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Corpus Christi College, Oxford. New Library

Archaeological Evaluation Report

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Summary

In April 2015, Oxford Archaeology (OA) carried out a field evaluation at Corpus Christi College, Oxford (SP 515 060). The evaluation revealed the top of the second terrace gravels, which did not appear to have been truncated and were overlain by a possible buried soil horizon which may have represented a variation in the composition of the post-glacial brickearth deposit which overlies the second terrace.

The possible buried soil was overlain by a series of clay silt deposits, some of which contained waterlogged material, which may have represented trample and/or domestic refuse possibly associated with an unmetalled right of way pre-dating the late Saxon Shidyerd Street, the projected line of which runs through the site. These deposits were overlain by a layer of limestone rubble which may have represented the first in a series of rudimentary surfaces interspersed with thick accumulations of silty material which produced a considerable quantity of animal bone, presumably deposited by the occupiers of structures fronting on to the street. The majority of datable artefacts recovered from these layers appear to suggest that they were deposited between the 11th and 12th centuries, with the predominance of St Neot's ware probably suggesting a pre-conquest date for the majority of the sequence. The latest of the rudimentary surfaces appear to date from the 12th–14th century.

The uppermost of the sequence of surfaces was well-metalled and was predominantly constructed from large limestone cobbles. The dating evidence suggested that this may have been laid as early as the 14th century, and is perhaps contemporary with the acquisition of the lower end of Shidyerd Street by Merton College in 1321, with the materials used to construct it possibly originating from buildings which are documented as having been demolished by the College in 1317.

The deposits overlying this surface were of uncertain origin, although they are likely to be 16th-century in date and may relate to the early use of the site following the foundation of Corpus Christi in 1517. The paucity of evidence for any activity between the 14th and 16th centuries may reflect the economic decline in Oxford throughout the 15th century.

The lack of any later surfaces associated with the construction of the President's Lodging in 1607 suggests a degree of truncation prior to the construction of the existing car park, as it seems highly likely that the access to the newly built lodging would have been through the site.

A number of possible postholes which truncated the ?14th-century surface, and possibly the series of deposits overlying it, may have been associated with the construction of the Canterbury Gate and eastern range of the Canterbury Quad of Christ Church College in 1778. These deposits were directly overlain by the modern bedding deposit for the existing tarmac surface.

1 INTRODUCTION

1.1 Location and scope of work

1.1.1 Oxford Archaeology (OA) were commissioned by Turnberry Planning Limited on behalf of Corpus Christi College Oxford to undertake an evaluation of the site of a proposed new library building.

1.1.2 The work was undertaken to inform the Planning Authority in advance of submission of a Planning Application. Although the Local Planning Authority did not set a brief for the work, discussions with David Radford of Oxford City Council established the scope of work required. A Written Scheme of Investigation was produced which outlined how OA would implement those requirements.

1.1.3 All work was undertaken in accordance with local and national planning policies.

1.1.4 The Site is divided into three key areas.

- The car park situated on the north-western boundary of the College;
- the area currently occupied by the 6 & West Building and associated extensions;
- the Garden Quad.

1.1.5 Two 5m x 2m trenches were excavated within the car park, and a geophysical and subsequent auger survey were undertaken within the Garden Quad.

1.2 Geology and topography

1.2.1 The proposed development area (the site) is located along the western boundary of Corpus Christi College, reaching from Merton Street at the north to the southern extent of the 6 & West Building (Fig. 1). Corpus Christi College is located in central Oxford, between Christ Church to the west and Merton College to the east. The College is located within the medieval city, and the southern boundary of the college is defined by a surviving section of the medieval city wall which is a Scheduled Monument, although it has recently been proven to have been at least partially re-built in the early 17th century (Bashford *et al.* 2014). The College is within the administrative area of Oxford City Council.

1.2.2 The site is located on the southern edge of the second river gravel terrace and the underlying geology is Oxford Clay. The site is mostly level, and lies at *c* 60m OD, although the ground floor of the 6 & West Building is slightly higher. There is a basement within the 6 & West Building which extends down to *c* 58m OD.

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background to the site has been described in detail in a Desk Based Assessment (OA 2015), the results of which are summarised below. Full references can be found in the source document.

1.3.2 The College stands in the heart of the historic University zone in the Central Oxford Conservation Area, amongst an extensive group of Listed Buildings and Registered Gardens. It is adjacent to the open countryside of Christ Church Meadow, which its garden overlooks, as it does the Cathedral. The principal buildings of the college stand on its historic site on the south side of Merton Street, with an Annexe site across the road on the corner of Magpie Lane. The southern boundary of the Site is marked by the medieval city wall, a Scheduled Monument (although recently proven to have been at least partially re-built in the early 17th century (Bashford *et al.* 2014)). The site is

located on the suggested former alignment of a medieval road known as Shidyerd Street (now Oriel Street), which ran southwards from the High Street as far as Merton Street and may have continued southwards beside St Frideswide's Priory wall to a putative gate in the town wall in the vicinity of bastion 21.

