. raw data, electronic archive etc:

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b) Full Report:

NORTHUMBERLAND HER

HISTORIC ENGLAND (NORTH EAST OFFICE, NEWCASTLE)

HISTORIC ENGLAND (GEOPHYSICS SECTION, PORTSMOUTH)

OASIS ref: **archaeo13-383968**

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Technical Details

Type of Survey (Use term from attached list or specify other):
GROUND-PENETRATING RADAR

Area Surveyed, if applicable (In hectares to one decimal place): 0.05ha

Traverse Separation, if regular: 0.25m **Reading/Sample Interval:** 0.05m

Type, Make and model of Instrumentation:
Malå GeoScience RAMAC X3M

Land use at the time of the survey (Use term/terms from the attached list or specify other):
Stone-flagged floors and grass/paths in churchyard

Type of Survey (Use term from attached list or specify other):
RESISTANCE

Area Surveyed, if applicable (In hectares to one decimal place): 36sqm

Traverse Separation, if regular: 0.5m **Reading/Sample Interval:** 0.25m

Type, Make and model of Instrumentation:
GEOSCAN RM15 & MPX15

Probe configuration: TWIN

Probe Spacing: 0.5m

Land use at the time of the survey (Use term/terms from the attached list or specify other):
Grass in churchyard

Figure 1: Site location



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 site location

0 1km
scale 1:25 000 for A4 plot

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


on behalf of
Rev Dr Helen Savage
Blanchland Parish Council

Blanchland Abbey Church
Blanchland
Northumberland

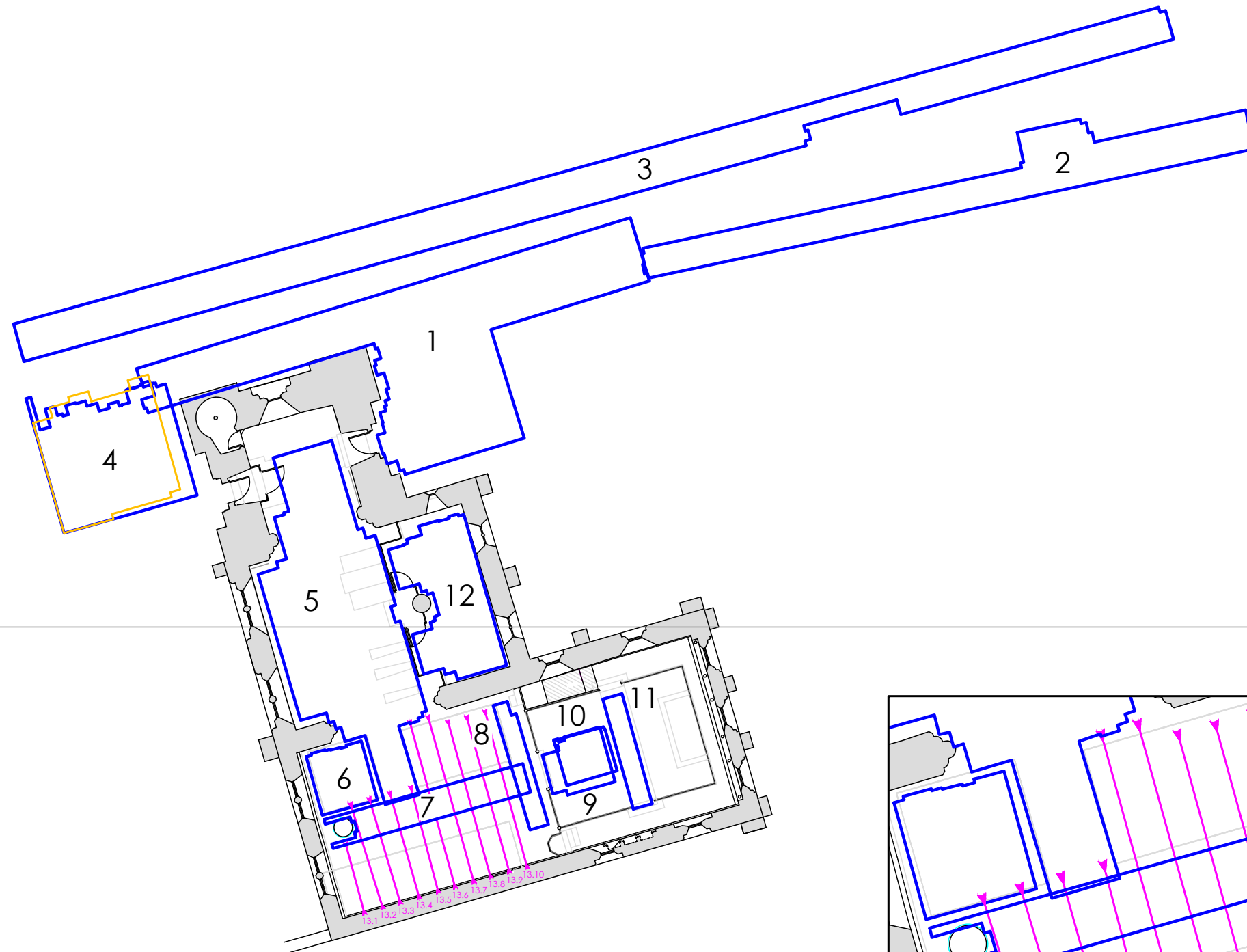
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Figure 2: Geophysical survey areas



