Historic England

Geophysics

Dunstable Priory, Dunstable, Central Bedfordshire Report on Geophysical Survey, May 2021

Neil Linford, Sarah Newsome and Andrew Payne

Discovery, Innovation and Science in the Historic Environment

Research Report Series no. 1-2022

Research Report Series 1-2022

DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE REPORT ON GEOPHYSICAL SURVEY, MAY 2021

Neil Linford, Sarah Newsome and Andrew Payne

NGR: TL 02150 21800

ISSN 2059-4453 (Online)

The Research Report Series incorporates reports by Historic England's expert teams and other researchers. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series.

Many of the Research Reports are of an interim nature and serve to make available the results of specialist investigations in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation. Where no final project report is available, readers must consult the author before citing these reports in any publication.

For more information write to Res.reports@HistoricEngland.org.uk
or mail: Historic England, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth PO4 9LD

Opinions expressed in Research Reports are those of the author(s) and are not necessarily those of Historic England.

SUMMARY

A Ground Penetrating Radar (GPR) survey was conducted at Dunstable Priory, Dunstable, Central Bedfordshire, to support the Dunstable High Street Heritage Action Zone (HSHAZ). The GPR survey was requested to help inform the revision of the schedule entry for medieval Dunstable Priory, with respect to the extent and significance of the Priory's buried remains, beyond the definition of the scheduled area which encompasses most of Priory Gardens to the east of Dunstable's High Street South. The GPR survey (2.2ha) complemented both a previous earth resistance survey and an analytic earthwork survey conducted simultaneously as part of the HSHAZ programme. Fragmented anomalies due to structural remains associated with the priory were recorded across the survey area, with useful additional detail revealed of the Lady Chapel and apsidal end of the church immediately east of the surviving Priory Church. A differing phase of construction is, perhaps, suggested by a slight change in the orientation of the anomalies found to the south of the gardens, although it is unclear whether these extend into the adjacent playing fields of the Priory Middle School where levelling of the site may have impacted on the survival of significant remains.

CONTRIBUTORS
The geophysical fieldwork was conducted by Neil Linford and Andrew Payne.

ACKNOWLEDGEMENTS
The authors are grateful to colleagues from Dunstable Town Council, the Priory Middle School and the Dunstable HSHAZ team who facilitated access to allow the survey to take place, and to our colleague Sarah Newsome who contributed to the combined interpretation of the available data sets. We would also like to thank the Manshead Archaeological Society for providing images of their previous earth resistance survey.

ARCHIVE LOCATION
Fort Cumberland, Portsmouth.

DATE OF SURVEY
The fieldwork was conducted on 24-28th May 2021 and the report was completed on 25th February 2022. The cover image shows the survey in progress immediately to the east of the standing Priory Church (photograph taken by S Newsome).

CONTACT DETAILS
Dr Neil Linford, Geophysics Team, Historic England, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth PO4 9LD.
Tel: 02392 856761. Email: neil.linford@historicengland.org.uk

CONTENTS

Introduction....1
Method....1
Results....3
Conclusions....7
List of Enclosed Figures....8
References....9

INTRODUCTION

A Ground Penetrating Radar (GPR) survey was conducted at Dunstable Priory, Dunstable, Central Bedfordshire, to support the Dunstable High Street Heritage Action Zone (HSHAZ). Historic England and Dunstable Town Council are currently undertaking a High Street Heritage Action Zone (HSHAZ) project focused on Dunstable's High Street South. This part of the high street originally formed the western boundary of Dunstable Priory's precinct and there is a clear historical link between the development of the priory and High Street South. The schedule entry for Dunstable Priory is an Old County Number record (List Entry 1004676) which contains no written information, for either the general public or those responsible for managing the asset. The Dunstable HSHAZ has highlighted the need to revise the Priory scheduling and associated Listed Buildings entries so that these assets can fully contribute to the HSHAZ and the future regeneration of the High Street by articulating the important historic link between it and the Priory.

The extensive remains of the Priory complex are visible as earthworks in the Priory Gardens and are also known from previous earth resistance surveys and excavations conducted by the Manshead Archaeological Society. It was hoped that the GPR survey would provide more clarity on their nature and extent in order to revise the schedule entry and assist future management. Unfortunately, the original earth resistance data was not available and the current report therefore provides a text commentary against the new GPR results, referenced to existing paper plots of the earlier survey (Figure 7). The geophysical survey will also complement further analytical earthwork survey (Newsome *et al.* 2022), assessment of aerial photographs and documentary research conducted simultaneously as part of the HSHAZ project.

Owing to the central urban location the local soil has not been mapped but is most likely to belong to the UPTON 1 association (342a), shallow well drained calcareous silty soils, which has been mapped immediately outside the town developed over undifferentiated Cretaceous chalk of the Holywell Nodular and New Pit chalk Formations (Soil Survey of England and Wales 1983; Geological Survey of Great Britain (England and Wales) 1992). The ground surface consisted of mown grass interrupted by flower beds, trees and hard standing paths, with some made ground and levelling likely over the Priory Middle School playing fields immediately adjacent to the Priory Gardens to the south. Weather at the beginning of the field work was cold and wet, giving way to warm and sunny conditions for the rest of the week.

METHOD

A 3d-Radar MkIV GeoScope Continuous Wave Step Frequency (CWSF) Ground Penetrating Radar (GPR) system was used to conduct the survey collecting data

with a multi-element DXG1820 ground coupled antenna array (Linford et al. 2010; Eide et al. 2018). A Trimble S5 tracking total station and active reflector prism mounted on the GPR array was used to provide continuous positional control for the survey collected along the instrument swaths shown on Figure 1. Control points for the total station were established using a Trimble R8s Global Navigation Satellite System (GNSS) receiver adjusted to the National Grid Transformation OSTN15 using the Trimble VRS Now Network RTK delivery service. This uses the Ordnance Survey's GNSS correction network (OSNet) and gives a stated accuracy of 0.01-0.015m per point with vertical accuracy being half as precise.

Data were acquired at a 0.075m by 0.075m sample interval across a continuous wave stepped frequency range from 40MHz to 2.99GHz in 2MHz increments using a dwell time of 5ms. A single antenna element was monitored continuously to ensure data quality during acquisition together with automated processing software to produce real time amplitude time slice representations of the data as each successive instrument swath was recorded in the field (Linford 2013).

Post-acquisition processing involved conversion of the raw data to time-domain profiles (through a time window of 0 to 75ns), adjustment of time-zero to coincide with the true ground surface, background and noise removal, and the application of a suitable gain function to enhance late arrivals. Representative profiles from the GPR survey are shown on Figure 3. To aid visualisation amplitude time slices were created from the entire data set by averaging data within successive 2.5ns (two-way travel time) windows (e.g. Linford 2004). An average sub-surface velocity of 0.104m/ns was assumed following constant velocity tests on the data and was used as the velocity field for the time to estimated depth conversion. Each of the resulting time slices therefore represents the variation of reflection strength through successive ~0.13m intervals from the ground surface, shown as individual greyscale images on Figures 2, 4 and 5. Further details of both the frequency and time domain algorithms developed for processing this data can be found in Sala and Linford (2012).

Due to the size of the resultant data set a semi-automated algorithm has been employed to extract the vector outline of significant anomalies shown on Figure 6. The algorithm uses edge detection to identify bounded regions followed by a morphological classification based on the size and shape of the extracted anomalies. For example, the location of possible pits is made by selecting small, sub circular anomalies from the data set (Linford and Linford 2017).

RESULTS

A graphical summary of the significant GPR anomalies, [**gpr1-57**] discussed in the following text, superimposed on the base OS map data is provided in Figure 6.

Reflections have been recorded throughout the 75ns two-way travel time window, although there are few significant responses beyond ~45ns (2.08m) where the predominant anomalies appear to be due to near-surface multiples and underlying geological bedding. The near-surface data between 0.0 and 7.5ns (0 to 0.39m) has been influenced by the topography of the site, including extant wheel ruts, for example at [**gpr1**], and areas of dry soil [**gpr2**] found across the site around the trunks of mature trees. There is also some evidence for tree roots [**gpr3**] imaged from 2.5ns (0.13m) onwards.