1.3.3 Prehistoric activity has long been recognised to the north of the study area. In excavations on the south side of South Parks Road, within the Science area and northward in the University Parks, remains of Neolithic occupation and ritual, Bronze Age burial and Iron Age occupation have been seen. Recent works at St John's College, where a Neolithic henge was excavated, have suggested that this activity continues further south, although this is still some distance north of the site.

1.3.4 There have been no archaeological features of the prehistoric periods recorded within the study area. The only recorded prehistoric artefacts to have been recovered are five pieces of worked flint of probable Mesolithic-Neolithic date found during excavations at the college in 2008 and Palaeolithic flakes and flints found at Christ Church. Further prehistoric struck flint of unspecified date was recovered from the Christ Church Cathedral Garden and within the Cathedral in 1962.

1.3.5 Archaeological evidence for the Roman period within Oxford is dominated by the evidence from pottery production areas located to the east and south-east of the city centre. Closer to the study area, the excavations on the south side of South Parks Road (*c* 800m north of the site), within the Science Area and northward into University Parks, have also found remains of Roman agricultural activity, demonstrating continuity of use of the Iron Age settlement site. The area around South Parks Road and Mansfield College continued in use into the 4th century AD.

1.3.6 During archaeological works within Corpus Christi College in 2008, six fragments of Roman building material and four sherds of Roman pottery were recovered. This is one of the largest groups of Roman building material to have been found in central Oxford, but it is considered unlikely that this deposit is evidence of a significant Roman building in the immediate vicinity. It is thought more likely that the fragments and sherds were placed there during dung spreading.

1.3.7 The town of Oxford is believed to have its origins in the early 8th century about the time that the early religious house of St Frideswide was founded on the site of what subsequently became Christ Church. The city was developed as a fortified *burh* in the reign of King Alfred or his son Edward the Elder. By the 10th century a network of streets had been established and a defensive circuit constructed. Some evidence for a turf rampart has been found and wherever the early medieval rampart has been observed it has been on or close to the line of the later medieval wall.

1.3.8 It has been argued that the early medieval defences originally only enclosed an area from Oriel Street westwards and that the eastern part of the town was enclosed later. If so, the original eastern rampart would have coincided with the western boundary of Corpus Christi along the line of the Site. Archaeological evidence is insufficient to enable determination of the presence (or lack) of defensive remains (see 1.4.3 below).

1.3.9 The early medieval defences of Oxford seem to have continued in use until the 13th century when the stone walls were constructed. Part of the surviving city wall, including a bastion, forms the southern boundary of Corpus Christi although it underwent a substantial re-build in the early 17th century. It has been suggested that the bastion originally formed part of a gate situated at the bottom of the original length of Shidyerd Street which may have continued to cross a ford

1.3.10 To the west of Corpus Christi College, within the grounds now occupied by Christ Church, were St Frideswide's Priory to the south and Canterbury College to the north. The boundary between these two is approximately at the location of the churchyard road.

1.3.11 Merton College was founded in 1266. The lower section of Shidyerd Street, which appears to have run from the City wall to the boundary between St Frideswide's Priory and Canterbury College, seems to have been acquired by Merton College in 1321 when it bought the two southernmost tenements on the east side of the street. Salter records these two tenements as having been called Deveney's and Spicer's. These were converted into a garden for Merton College Bachelors, possibly along with the southern section of Shidyerd Street. The buildings which had occupied these plots are believed to have been removed by 1317, when the plot to the north of these, Beke's Inn, is referred to as being located 'in the corner', i.e. the last property within the city wall.

1.3.12 Although records remain listing the names of the plots along the eastern side of Shidyerd Street, what is not known is the exact division of these plots. Salter's Plan plots the potential location of the tenements based on an in-depth survey of medieval documents. It provides an informal indication of the layout but cannot be taken entirely literally. It shows to the north of the two properties obtained by Merton, plots called Beke's Inn and Neville's Inn, and the Garden Quad may lie on any of the Shidyerd Street plots (or indeed Merton Street fronting plots, such as St Christopher Hall), depending on the length and layout of each plot. However, regardless of which plot the site lies upon, many of the plots are called 'Inn' or 'Hall'. In an Oxford context the terms 'Inn' and 'Hall' are interchangable and often refer to academic institutions, and these plots are believed to have been such establishments. Archaeological work within Oxford has suggested that the usual layout of such plots consists of street front properties, often with stone built halls to the rear.

1.3.13 The buildings within Beke's Inn and Neville's Inn are likely to have remained until the early 16th century when Richard Fox, Bishop of Winchester, decided in 1511 to found Corpus Christi College. He acquired the properties, needed including Beke's Inn, in 1516/17, although some construction work began in 1512. The first students were admitted in 1517, by which time the buildings of the front quadrangle were complete and work had begun on the cloister building. The 15th-century kitchen block is the earliest surviving building on the site. At that stage the President's Lodgings were over the main gate on Merton Street.

1.3.14 Corpus Christi first leased the northern section of Shidyerd Street from the City of Oxford in 1557 and for at least part of the next half century it was used as a wood yard (the annual payments to the City of Oxford are often described in the accounts as 'for the woodyard'). Archaeological works to the north of the President's Lodging in the 1950s recorded a thick deposit of gravel interpreted as metalling of the street surface, whilst archaeological works carried out south of the site in 2008 (within the section of Shidyerd Street bought by Merton in 1321) found no evidence of either the road or a gate. It has been suggested that this lack of metalling may be due to a change in direction of the road, or that the lower section of Shidyerd Street may have been little more than a path. Another suggestion may be that the metalling was carried out by the City of Oxford and occurred after the purchase of the southern section by Merton, resulting in only the city-owned section having been metalled.