-  resistance survey
-  GPR outline
-  GPR profiles

504





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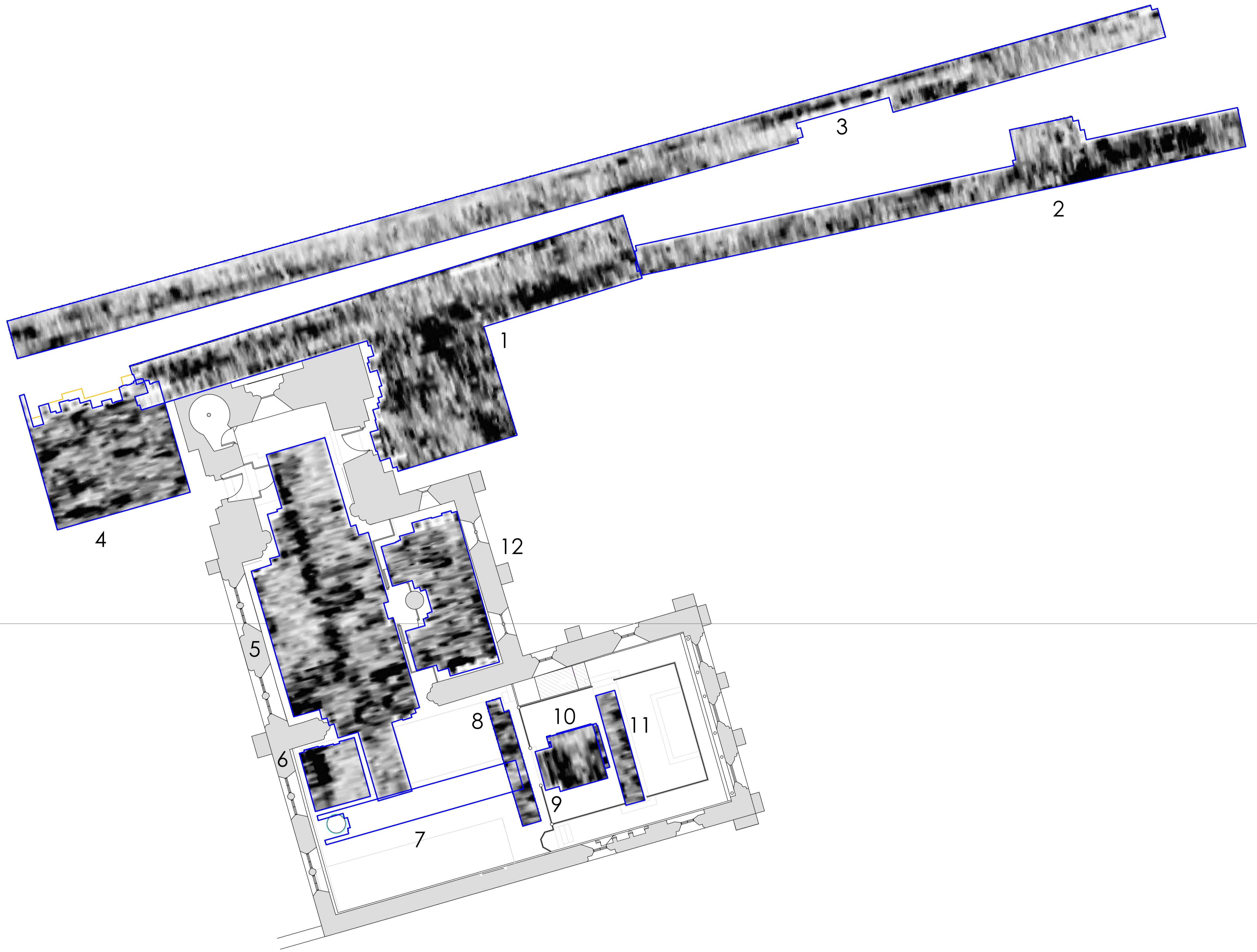
GPR outline
resistance survey