High amplitude linear anomalies between 0.0 and 15.0ns (0 to 0.77m) at [**gpr4**], adjacent to the area of lawn in the vicinity of the Health Centre, corroborate the location of former paths shown on the historic mapping (PreWar Town plans: Dunstable 1880). The extension of the possibly medieval track way from the priory gardens south across the Priory Middle School playing field is also replicated as a high amplitude anomaly [**gpr5**] to approximately 22.5ns (1.16m), with the first reflection from the track becoming gradually deeper to the south. There is also a prominent, modern service trench [**gpr6**] due to an electricity cable installed in the 1970s visible from 2.5ns (0.13m) onwards with the pipe itself visible from between 17.5 and 30.0ns (0.9 to 1.55m) falling from west to east. A second modern service [**gpr7**] appears from between 5.0 and 12.5ns (0.26 to 0.64m) immediately parallel to the south facade of the main priory, replicating the pipe trench visible in the earth resistance survey (Figure 7).

More significant anomalies are found at [**gpr8**] to the east of the nave from 7.5ns (0.39m) onwards and suggest the walls of a rectangular structure, most likely the Lady Chapel, aligned on the central axis of the of the priory. A similar anomaly was identified by the previous earth resistance with both techniques also suggesting the presence of buttresses against the north and south walls. Deeper time slices in the radar data, between 17.5 and 27.5ns (0.9 to 1.42m), show a planar high amplitude response within the walls of [**gpr9**], possibly an extant floor layer, with the response to the wall foundations extending to approximately 40ns (2.06m). There is also tentative evidence for a small extension to the north east corner of the chapel [**gpr10**] and several discrete anomalies [**gpr11**], with dimensions of approximately 1m x 2m visible from 30.0ns (1.55m) onwards within the walls of [**gpr8**], perhaps indicating the presence of graves or memorial stones.

Structural remains between the standing priory and [**gpr12**] are more difficult to interpret, perhaps due to the presence of near-surface rubble deposits, although a large apsidal low amplitude anomaly [**gpr13**] is found from between 15.0 and 30.0ns (0.77 to 1.55m) and may possibly represent a substantial robbed-out wall. More fragmented, high amplitude responses [**gpr14-16**] reveal elements of the original priory with the apsidal form of [**gpr13**] corroborated by deep lying wall footings [**gpr17**] found between 35.0 and 40.0ns (1.8 to 2.06m). This perhaps suggests a more complex extended church with a rounded apse and ambulatory leading on the Lady Chapel, an arrangement, for example as survives intact in the remains of St Bartholomew the Great near Farringdon (M Bristow *pers comm*). The corresponding earth resistance data does not replicate the deeper lying detail in this area, perhaps confirming the presence of near-surface destruction deposits masking the response.

Immediately to the south a smaller room [**gpr18**] with a well defined apse is found in both the radar and original earth resistance data, previously interpreted as the Chapter House. There is some suggestion of internal detail within [**gpr18**], although survival here must have been impacted by the course of the modern service [**gpr6**]. More fragmented structural remains [**gpr19**] extend to the south and perhaps represent an east range with some continuation through walls at [**gpr20**], found between 17.5 and 35.0ns (0.9 to 1.8m), and a more tentative rectilinear anomaly [**gpr21**] between 22.5 and 27.5ns (1.16 to 1.42m), also known from the earth resistance survey. There is some variation in the magnitude of response compared to the earth resistance data with, perhaps, only the fragment of walls [**gpr20**] appearing more clearly defined in the GPR survey. The location of [**gpr19**] correlates with a range of rooms shown on the 1540s plan of the priory (Hatfield House Archive, reference CMP II/22), although this may have been a proposed layout, and the area immediately to the east containing [**gpr20**] and [**gpr21**] appears to represent a former orchard.

The cloister to the south of the priory appears initially between 10.0 and 17.5ns (0.52 to 0.9m) as a low amplitude anomaly [**gpr22**] together with some fragmented, wall-type responses [**gpr23**] partially obscured by rubble deposits, but presumably surviving structural elements of the north range. From approximately 20ns (1.03m) additional detail is found through the range of buildings to both the west [**gpr24**] and south of the cloister [**gpr25**], corroborating the earth resistance survey that suggested [**gpr25**] may represent the refectory. Linear anomalies [**gpr26**] within the cloister broadly parallel to [**gpr22**] seem likely to represent paths laid around the interior. Despite the presence of the modern services, [**gpr6**] and [**gpr7**], structural remains possibly extend beyond the cloister from the south west corner at [**gpr27**] towards the scarp found at [**gpr28**]. The high amplitude response to [**gpr28**], visible between 10.0 and 27.5ns (0.52 to 1.42m), is perhaps suggestive of some form of revetment supporting the western boundary to the monastic site and

does not entirely follow either the scarp or the removed field boundary shown on historic mapping (OS Historic County Mapping Series: Dunstable 1843–1893 Epoch 1).

A second possible cloister bounded by wall-type anomalies [**gpr29**] is found immediately to the south of the refectory [**gpr25**]. While a second, smaller cloister is suggested on the 1540 plan the location of [**gpr29**] appears offset to the east and begins to suggest a slight change in orientation with respect to both the standing and subsurface priory remains. Additional anomalies to the south of [**gpr29**] share the same orientation and include a small square walled garden or building [**gpr30**], parallel wall footings [**gpr31**] and a more complex structural response, possibly a building range [**gpr32**] in the vicinity of a pronounced mound on the boundary with the school. Some of these structural elements also appear within the earth resistance data, for example a rubble-type response to [**gpr31**] and linear high resistance anomalies corroborating [**gpr32**].

The change in orientation of the structural remains to the south may, possibly, indicate a differing phase of construction or a deliberate reorientation to incorporate the scarp [**gpr28**] forming a boundary to the west of the site. This does not appear to be represented accurately on the 1540s plan, although this may be due to a cartographic simplification presenting the buildings on a common orientation or the plan representing a proposal for the priory layout rather than the final design (S Newsome *pers comm*). There are few significant anomalies found to the west of [**gpr28**] beyond a scatter of fragmented linear responses [**gpr33-35**] and some near-surface rubble or disturbance [**gpr36**] set against the boundary with the Parkside Flats. This disturbance may, in part, be due to the construction of the flats and to the small building shown in the vicinity of [**gpr36**] on the historic mapping (OS Historic County Mapping Series: Dunstable 1843–1893 Epoch 1).

The response to the medieval track way [**gpr5**] confirms that the landscaping of the school playing field to the south of the priory has not completely truncated the identification of significant anomalies here. There is tentative evidence to suggest that the depth to the top of [**gpr5**] from the current ground surface appears to increase from approximately 2.5ns (0.13m) to 10.0ns (0.52m) from north to south across the playing field. Given that bench mark levels along the course of the extant trackway shown on the historic mapping record a north to south fall of approximately 0.3m, it is possible that this represents the depth of material that has been introduced to level the site tapering from the school north to the priory park (PreWar Town plans: Dunstable 1880). The previous earth resistance survey shows a high resistance anomaly associated with the track way that gradually fades to the south, again possibly due to an increasing depth of overburden to level the playing field. A tentative, low resistance ditch-type anomaly to the east of [**gpr5**] is not replicated in the GPR data.

Two areas of amorphous high amplitude response [**gpr37**] and [**gpr38**] are found between 2.5 and 45.0ns (0.13 to 2.32m), possibly rubble spreads with some potential structural elements to the south at [**gpr39**], although these may also be associated with the landscaping works. A series of high amplitude anomalies [**gpr40-42**] found between 35.0 and 40.0ns (1.8 to 2.06m), possibly correlate with areas of formal gardens or tree planting shown on the historic mapping adjacent to the north and west of the playing field (PreWar Town plans: Dunstable 1880). The slightly later garden design in this area, including a small building against the boundary with the priory, may also be associated with [**gpr40-42**] and a tentative rectilinear anomaly [**gpr43**] (OS Historic County Mapping Series: Dunstable 1891–1912 Epoch 2). This period of garden design appears to be rather ephemeral, as it is only shown on a single epoch of historic mapping, and [**gpr43**] could, therefore, provide highly tentative evidence for more significant structural remains.

There is some correlation between the alignment of [**gpr40**] and the scarp [**gpr28**] found immediately to the north in the priory gardens, although this is speculative given the considerable truncation likely to have occurred during the landscaping of the playing field. In addition, recent intervention for items of sports equipment, for example the two areas of hard standing at [**gpr44**], may also account for some of the more regular anomalies found against the perimeter of the playing field such as the parallel linear responses at [**gpr45**].