1.3.15 The earliest surviving detailed plan of the college is Ralph Agas' map of 1578, which shows Shidyerd Street to have continued to the city wall at that time, although gates

had been erected across it at the junction with Merton Street and at the boundary between land occupied by Merton College and the city of Oxford. Agas' plan shows trees in the Garden Quad, and no formal garden layout.

1.3.16 A new President's House was built in 1607 on the former line of Shidyerd Street, at the point where the Merton-owned section of the road had met the city-owned section. This new building is clearly shown on Loggan's birds eye view of the college from 1675, along with Shidyerd Street. The perspective of this plan unfortunately means that it is hard to determine the layout of the Garden Quad.

1.3.17 The new President's Lodging was not deemed adequate by President Turner, who was wealthy enough to finance extensions to it after his election in 1688. As well as remodelling the existing building he added wings to the south and east. The plan of this extended building is clearly shown on William Williams' plan of 1733. This detailed plan shows the northern section of Shidyerd Street to have become the carriage and foot access to the President's Lodgings, with landscaping along the eastern section, and presumably access along the western length. Williams' plan also shows the ornate layout of both the Garden Quad, and the Fellows Garden to the south, with ornamental flower beds and dividing walls.

1.3.18 The College finally purchased Shidyerd Street from the City of Oxford in 1878 by an exchange for part of Rewley Mead.

1.3.19 The President's Lodging experienced another major redevelopment phase in 1904 under President Case. The whole house was advanced eastwards into the garden, and was given a Gothic east front. This phase of rebuilding also resulted in the redesign of the Garden Quad with the wall between it and the Fellows' Garden rebuilt.

1.3.20 Even more radical changes were carried out in 1958, with the construction of the garage and apartments which now form the north-facing frontage of the building. To the east and south the old facades have been entirely retained.

1.4 Previous archaeological works

1.4.1 The Oxford Urban Archaeological Database (UAD) records two archaeological investigations as having been previously carried out within the northern area of the site which is now utilised as the college car park. An archaeological watching brief was carried out during the rebuilding of the President's Lodging (now the 6 & West Building) in 1958. During these works, remains of 12th- and 13th- century medieval houses were identified along the west side of (the former) Shidyerd Street. An earlier 14th-century wall was seen to have pre-dated the current 18th-century wall which divides Corpus Christi from Christ Church to the west, and in places overlies remains of the medieval houses. Deposits associated with the houses continued to a depth of at least 2.1m, and natural was not reached. At the same level as the houses, a thick deposit (*c* 0.9m) of the gravel was seen at a depth of around 1.05m below ground level (Sturdy 1963, 32) and interpreted as metalling of the street surface.

1.4.2 The second entry in the UAD refers to excavations at Corpus Christi College in 1986 on the former line of Shidyerd Street, plotted on the UAD as being located within the northern extent of the current carpark. This investigation involved observations of the floor beneath a small cellar on the line of Shidyerd Street. No signs of metalling were seen on the original topsoil but there may have been disturbance when the cellar was built (Dodd 2003, 260). Unfortunately, no plan of this investigation can be identified, and the exact location of this cellar is uncertain. It seems most likely that the cellar in question is that seen on the walkover survey, located beneath the 6 & West Building, and currently used as archive storage. The College Annual Reports for 1985/6 and

1986/7 talk of adaptation works to this basement to house the rolling stacks still in place today (pers. comm. Joanna Snelling, CCC Librarian).

1.4.3 There have been seven further archaeological investigations carried out elsewhere within the college. An excavation in Corpus Christi quadrangle (Hassall 1973) revealed a deep north-east/south-west aligned feature, which was interpreted as a ditch possibly forming part of the defensive circuit. However, the trench in which this possible feature was seen was not accessed as it was in excess of 4m deep, and the feature was rapidly recorded prior to backfilling. Additionally, the natural gravel of the second terrace was not encountered - which was interpreted at the time as evidence for the location of the nearby St Frideswide's minster (subsequently Christ Church Cathedral) being on a promontory of the gravel. The potential ditch was seen to *"cut through loam"* - the origin of which is unclear - and the alignment seems incongruous with the interpretation of the feature as the eastern defensive ditch of the late-Saxon burh. Consequently, the veracity of the interpretation of this undated feature as a late-Saxon defensive ditch is uncertain.

1.4.4 Work carried out at Staircase 7 at the south-east of the front quadrangle in 1979 was unable to determine whether natural clay or ditch fill had been encountered. Archaeological works to the south of the site in 2008 recorded no evidence of such a ditch. Augering carried out during the construction of a new beer cellar recorded a clay deposit which could either have been natural clay or a deep ditch fill.