0 5m
scale 1:100 for A1 plot

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

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Figure 3: GPR depth-slices
approximately 0.25m

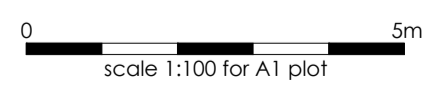


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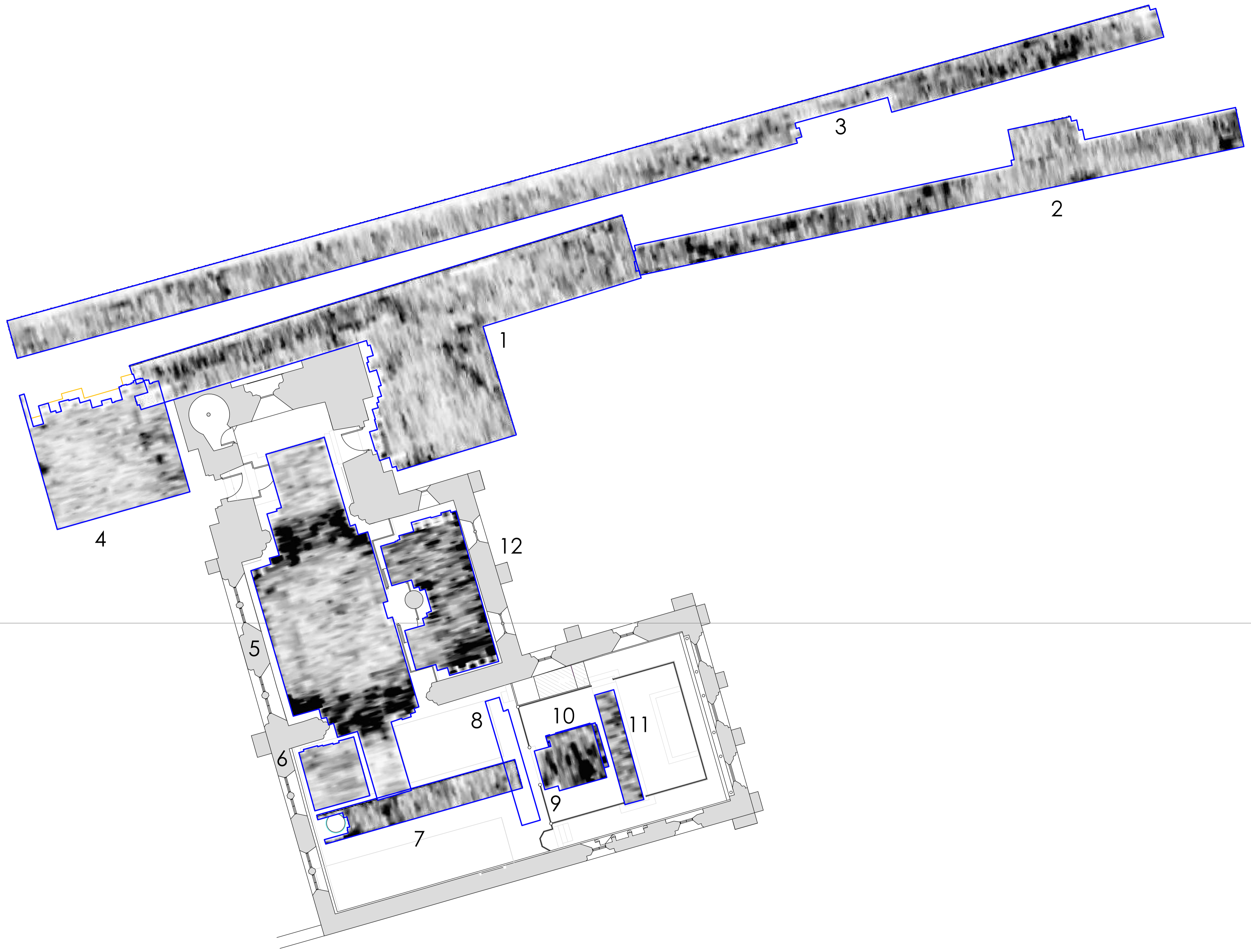
-  GPR outline
-  resistance survey