Comparison with the previous earth resistance coverage shows increased noise to the south close to the school buildings, possibly associated with material introduced to level the playing field. High resistance anomalies correlate, in part, with [**gpr40**] along the perimeter of the playing field to the west, but appear more amorphous than the GPR response here. A possible linear service shown as a high resistance anomaly lies beyond the GPR coverage to the south west of the playing field.

Three linear anomalies [**gpr46-48**] are found on the Priory House lawn where historic mapping indicates the presence of both surface paths and a subterranean passage to the Priory (OS Historic County Mapping Series: Dunstable 1843–1893 Epoch 1). When considering the discrepancy in the rectification of the historic mapping into account [**gpr46**] would appear to correlate with the presumed location of the subterranean passage (S Newsome *pers comm*). However, [**gpr47**] appears to pass through some more structural remains at [**gpr49**] and continue across the circular flower bed to the east as a more substantial high amplitude anomaly. It seems most likely that [**gpr46-48**] represent culverts or drains, falling down the slope away from Priory House on slightly different alignments. The GPR survey has failed to detect any continuation of these anomalies in the vicinity of the war memorial, perhaps suggesting these are indeed drainage features. Anomalies [**gpr50-53**] are also suggestive of more like recent services or drains.

Two short linear anomalies [**gpr54**] and [**gpr55**] are found in the area of lawn surrounding the war memorial, although these seem, together with [**gpr56**], more likely to represent former paths that were not recorded on the historic mapping. An apparent modern service [**gpr57**] is found parallel to [**gpr56**] between this anomaly and the modern path immediately to the east.

CONCLUSIONS

The GPR survey has successfully located a number of anomalies associated with known structural remains of the priory buildings. Many of these anomalies corroborate and enhance both the previous earth resistance and analytical earthwork surveys. Some additional detail has been suggested by the GPR data to the east of the standing priory church in the vicinity of the Lady Chapel, although the response to the GPR is quite varied perhaps indicating differing levels of survival or depth of rubble overburden. The orientation of the structural remains also varies to the south, suggesting either a different phase of construction or deliberate realignment, possibly to respect the scarp boundary found to the west of the site. Few significant anomalies were found over the Priory Middle School playing field immediately to the south, perhaps due to the levelling of the site for the sports pitches. The GPR data has provided an approximate estimate for the depth of material introduced to the site based on the apparent overburden covering the medieval track way together with levels recorded on historic mapping along its course.

Anomalies found to the west of the site appear to be associated with either former garden paths, largely recorded by the historic mapping, or more recent services. Linear anomalies found beneath the lawn immediately adjacent to Priory House do, in part, corroborate the location of the “subterranean passage” recorded on the historic mapping, although these do, perhaps, seem more likely to be associated with drainage from the house.

LIST OF ENCLOSED FIGURES

Figure 1 Location of the GPR instrument swaths superimposed over the base OS mapping data (1:1000).

Figure 2 Greyscale image of the GPR amplitude time slice from between 22.5 and 25.0ns (1.16-1.29m) superimposed over the base OS mapping data. The location of representative GPR profiles shown on Figure 3 are also indicated (1:1000).

Figure 3 Representative profiles from the GPR survey shown as greyscale images with annotation denoting significant anomalies. The location of the selected profiles can be found on Figures 1, 2 and 6.

Figure 4 GPR amplitude time slices between 0.0 and 22.5ns (0.0 to 1.16m) (1:2500).

Figure 5 GPR amplitude time slices between 22.5 and 45.0ns (1.16 to 2.32m) (1:2500).

Figure 6 Graphical summary of significant GPR anomalies superimposed over the base OS mapping (1:1000).

Figure 7 Priory Gardens earth resistance survey conducted by the Manshead Archaeological Society in 2004-5 superimposed over the base OS mapping (1:1000).

REFERENCES

Eide, E, Linford, N, Persico, R and Sala, J 2018 'Advanced SFCW GPR systems' *in* Persico, R, Piro, S and Linford, N (eds), *Innovation in Near-Surface Geophysics Instrumentation, Application, and Data Processing Methods* Amsterdam: Elsevier, 253-285.

Geological Survey of Great Britain (England and Wales) 1992 Leighton Buzzard, England and Wales Sheet 220, Solid and Drift edition. 1:50000 series., Ordnance Survey, Chessington, Surrey.

Linford, N 2004 'From Hypocaust to Hyperbola: Ground Penetrating Radar surveys over mainly Roman remains in the U.K.'. *Archaeological Prospection*, **11** (4), 237-246.

Linford, N 2013. *Rapid processing of GPR time slices for data visualisation during field acquisition*. In Neubauer, W, Trinks, I, Salisbury, R and Einwogerer, C (Editors), Archaeological Prospection, Proceedings of the 10th International Conference, May 29th - June 2nd 2013 2013 (Vienna: Austrian Academy of Sciences Press). 176-78.

Linford, N and Linford, P 2017. *The application of semi-automated vector identification to large scale archaeological data sets considering anomaly morphology*. In Jennings, B, Gaffney, C, Sparrow, T and Gaffney, S (Editors), 12th International Conference of Archaeological Prospection, 12-16th September 2017 2017 (Bradford: Archaeopress Archaeology). 138-9.

Linford, N, Linford, P, Martin, L and Payne, A 2010 'Stepped-frequency GPR survey with a multi-element array antenna: Results from field application on archaeological sites'. *Archaeological Prospection*, **17** (3), 187-198.

Newsome, S, Bristow, M and Pullen, R 2022 *'Dunstable Priory Gardens: An analytical earthwork survey '*. Historic England Research Report Series **11/2022**.

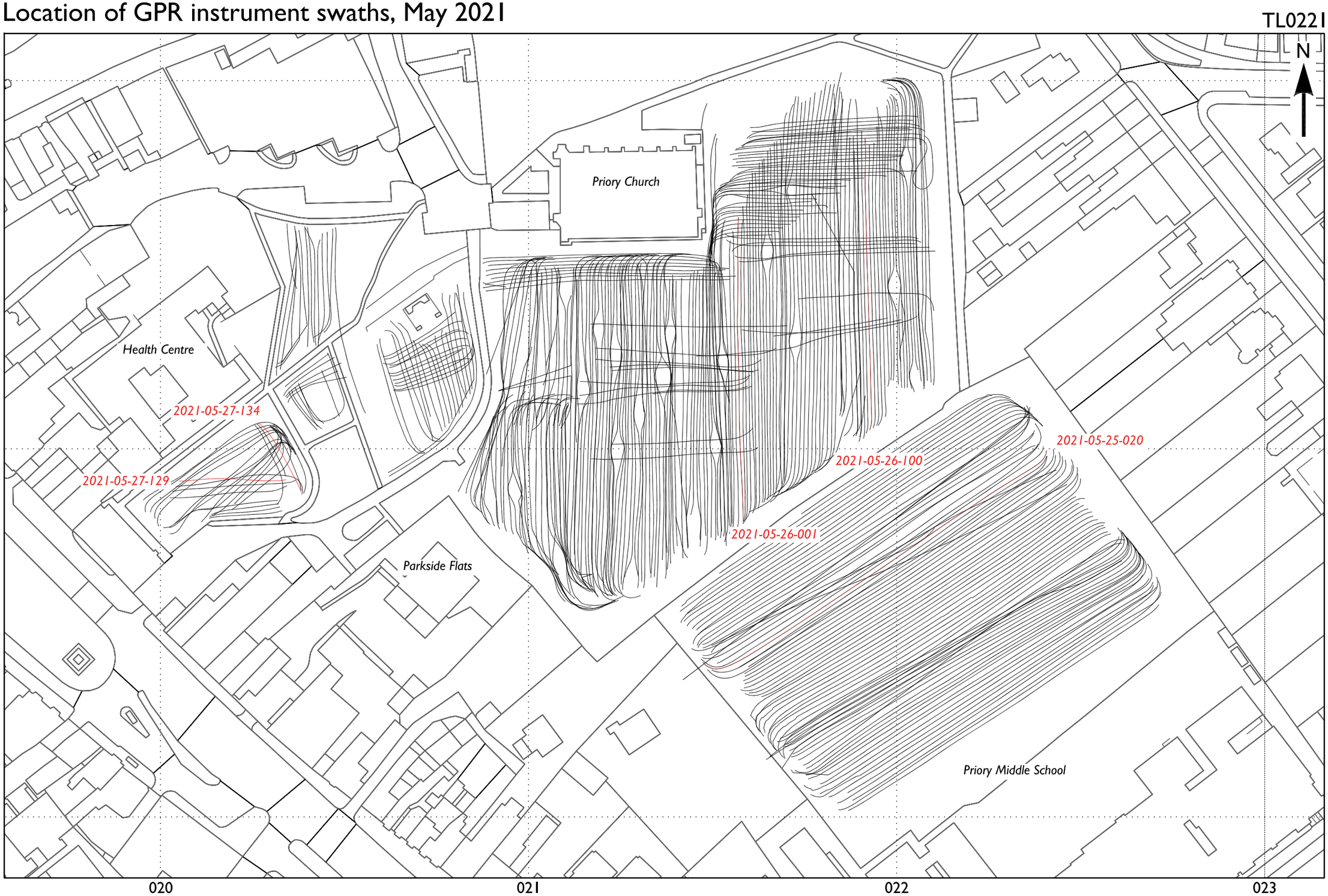
Sala, J and Linford, N 2012 ' Processing stepped frequency continuous wave GPR systems to obtain maximum value from archaeological data sets '. *Near Surface Geophysics*, **10** (1), 3-10.