1.4.5 The bastion and its interior were subject to an extensive study in 1981, followed by a watching brief in 1986. In 2008 archaeological work was carried out within the bastion prior to the construction of the new auditorium. These studies revealed no evidence for Shidyerd Street, instead identifying a 9th-century burial outside of the known extent of St Frideswide graveyard, together with 11th-century charnel pits on the proposed line of the street. These works also recovered Mesolithic-Neolithic flints and six fragments of Roman building material (Bashford *et al.* 2014, 177). A watching brief in the north-east of the College in 2000 revealed remains of a well and cess pits dating from the 11th to 13th centuries.

1.4.6 Outside Corpus Christi College, recent archaeological works carried out within the grounds of Christ Church recorded evidence of late Saxon occupation, burials and other evidence of St Frideswide's Priory. Also recorded were metalled road surfaces, medieval buildings and evidence of the street layout. The majority of the archaeology was found at shallow depths, with structural remains recorded in the ditches closest to Corpus Christi at only 0.5m below ground surface.

2 Evaluation Aims and Methodology

2.1 Aims

General

2.1.1 The aims and objectives of the works were:

- to determine the presence or absence of significant archaeological remains;
- to determine or confirm the approximate extent of any surviving remains;
- to determine the date range, and phasing, of any surviving remains by artefactual dating;
- to determine the condition and state of preservation of any remains;
- to determine the degree of complexity of any surviving horizontal or vertical stratigraphy;
- to assess the associations and implications of any remains encountered with reference to the historic landscape;
- to determine the potential of the site to provide palaeoenvironmental and/or economic evidence, and the forms in which such evidence may survive;
- to determine or confirm the likely range, quality and quantity of the artefactual evidence present.

Site specific aims and objectives

2.1.2 The specific aims and objectives of the evaluation were:

- to examine the whole archaeological sequence to the depth of the natural geology or proposed basement impact depth by a combination of trial trenching, geophysical survey and auger survey.
- to determine the presence or absence of the Saxon *burh* defensive ditch, and any overlying deposits, features and structures within the Garden Quad by means of geophysical survey and auger survey.
- to determine the presence or absence of former road surfaces of Shidyerd Street and any associated building frontages within the car park.

2.2 Methodology

2.2.1 A summary of OA's general approach to excavation and recording can be found in Appendix A of the WSI. Standard methodologies for Geomatics and Survey, Environmental evidence, Artefactual evidence and Burials can also be found in the appendices to that document (Appendices B, C, D and E respectively).

2.2.2 Site specific methodologies were as follows:

Evaluation trenching: car park

2.2.3 Two trenches measuring 5m long by 2m wide were excavated as indicated on Figure 2. The tarmac surface was cut out using a petrol-powered ground saw, and broken out using a breaker fitted to a 2.5 tonne rubber tracked mini-excavator.

2.2.4 The modern overburden and undifferentiated later post-medieval layers were removed by a machine fitted with a toothless ditching bucket under constant archaeological supervision.

2.2.5 Machining ceased at the top of the first archaeologically significant deposit, and further reduction was undertaken by hand within a 1m wide slot across each trench.

2.2.6 Hand-augered boreholes were undertaken to investigate the base of the stratigraphic sequence in each trench.

Geophysical Survey: Garden Quad

2.2.7 The methodology for the geophysical survey is as outlined in the WSI, a brief summary of the results can be found in Section 3 and the full report is presented in Appendix D.

Auger survey: Garden Quad

2.2.8 The methodology for the auger survey is as outlined in the WSI. It was originally intended to investigate the sediment sequences at five locations within the Garden Quad, but following consultation with David Radford (Archaeologist for Oxford City Council), this was reduced to three, forming an east-west transect in the central part of the Quad. At two of the locations (OA01 and OA02 - Fig. 2) a hand operated percussion window sampler was employed, the remaining location was sampled using the hand auger (OA03). A summary of the findings of the survey can be found in Section 3 and the tabulated results are presented in Appendix E.

3 Results

3.1 Trench 1

3.1.1 Trench1 measured 5m x 2m and was machine-excavated to the top of a limestone cobbled surface (104) at between 0.52m and 0.74m below existing ground level (bgl) (60.38m OD and 60.16m OD respectively). A 1m wide slot was then hand-excavated to a maximum depth of 2m bgl (*c* 58.90m OD) and the remainder of the unexcavated stratigraphic sequence sampled by three hand-augered boreholes (BHs 1.1, 1.2 and 1.3 - Fig. 3).

3.1.2 Natural gravel was encountered in the base of the three auger holes at between 58.45m OD in BH1.3 and 58.58m OD in BH1.1 and was overlain by a *c* 0.4-0.5m thick deposit of sterile mid yellowish brown clayey sand with orange brown mottling (130). Deposit 130 was overlain on a horizontal interface by a deposit of similar composition, although considerably more mixed, with concentrations and lenses of mid grey silty clay and occasional charcoal flecks (129).