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Figure 4: GPR depth-slices
approximately 0.5m



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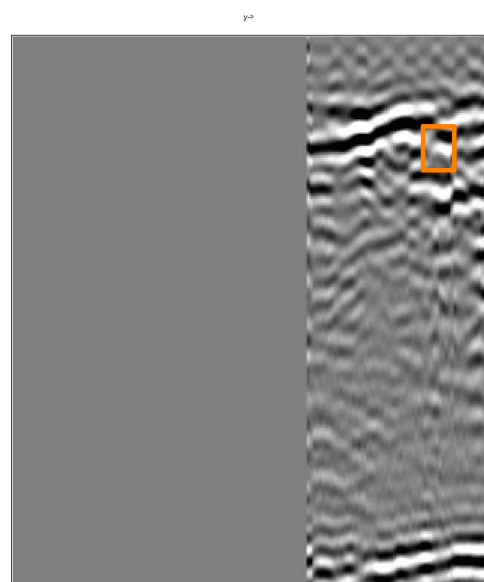
GPR outline
resistance survey

0 5m
scale 1:100 for A1 plot

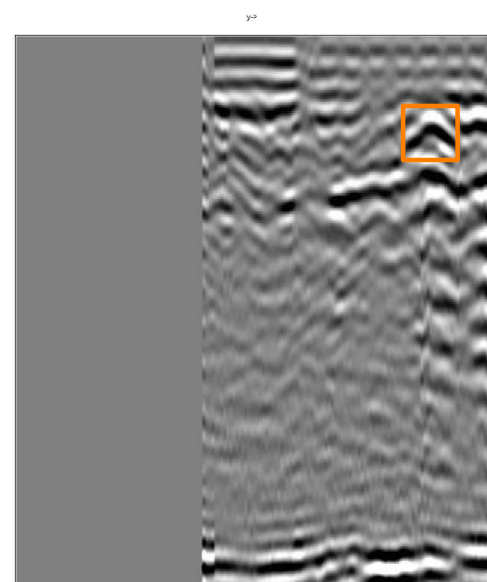
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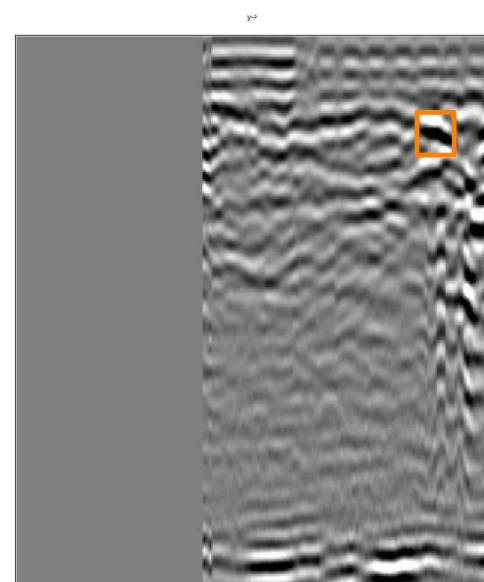
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Figure 5: GPR depth-slices
approximately 1m