Soil Survey of England and Wales 1983 Soils of England and Wales: Sheet 4 - Eastern England, 1:250,000 soil map. Harpenden, Lawes Agricultural Trust.

Figure 1

DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

Location of GPR instrument swaths, May 2021



0 60m

1:1000

Ground Penetrating Radar survey swaths

2021-05-25-001 Location of selected GPR profiles shown on Figure 3

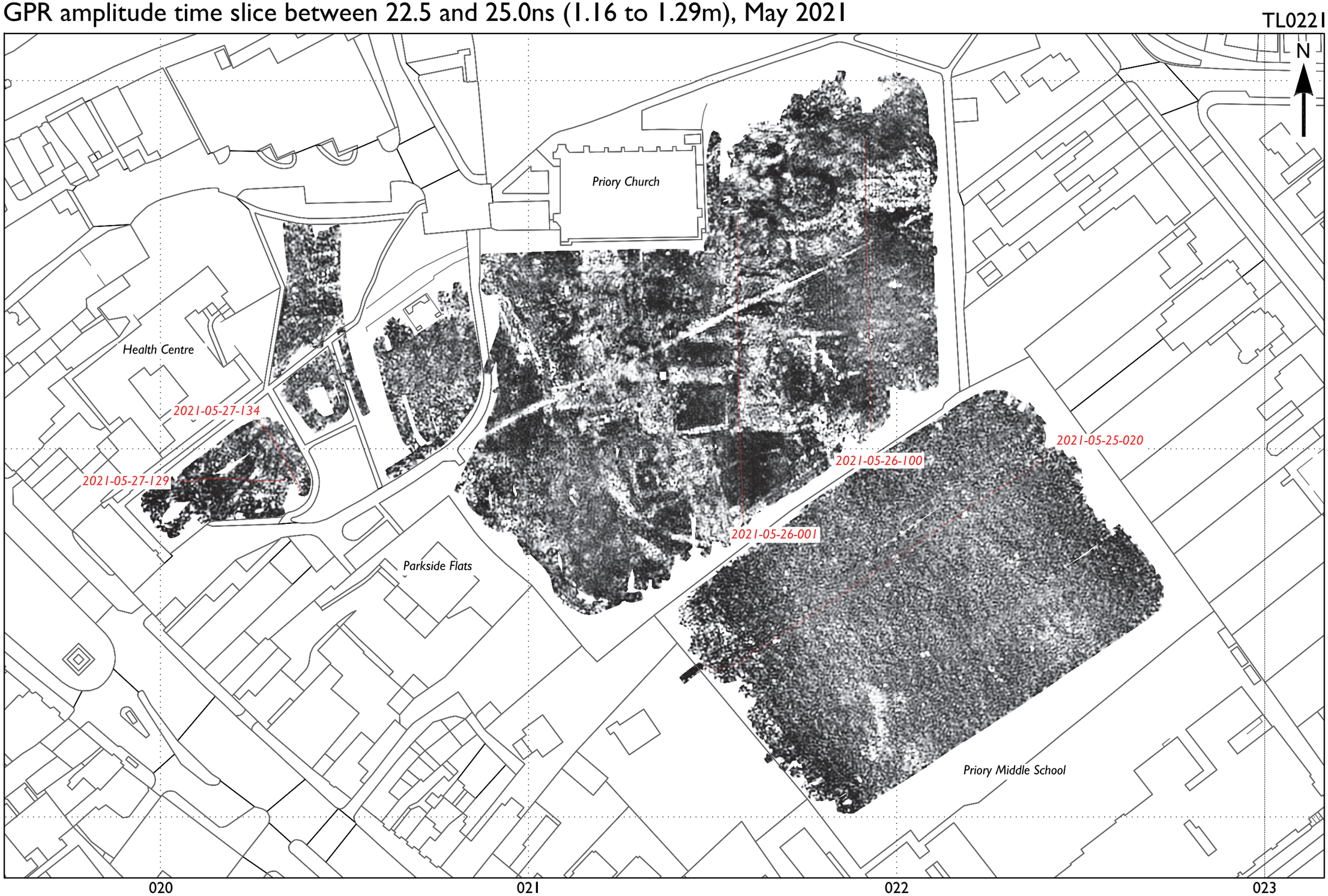
Geophysics Team 2022

Historic England

Figure 2

DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

GPR amplitude time slice between 22.5 and 25.0ns (1.16 to 1.29m), May 2021



0 60m

1:1000

Low High
relative reflector strength