3.1.3 The top of deposit 129 sloped from west to east at approximately 10º-15º and was overlain by a series of deposits which generally reflected this gradient, although a number of deposits extending beyond the eastern baulk appeared to slope from east to west (126, 127, 128). The composition of these deposits is described in detail in Appendix 1, and the stratigraphic relationships are illustrated in Figure 5 (Sections 100-103). The lowest of the deposits (128 and 127) were clay rich and contained organic material indicative of waterlogging. The overlying layers comprised a series of silty clay layers (131, 126, 122, 118) interspersed with a layer of rubble (123) and another of re-deposited gravel (117). It is possible that rubble layer 123 and gravel layer 117 represent rudimentary surfaces. The latest of the deposits in this sequence was a mixed layer, the composition of which was characteristic of cess pit fill (116), with a 0.1m thick layer of charcoal in the north-west corner.

3.1.4 Many of these deposits produced a relatively large assemblage of animal bone, with the only datable artefactual material suggesting a deposition date in the 11th- or 12th-century. The artefactual assemblage and composition of the deposits were generally indicative of discarded domestic refuse characteristically found in pits.

3.1.5 Deposit 116 was overlain by a rubble-rich layer (114). It is possible that this acted as a bedding deposit for the overlying surface (104) as the interface between deposit 116 and the rubble rich layer (114) reflected the west to east slope of the underlying deposits, and it is possible that rubble layer 114 was deposited to consolidate the softer underlying silts prior to the laying of surface 104. However, deposit 114 may have formed part of a rough surface in itself, particularly as a possible gravel repair (121) was apparent in the eastern end of the sondage, and both 114 and 121 were overlain by a possible layer of trample (113) which was overlain by surface 104.

3.1.6 Surface 104 also sloped from west to east and was primarily comprised of relatively large limestone blocks up to 0.3m x 0.26m x 0.13m, with smaller stones and limestone fragments rammed in the gaps between to create a very compact surface. There was some evidence for later patching with a compacted layer of small rounded gravel pebbles (111), noticeably present in the south-eastern corner of the trench, and possibly filling a wheel rut.

3.1.7 In the eastern half of the trench, the surface was overlain by a silty deposit (103) which may have represented trample and was itself overlain by a mixed deposit of lime mortar and limestone rubble (102). The origin of this deposit was unclear, although it may have

been construction debris deposited to level the slope of the underlying surface. Overlying deposit 102 and the surface 104 along the western edge of the trench was a fairly homogeneous silty clay (101) of indeterminate origin which was directly overlain by the bedding layer for the existing tarmac surface.

3.2 Trench 2

3.2.1 Trench 2 also measured 5m x 2m and was machine-excavated to the top of the same surface (here numbered 206) which was encountered at approximately 0.74m bgl (60.28m OD). A 1m-wide slot was then hand-excavated to the top of a rubble-rich deposit (216) which was the equivalent of the possible rudimentary surface represented by deposit 123 in Trench 1. A sondage was then excavated to a maximum depth of 2m bgl (*c* 59.11m OD) and the remainder of the unexcavated stratigraphic sequence sampled by a hand-augered borehole (BH 2.1 - Fig. 4).

3.2.2 Natural gravel was encountered at the base of the auger hole at approximately 58.72m OD and was overlain by a *c* 0.4m-thick deposit of light reddish brown sandy clay with gravel inclusions towards the base (222). Deposit 222 was overlain by a mid grey silty clay with reddish brown mottling and 1% charcoal inclusions (221) which may have been the equivalent to deposit 129 in Trench 1, although it was similar in composition to the concentrations and lenses of material within the latter, rather than the main component of yellowish brown sandy clay.

3.2.3 This layer was overlain by a series of deposits (221, 219, 220, 218, 216, 215) which again appeared to generally slope from west to east on a shallow gradient of approximately 10º-15º, although a possible westward sloping "cut" (217) in the western extent of the slot is possibly a tip-line within the overall sequence. The composition of these deposits is described in detail in Appendix 1, and the stratigraphic relationships are illustrated in Figure 6 (Section 200).

3.2.4 As suggested above, there was a degree of correlation between the deposits in Trenches 1 and 2, and the most likely corresponding deposits are listed in the table in Section 4. Whilst the correlations suggested between the deposits are somewhat tentative, there were some similarities between the composition of the deposits and clear parallels in the artefactual assemblage retrieved from the two trenches, and consequently a similar origin for the deposition of these layers is likely.

3.2.5 In contrast to Trench 1, the uppermost of the fill-like deposits (215) was overlain by a phase of cobbled surface (211) pre-dating the metalled surface at the top of the hand-excavated sequence. The earlier surface overlay a 0.1m-thick sandy gravel bedding deposit (212) and comprised a very compacted layer of rounded river cobbles and some rounded limestone fragments. The cobbling was an average of 0.12m thick and was overlain by a thin dark grey silt occupation or trample deposit (210) over the top of the surface, which was in turn overlain by an accumulation of silty clay with animal bone throughout (209). Deposit 209 was overlain by a rubble-rich layer (208) which may have formed a rudimentary surface and also had an accumulation of clay silt between it and the later well-metalled surface (206), which was similar in construction to that in Trench 1, and also displayed evidence for later repair (205).

3.2.6 The deposits overlying the surface were also similar to those seen in Trench 1, with a possible layer of trample (204) overlain by a layer of mortar-rich rubble (203), which was in turn overlain by a homogeneous silty deposit of uncertain origin (202). Deposit 202 was directly overlain by the bedding deposit (201) for the existing tarmac surface (200).