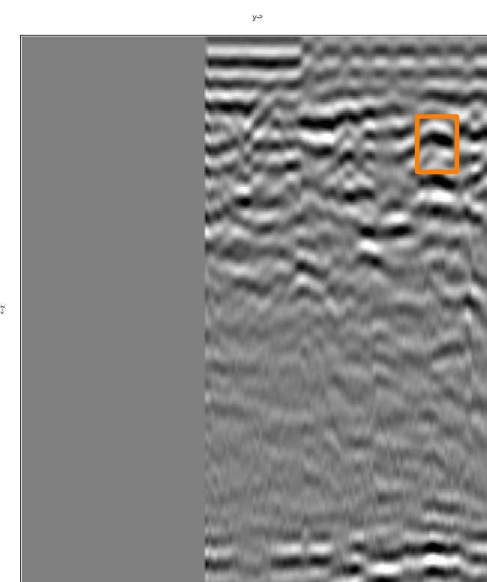
profile 13.1



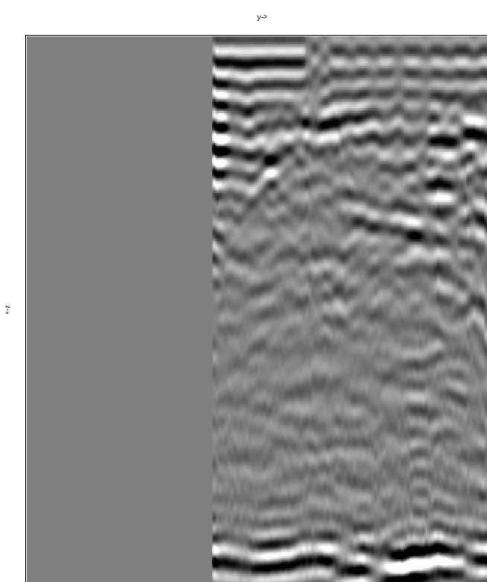
profile 13.2



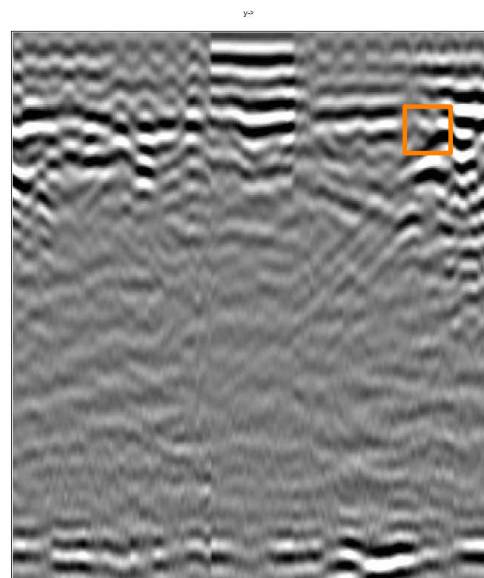
profile 13.3



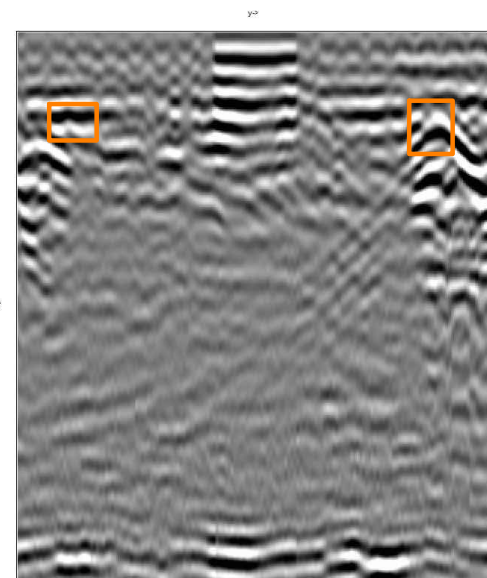
profile 13.4



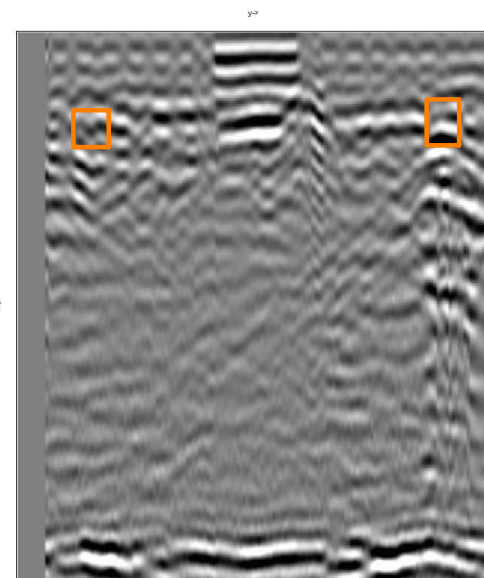
profile 13.5



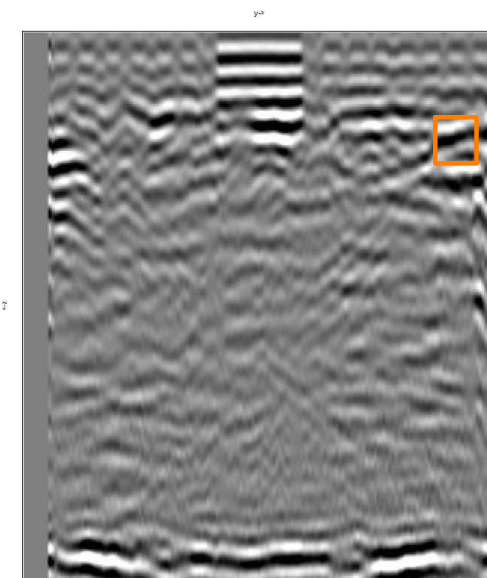
profile 13.6



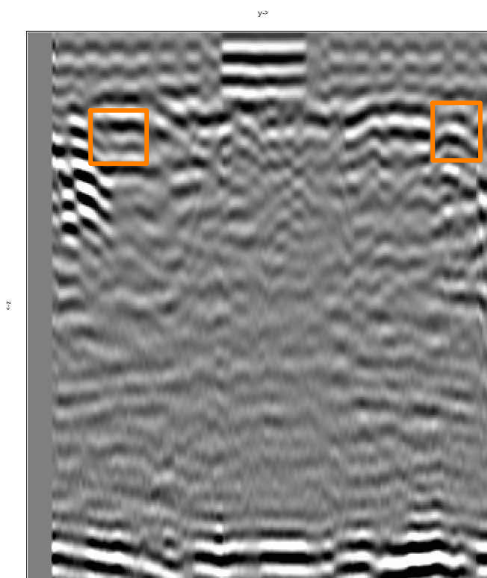
profile 13.7



profile 13.8