2021-05-25-001 Location of selected GPR profiles shown on Figure 3

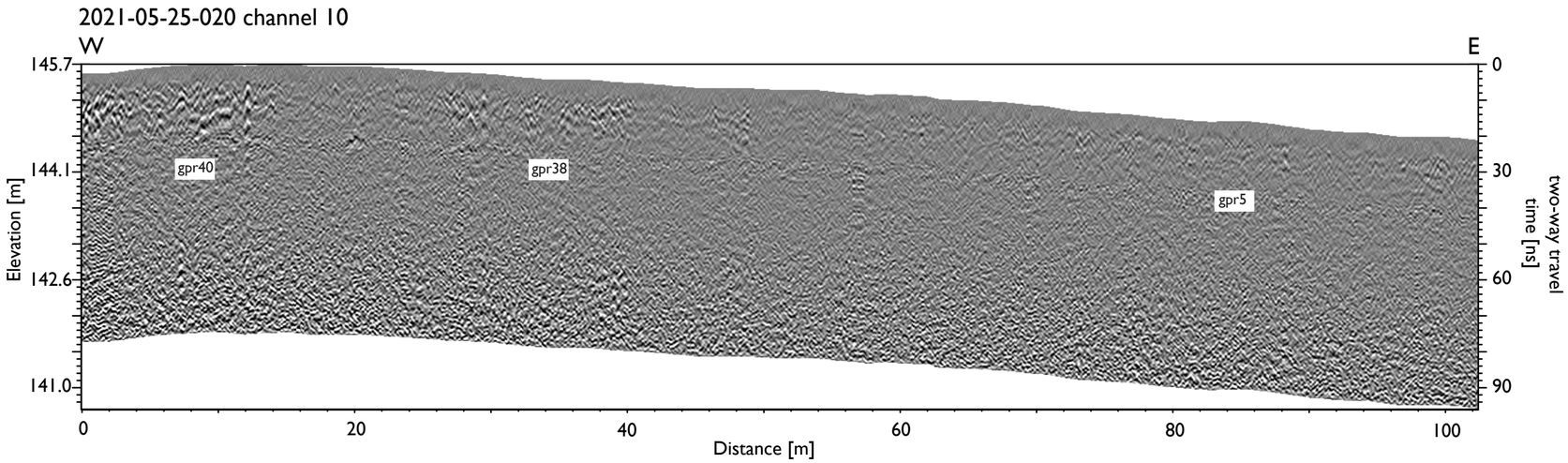
Geophysics Team 2022

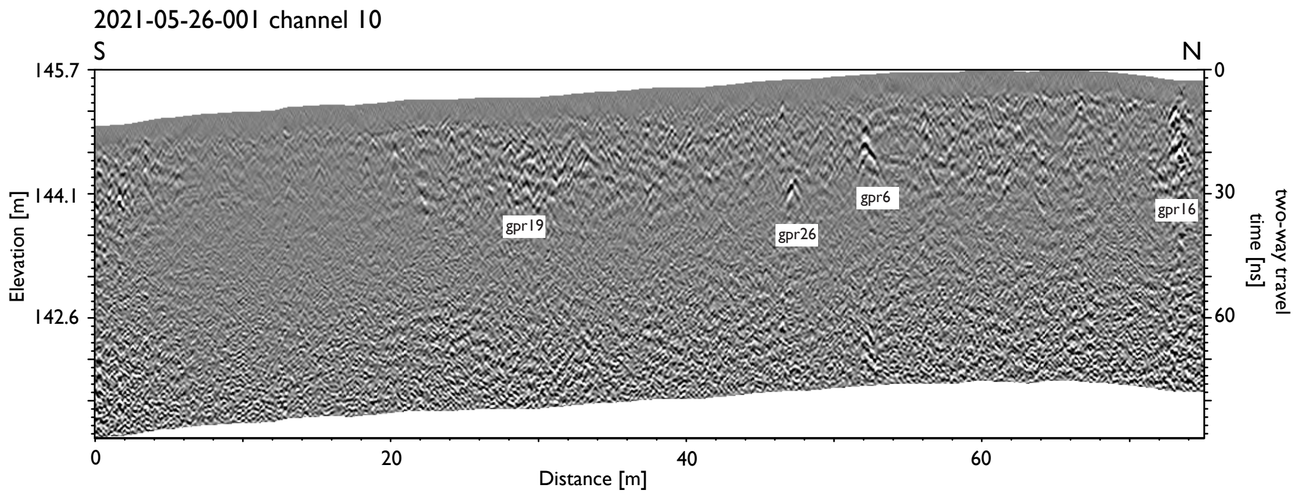
Historic England

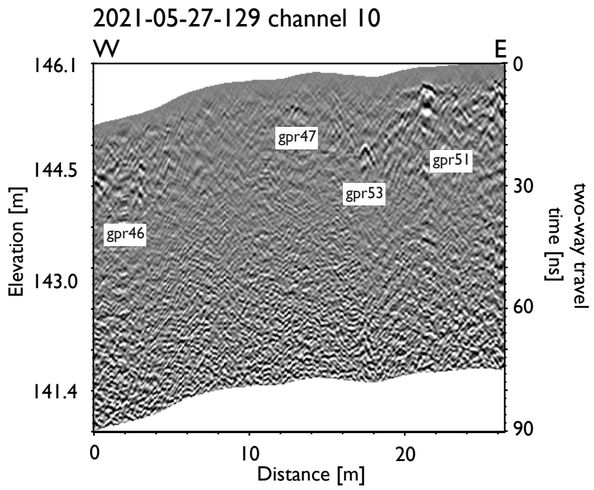
DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

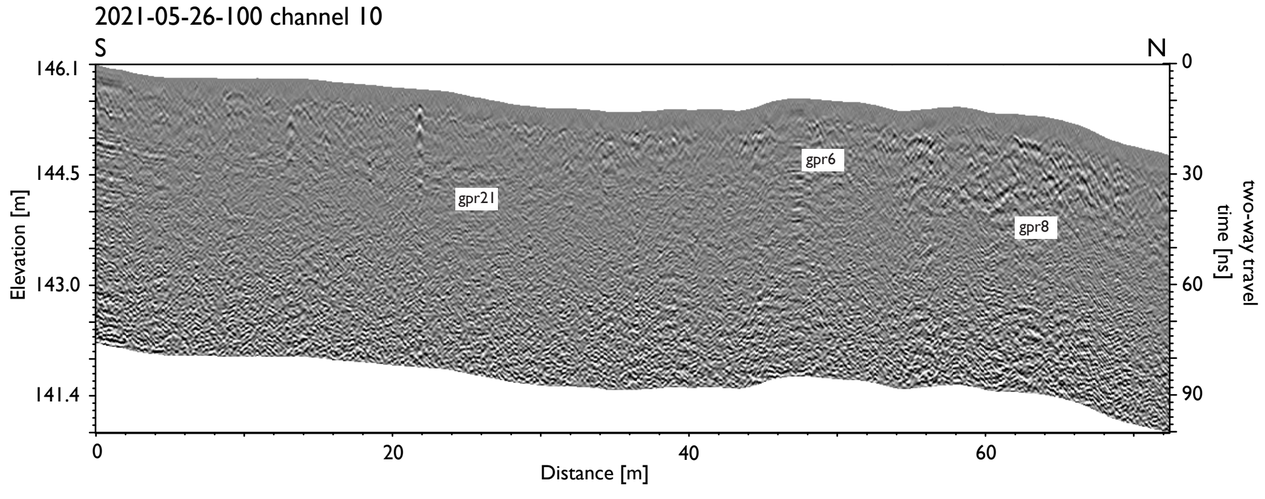
Figure 3

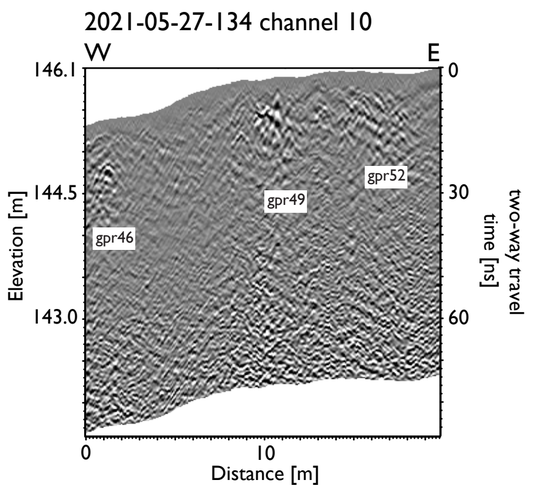
Selected GPR profiles, May 2021

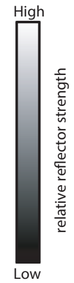












Geophysics Team 2022

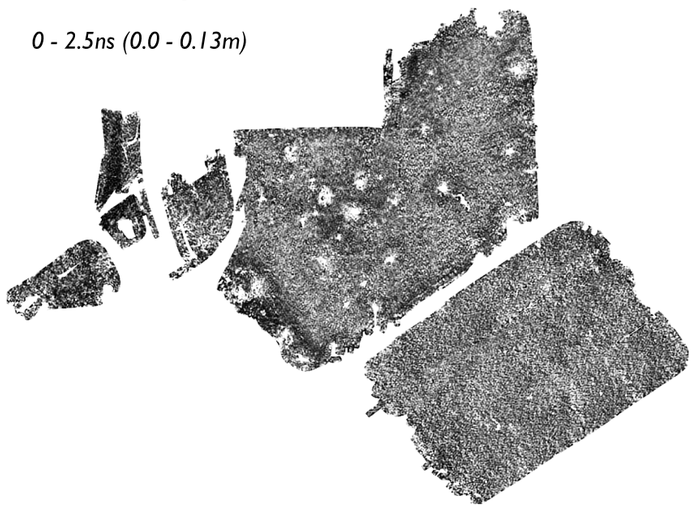
Historic England

Figure 4

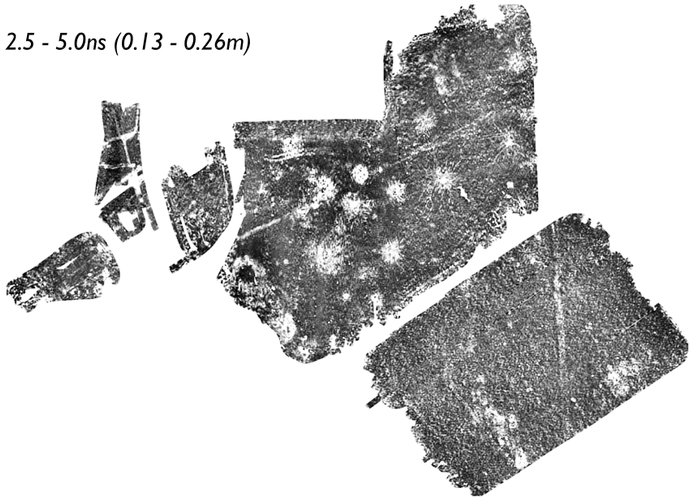
DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