3.3 Garden Quad geophysical survey

3.3.1 The Garden Quad was subject to Resistance and GPR Surveys (see Figure 2 and report in Appendix D). Both techniques revealed similar features within the top 1.5m including a possible east-west aligned garden feature interpreted as a path or planting bed, a north-west/south-east aligned service trench and a series of anomalies in the south-east corner of the surveyed area which are speculatively interpreted as the possible remnants of former buildings on the site.

3.3.2 It was not possible to positively identify the line of the medieval ditch associated with the Saxon *burh*. This was, in part, due to a lack of achievable penetration with the GPR and resistance systems being limited to around 2.0m below ground level whereas the cut feature found in previous excavations just to the north was around 4.0m deep.

3.4 Garden Quad auger survey

3.4.1 The auger survey revealed what is almost certainly *in-situ* brickearth overlying the terrace gravel, which together with the similarity in the elevation of the top of the gravel and that revealed within a soakaway trench during excavations associated with the new auditorium to the south, strongly suggests that no truncation of the gravel has occurred at this location, and that therefore the deep feature recorded in the Front Quad to the north does not extend as far south as the Garden Quad.

4 Discussion

4.1 Interpretation

Introduction

4.1.1 The stratigraphic sequence is reasonably well understood, although only a relatively small area was subject to excavation and consequently the following interpretation is necessarily circumspect.

4.1.2 The following table shows the possible correlation between the deposits encountered within the two trenches; the date of each deposit based on the artefactual material recovered, and the approximate elevation at the top of each deposit, or group of deposits.

Interpretation	Trench 1 (Context number)	Elevation at top (mOD)	Date (tpq)	Trench 2 (Context number)	Elevation at top (mOD)	Date (tpq)
Deposits overlying latest surfaces	101	60.60	**1550-1625/50**	204	60.78	**1550-1630**
Repair to surface	111	60.22		205	60.40	**12-14thC**
Metalled surface	104	60.16-60.38	**12-14thC**	206	60.40	
Trample	113	59.90	**12-14thC**	207	60.23	**12-14thC**
Rudimentary rubble surface or consolidation for metalled surface	114, 121	60.28-59.84	**1050-1150**	208	60.08	**12-14thC**
Refuse layers	118, 116	60.16	**1050-1150**	210, 209		**12-14thC**
Pebble cobble surface	not present			211	59.76-59.96	**12-14thC**
Re-deposited gravel (bedding deposit)	117, 125	59.60	**900-1100**	212	59.66-59.92	**1050-1150**
Refuse layers	122, 126	59.60	**900-1100**	212, 213, 214, 215	59.58-59.88	**12-14thC**
Rudimentary rubble surface	123	59.52	**900-1100**	216	59.56	
Accumulation of silt/waterlogged material	127, 128, 131	59.40	**1000-1100 (possibly as early as 875)**	218, 219, 220	59.52	
Mixed sterile/silty deposit	129	59.24		221	59.30	**Roman**
Possible buried soil horizon	130	58.97		222	59.08	

Table showing possible correlation between deposits in Trenches 1 and 2

Second terrace gravel and brickearth/loess *(Fig. 7)*

4.1.3 The presence of Oxford Clay in auger holes OA1 and OA2, with little or no overlying gravel, is consistent with earlier excavations at the edge of the second terrace to the west (OA 2008 and Brian Durham, pers. comm.) and implies the truncation of the second terrace gravels and underlying clay during a later phase of post-glacial deposition of gravels on the floodplain.

4.1.4 The elevation on the top of the gravel in the base of the auger holes in Trenches 1 and 2 (58.50m OD and 58.72m OD respectively) is slightly higher than that recorded in the augered boreholes in the Garden Quad (58.25m OD), and that recorded within the soakaway trench in the Fellows Garden (58.15m OD) which was excavated during the construction of the New Auditorium. This is generally consistent with a gradual slope from north to south as the second gravel terrace drops away towards the flood plain to the south.

4.1.5 The fact that the gravel in the soakaway trench and the Garden Quad auger holes was overlain by relatively undisturbed brickearth would suggest that the gravel has not been truncated in these locations, and that consequently the higher elevation of the gravel in Trenches 1 and 2 suggests that little or no truncation of the gravel has occurred in the location of the car park.

4.1.6 It is therefore possible that the sterile sandy deposit at the base of the sequence in both Trench 1 and Trench 2 represents a variation in the composition of the brickearth. Although the composition of this deposit within the Garden Quad auger holes and the soakaway trench was more typical of the reddish brown sandy clay which characterises the brickearth where encountered elsewhere within the city, previous archaeological work along the edge of the second terrace has identified possible variations in this deposit where the second terrace gives way to the floodplain to the south. An example of this possible variation was recorded during evaluative work at the Westgate where in one of the trenches along the edge of the second terrace *"the gravel was overlain by a* ***c*** *0.10 m thick deposit of mid-brownish yellow clay sand which may represent the remnants of a buried soil. Whilst no evidence for the loess which is known to overlay the terrace gravels in Oxford was encountered within the trench, it is possible that the deposit may represent a variation in the loess at the periphery of the second terrace."* (OA 2008).