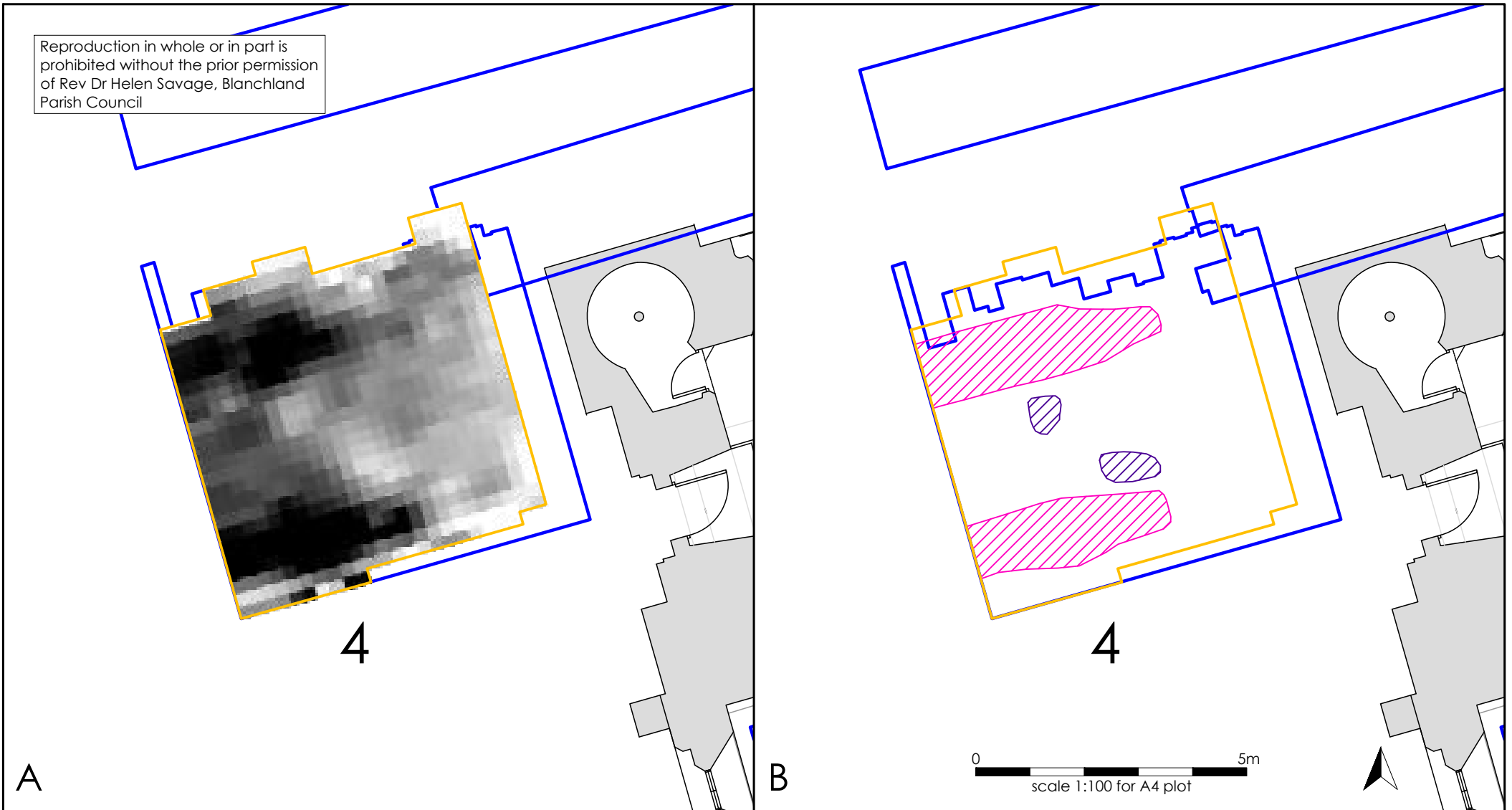


profile 13.9



profile 13.10

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A

B





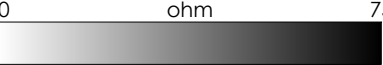
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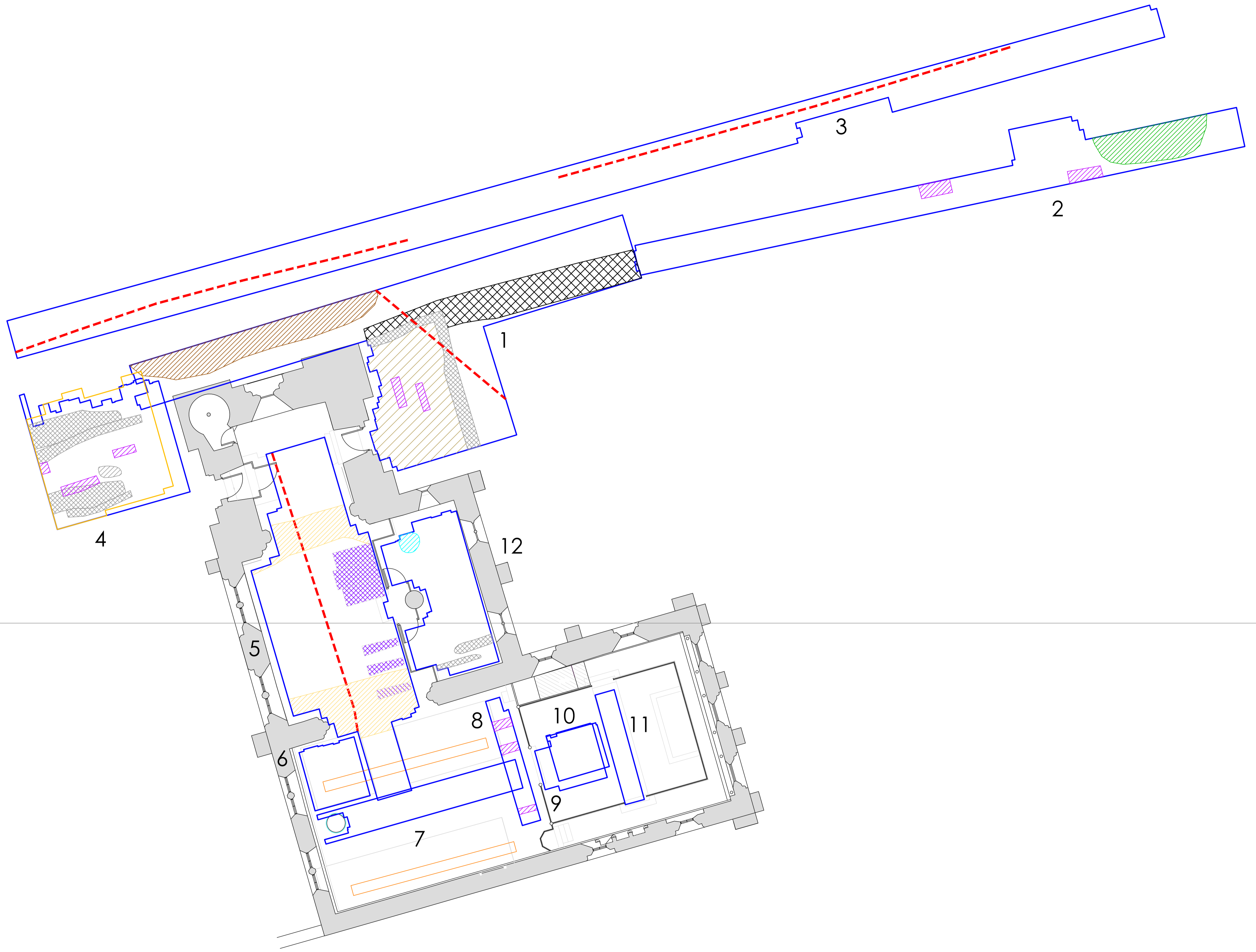
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Blanchland Parish
Council

Blanchland Abbey Church
Blanchland, Northumberland

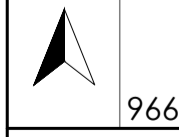
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Figure 7: Resistance survey (A) and geophysical interpretation (B)

	GPR outline		high resistance anomaly
	resistance survey		low resistance anomaly
			

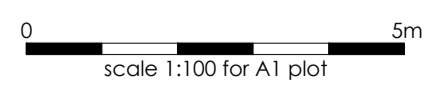


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- | | | |
|------------------------|------------------------------|--------------------------------------|
| GPR outline | possible former foundations? | probable former location of the font |
| resistance survey | possible graves | possible stone |
| earth bank to road | grave slabs | possible service |
| possible wall footings | path | possible line of acoustic chamber |
| gravel | landscaping | |



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Figure 8: Archaeological
interpretation