GPR amplitude time slices between 0.0 and 22.5ns (0.0 to 1.16m), May 2021

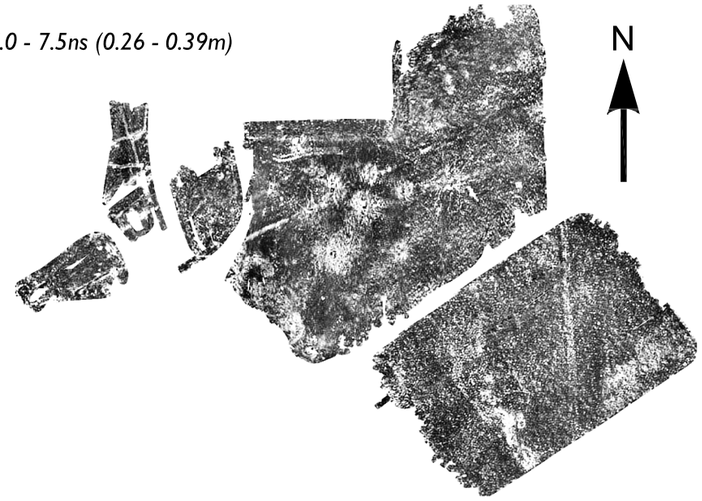
0 - 2.5ns (0.0 - 0.13m)



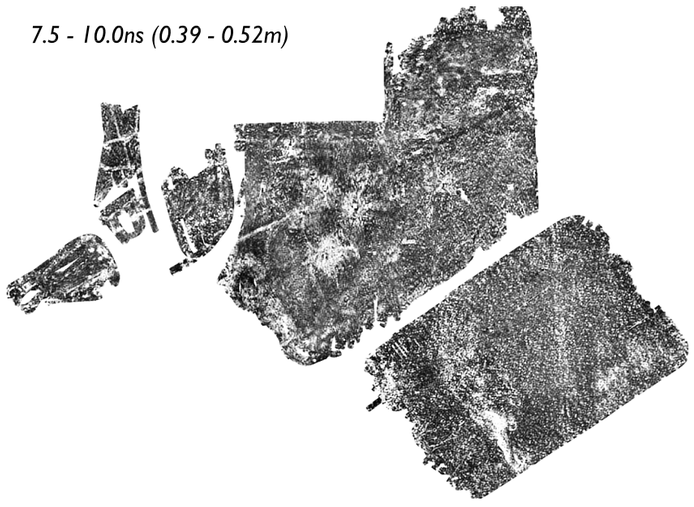
2.5 - 5.0ns (0.13 - 0.26m)



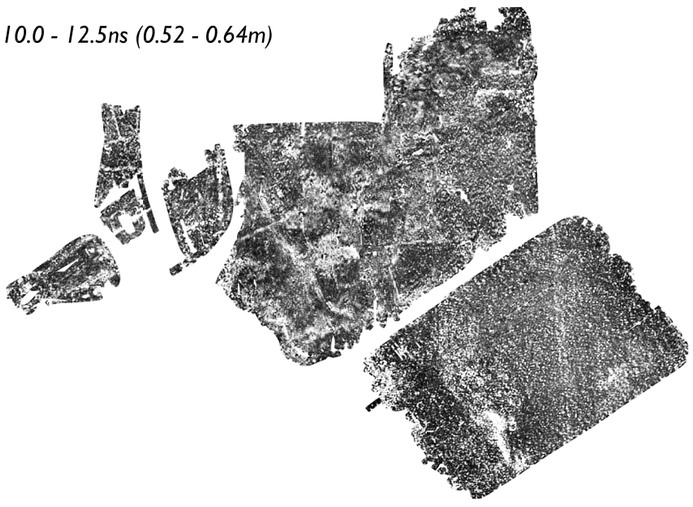
5.0 - 7.5ns (0.26 - 0.39m)



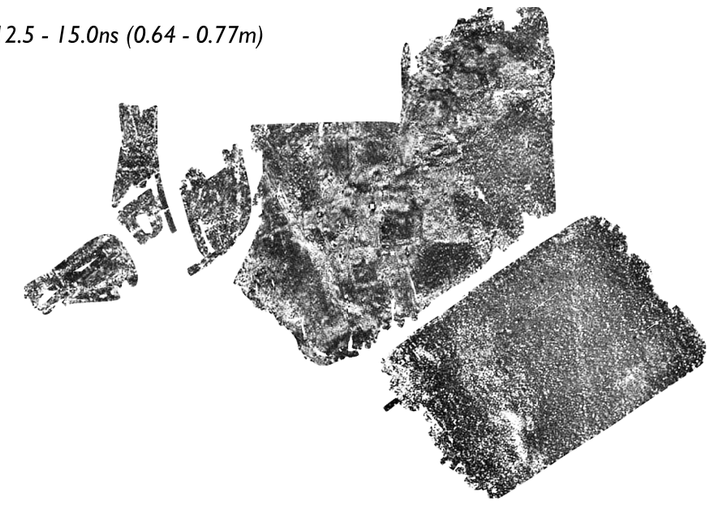
7.5 - 10.0ns (0.39 - 0.52m)



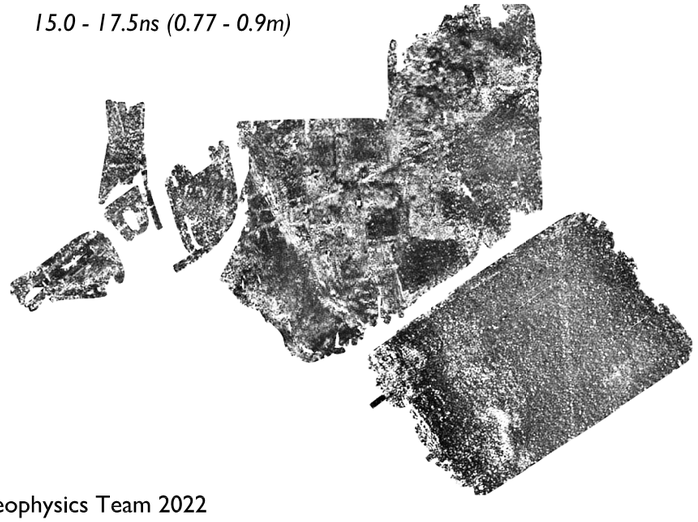
10.0 - 12.5ns (0.52 - 0.64m)



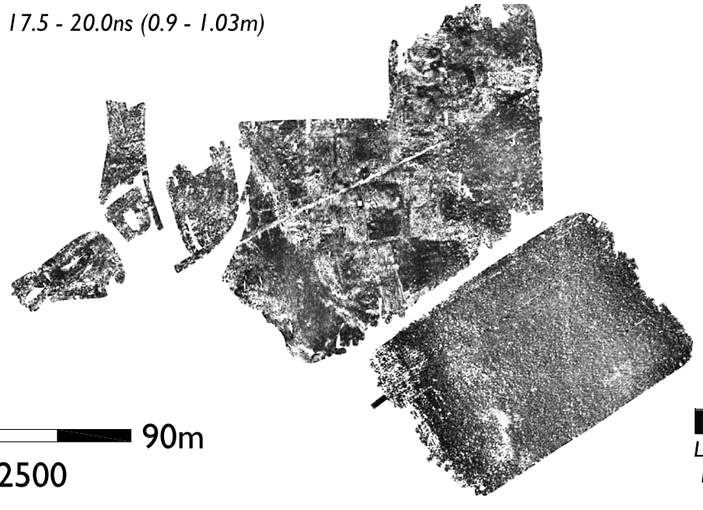
12.5 - 15.0ns (0.64 - 0.77m)



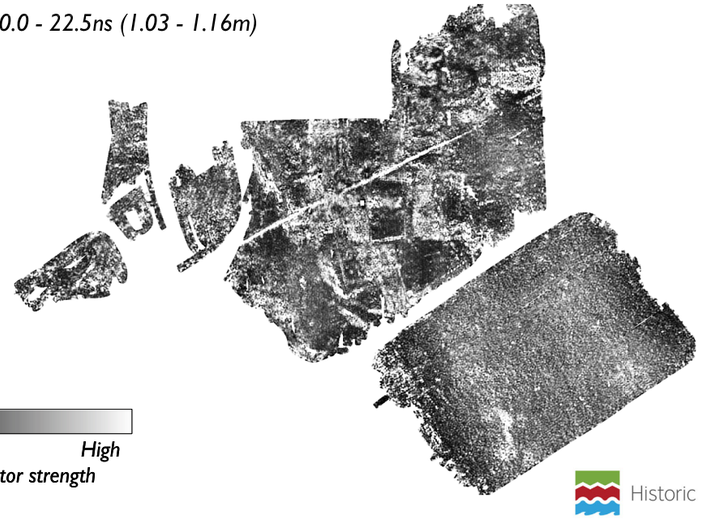
15.0 - 17.5ns (0.77 - 0.9m)