Shidyerd Street

4.1.7 No evidence for the primary *burh* defences was encountered in either the evaluation trenches or the auger holes in the Garden Quad, although the rudimentary nature of the majority of the earlier surfaces encountered within the trenches (in particular 123, 117, 216, 114, 208), together with the substantial accumulation of fill-like material over many of them, led to the initial interpretation of most of the sequence as a surface midden, possibly built up against the projected line of the early rampart.

4.1.8 However, comparison with recently excavated late Saxon surfaces at Staple Gardens (formerly Brudene Street), Winchester suggested some striking similarities between the deposits encountered in Trenches 1 and 2 and the sequence of surfaces and deposits associated with Brudene Street (Ford and Teague 2011). The description of the primary surface of the latter notes that *"[t]he...surface had become very worn and was overlain by a thick accumulation of trampled green grey silt.....[later] repairs were followed by a further accumulation of green-stained silts that produce a considerable quantity of animal bone presumably deposited by the occupiers of adjacent structures."* (Ford and Teague 2011, 79). The 'thick accumulation' of silts was up to 0.5m thick (*ibid.* 82, fig.

3.5) and there is a notable similarity between the thickness of the deposit and the dominance of animal bone within the artefactual assemblage and that recovered from the 'midden deposits' in Trenches 1 and 2.

4.1.9 Evidence for primary street surfaces in Oxford has been recovered from a number of sites across the city and suggests that *"....a network of metalled streets had been laid down some time before the end of the reign of Edward the Elder, and that in places they had worn out and been resurfaced with inferior materials at least four times by the later 10th or early 11th century."* (Dodd 2003). Where the primary surfaces have been seen they characteristically comprise a very compacted layer of irregularly-sized fragments of limestone cobbles, small stones and gravel directly overlying the original topsoil (the loess/brickearth which overlies the gravel terrace), or the gravel itself. Where the major thoroughfares have been investigated (eg Hassall *et al.* 1989) up to 18 surfaces have been identified, with 'soil accumulations' on top of them. However, in a number of locations thought likely to form part of the early street grid, no evidence for this primary surface has been found. This includes St Michael's Street and also Oriel Street on the projected line of the northern continuation of Shidyerd Street to the north of the site (Dodd 2003, 259, fig. 5.24), and it has been suggested that this absence indicates that particular roads and passages were not a feature of the primary street layout, and represent later additions.

4.1.10 No evidence for a surface overlying the buried soil horizon (130/222) was recovered during the evaluation, perhaps suggesting that Shidyerd Street was not part of the original grid. Additionally, the rudimentary nature of the later surfaces may indicate that the street was not originally a planned addition, but developed as a right of way running adjacent to the putative primary *burh* defences, the proximity of which may be the origin of the name Shidyerd (OE *scid-geard* apparently referring to a palisade. (Dodd 2003, 24)).

4.1.11 The origin of the disturbed 'sterile' deposit (129/221) overlying the buried soil, and the silt accumulation (127, 128, 131 and 218-220) beneath the earliest recognisable surface (123, 216), is uncertain. It is possible that the area had been utilised for the disposal of domestic refuse and that the boggy ground indicated by the waterlogged material retrieved from deposit 127 (see Meen, below) was created by the proximity of the putative defensive bank, the southern edge of the second terrace, and the traffic along the possible right of way suggested above, eventually necessitating the consolidation of the thoroughfare by the deposition of the limestone rubble of surface 123/216.

4.1.12 Alternatively, it is possible that the deposits beneath surface 123/216 relate to a phase of activity pre-dating the foundation of the *burh*. There is some suggestion that the location of the primary eastern defences of the *burh* was dictated by the presence of a pre-existing route from the north to a ford across a former river channel to the south, and evidence for a paved ford to the south of Bastion 21 was uncovered during building work in 1863 (Blair 1988, 222, fig. 90). An observation of the late Saxon ford at 65 St Aldate's (Dodd 2003, 32, plate 2.5) revealed a surface very similar in composition to surface 123/216 (Plates 4 and 5), and it is possible that this similarity may suggest a correlation with the possible ford to the south of the site, although the difference in elevation between the recently revealed surface (59.52-59.56m OD) and the ford recorded in 1863 (*c* 53.30m OD, Blair 1988, 229) is considerable. The channel to the south was still extant by the time of the earliest cartographic sources and both Agas (1578) and Hollar (1643) show a gap in the channel at this location, potentially suggesting that a ford was still in existence at this time.

4.1.13 The fact that surface 123/216 was almost exclusively of limestone may also be of some significance. The finish of the surface was particularly uneven, and did not appear to have been laid with any great care. Conversely, if the materials used originate from the nearest source of limestone (probably Headington quarry), then a considerable amount of effort has been exerted to import them to the site. Consequently, it is possible that the limestone used to create the surface was originally intended for use elsewhere. It is probable that the original timber-faced earthen rampart of the *burh* was reinforced with a stone-facing prior to the extensive re-building and creation of the bastioned stone wall in the 13th century (Dodd 2003, 135). The date of this stone facing is uncertain, although it is likely to coincide with the putative eastern extension, and the town is shown with a stone wall on the town seal of *c* 1190 (*ibid.* 139), so it is likely that the late Saxon defences had been rebuilt by then. As such, it is possible (although highly conjectural) that the limestone used to create surface 123/216 is surplus material from the construction of the stone revetment at some point prior to 1190.