17.5 - 20.0ns (0.9 - 1.03m)



20.0 - 22.5ns (1.03 - 1.16m)



0 90m

1:2500

Low *High*

relative reflector strength

Geophysics Team 2022

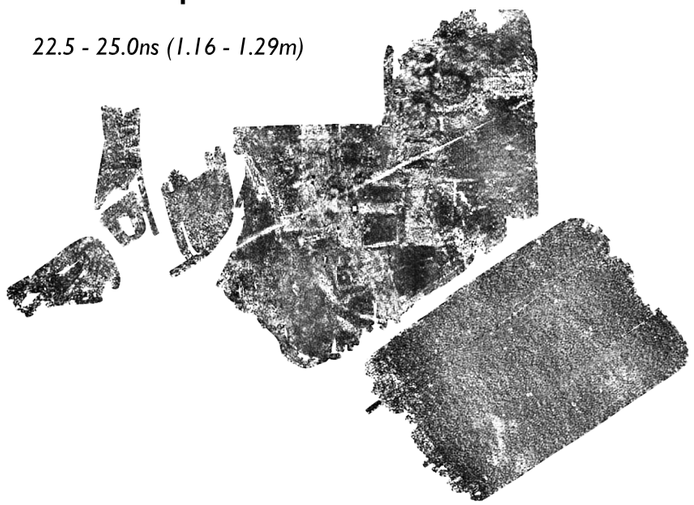
Historic England

Figure 5

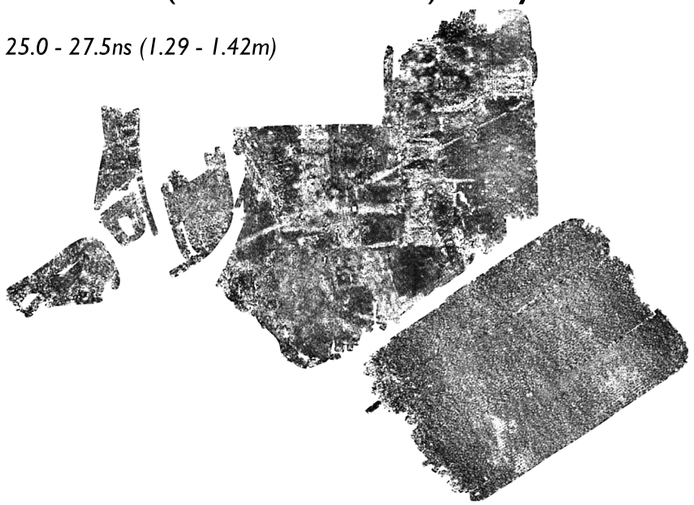
DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

GPR amplitude time slices between 22.5 and 45.0ns (1.16 to 2.32m), May 2021

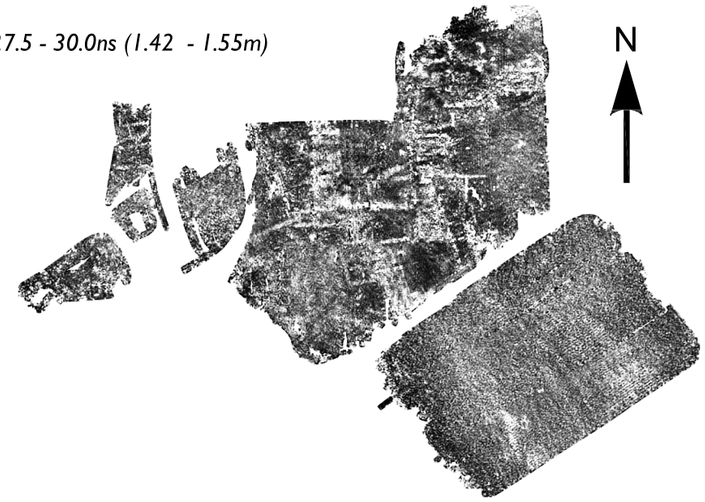
22.5 - 25.0ns (1.16 - 1.29m)



25.0 - 27.5ns (1.29 - 1.42m)

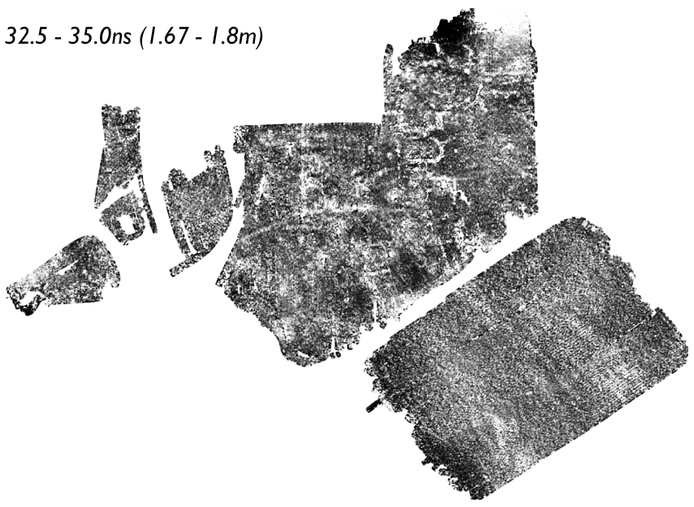


27.5 - 30.0ns (1.42 - 1.55m)

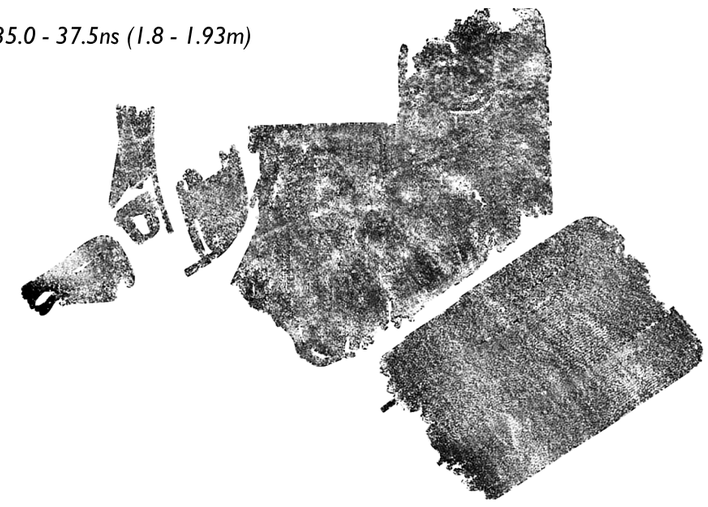


30.0 - 32.5ns (1.55 - 1.67m)

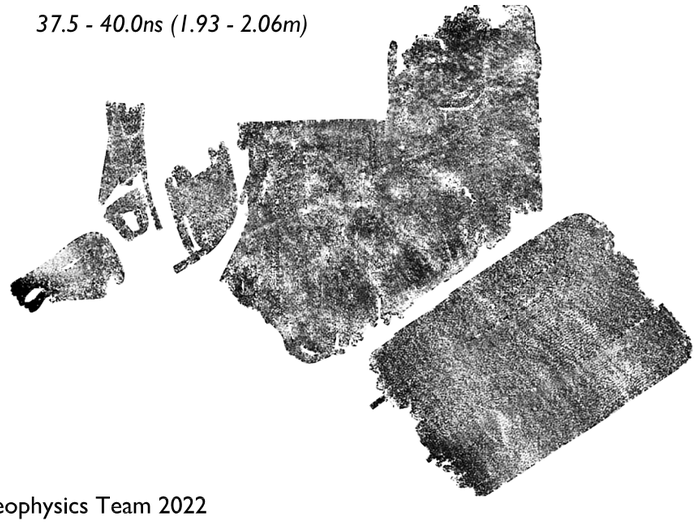
32.5 - 35.0ns (1.67 - 1.8m)



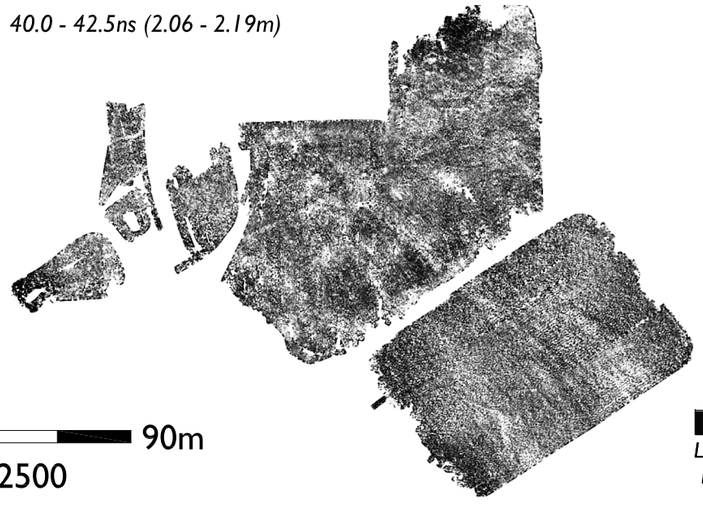
35.0 - 37.5ns (1.8 - 1.93m)



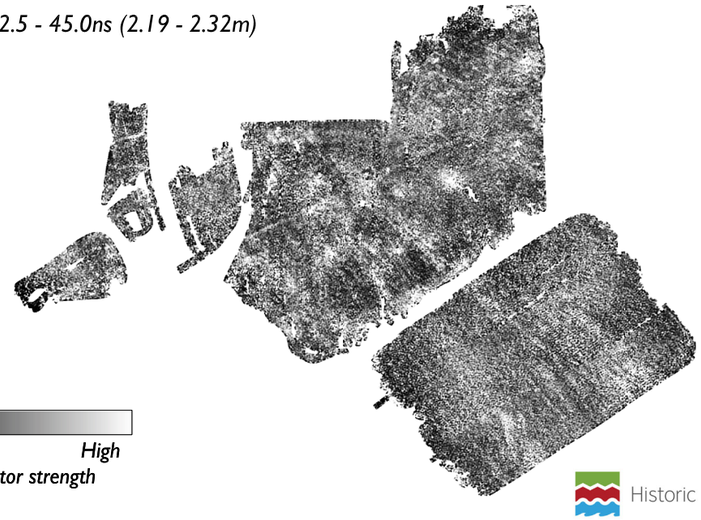
37.5 - 40.0ns (1.93 - 2.06m)



40.0 - 42.5ns (2.06 - 2.19m)



42.5 - 45.0ns (2.19 - 2.32m)



0 90m

1:2500

Low *High*

relative reflector strength

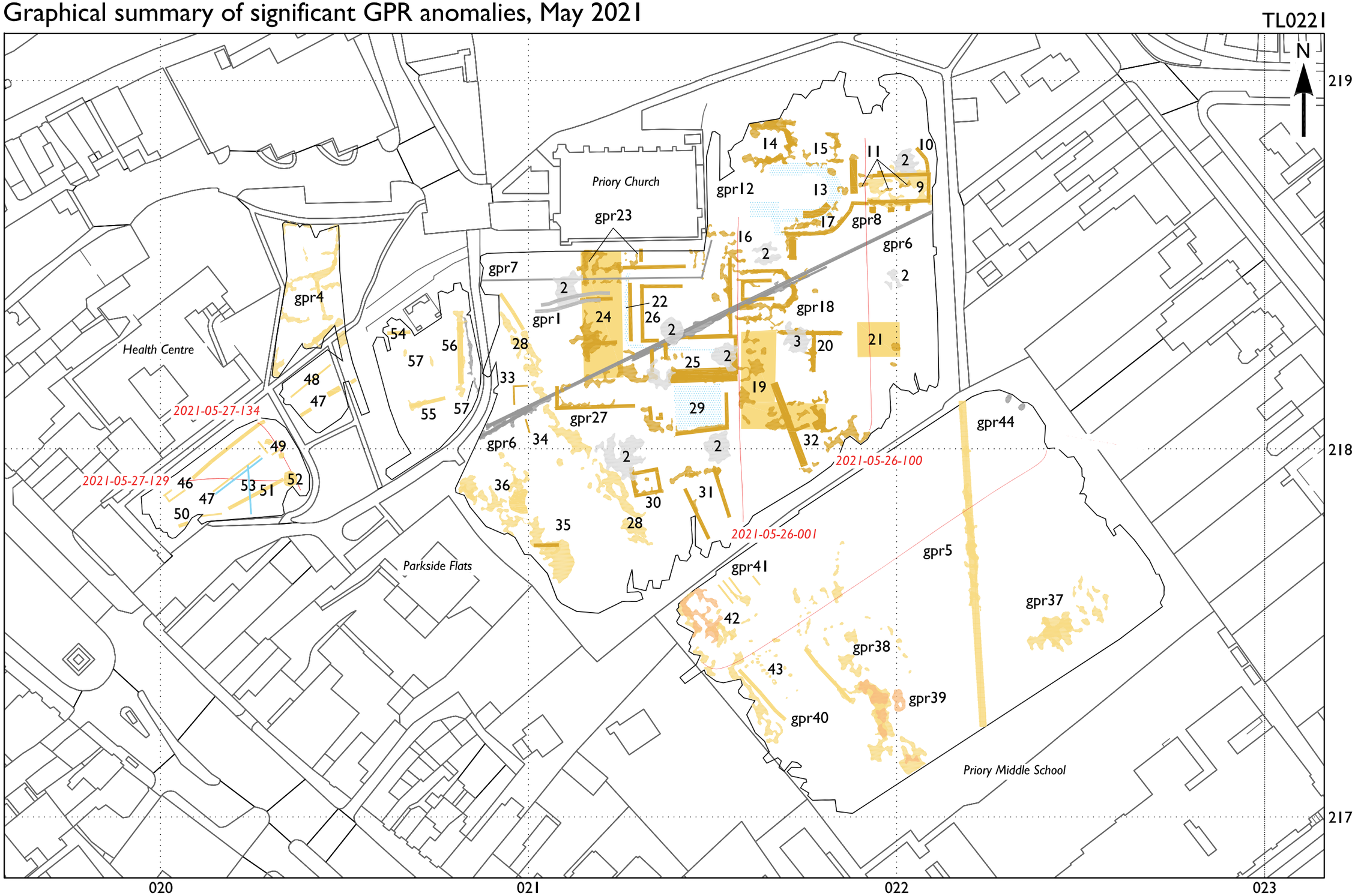
Geophysics Team 2022

Historic England

Figure 6

DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

Graphical summary of significant GPR anomalies, May 2021



0 60m

1:1000

low amplitude reflectors

high amplitude reflectors

anomalies of known or recent origin

2021-05-25-001 Location of selected GPR profiles shown on Figure 3

Historic England

Geophysics Team 2022

Figure 7

DUNSTABLE PRIORY, DUNSTABLE, CENTRAL BEDFORDSHIRE

Manshead Archaeological Society earth resistance survey 2004-5

0 60m

1:1000

Geophysics Team 2022

Historic England

Historic England Research and the Historic Environment

We are the public body that helps people care for, enjoy and celebrate England's spectacular historic environment.

A good understanding of the historic environment is fundamental to ensuring people appreciate and enjoy their heritage and provides the essential first step towards its effective protection.

Historic England works to improve care, understanding and public enjoyment of the historic environment. We undertake and sponsor authoritative research. We develop new approaches to interpreting and protecting heritage and provide high quality expert advice and training.

We make the results of our work available through the Historic England Research Report Series, and through journal publications and monographs. Our online magazine Historic England Research which appears twice a year, aims to keep our partners within and outside Historic England up-to-date with our projects and activities.

A full list of Research Reports, with abstracts and information on how to obtain copies, may be found on www.HistoricEngland.org.uk/researchreports

Some of these reports are interim reports, making the results of specialist investigations available in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation.

Where no final project report is available, you should consult the author before citing these reports in any publication. Opinions expressed in these reports are those of the author(s) and are not necessarily those of Historic England.

The Research Report Series incorporates reports by the expert teams within Historic England. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series, the Architectural Investigation Report Series, and the Research Department Report Series.

ISSN 2398-3841 (Print)
ISSN 2059-4453 (Online)