4.1.14 The composition of, and artefactual material recovered from, the deposits (126, 122, 213, 214, 215) overlying surface 123/216 suggest that, despite the deposition of the limestone rubble, domestic refuse continued to be deposited directly onto the street. The overlying re-deposited gravel in Trench 1 (117) may be part of a later re-surfacing, possibly filling a wheel rut, and potentially contemporary with the bedding deposit (212) for the much more substantial cobbled surface (211) at approximately the same elevation in Trench 2 but not present in Trench 1. A further phase of soil accumulation (210, 209, 118, 116) was then overlain by a second limestone rubble deposit (114, 208) which was initially interpreted as a bedding layer for the well-metalled surface at the top of the hand-excavated sequence (104/206), but may well have formed a rudimentary surface in its own right, particularly as there was a further silt deposit (113, 209) between the two 'surfaces', and some evidence for a localised gravel repair (121) of surface 114 at the eastern end of Trench 1. The west-east gradient of a number of the deposits, and in particular the base of deposit 114, perhaps suggests that the greatest weight of traffic was towards the eastern half of the trench.

4.1.15 Whilst not unique in this context (see 4.1.7 above), the significant accumulation of material over the surfaces would seem to imply that localised patching or re-laying of sections of the thoroughfare was preferred to removing material which had accumulated over earlier surfaces. The relatively consistent spot-dates from the majority of the hand-excavated deposits (12th-14th century) may suggest that this sequence was deposited relatively rapidly prior to the construction of the well-metalled surface at the top of the sequence (104/206).

4.1.16 The lack of later medieval material was initially thought to imply that some degree of truncation had occurred prior to the construction of the latest surface. However, it is possible that 104/206 represents a relatively early surface, particularly given the quantities of 12th-14th century ceramic building material incorporated within it, and that little or no later re-surfacing occurred.

4.1.17 This is consistent with evidence to suggest that Shidyerd Street went out of use at a relatively early date. The Augustinian Priory of St Frideswide was issued with a number of writs in the 12th century allowing the newly established Priory to block up an intramural road, and to control a gate in the town wall (Blair 1988). Additionally, during excavations in advance of the construction of the new auditorium to the south of the site, numerous 11th-12th century charnel pits were excavated on the projected line of Shidyerd Street (Bashford *et al.* 2014). No evidence for the metalled surface revealed within Trenches 1 and 2 was uncovered during the auditorium excavations, and it is

possible that the surface did not extend that far south and therefore post-dates the writs mentioned above. It is possible that it is contemporary with the acquisition of the area to the south by Merton College in 1321 (see 1.3.11 above), and that the building material recovered from Surface 104 may even have originated from *"two houses between Beke's Inn and the Town Wall.....acquired by Merton.....pulled down, and the site thrown into the garden"* (Salter 1960). The paucity of evidence for any activity between the 14th and 16th centuries may reflect the economic decline in Oxford throughout the 15th century.

"Special Deposits"

4.1.18 Whilst the most likely interpretation of the deposits encountered during the evaluation is that they represent domestic refuse dumped on the street surfaces, it is worth noting some relatively recent papers regarding the interpretation of 'special deposits' in relation to Anglo-Saxon sites (Hamerow 2006; Morris and Jervis 2011). These draw attention to the potential utilitarian misinterpretation of the structured deposition of artefactual material in a ritual context, and that the deposition of disarticulated bone en masse may well be indicative of complex social practices rather than just the functional disposal of waste (Hamerow 2006), although it is also argued that the two are not necessarily mutually exclusive (Morris and Jervis 2011).

4.1.19 Some studies have identified a correlation between these deposits and the foundation or termination of structures and, perhaps significantly in relation to the evidence revealed during the recent evaluation, their association with boundaries and the proposition that *"the siting of special deposits in Anglo-Saxon England.....suggests emphasis on transitional places."* (Hamerow 2006).

Corpus Christi College

4.1.20 The Frechen stoneware pottery recovered from the deposits overlying the well-metalled surface suggest a date of between 1550 and 1650 for the deposition of these layers, although the lack of clay pipe indicates that a date prior to 1625 is more likely. Documents in the college accounts suggest that prior to the construction of the President's Lodging in 1607, the area was used as a wood yard, and it is possible that these deposits originate from this phase of activity. The mortar-rich layer (102/203) may be associated with the construction of the President's Lodging itself, and possibly formed a bedding or levelling deposit for a driveway which has subsequently been truncated, possibly during the construction of the adjacent Canterbury Gate in the 18th century.

Construction of Canterbury Gate, 1778

4.1.21 The origin of the features truncating the surface and possibly the 16th-17th century deposits overlying it is uncertain. The features may represent postholes, although if that is the case then their function is unclear. It is possible that these features related to the construction of the Canterbury Gate of Christ Church College in 1778, particularly given the presence of a fragment of Bath stone ashlar from the fill (106) of the only excavated one of these features. The features may represent postholes associated with scaffolding, although the feature in Trench 2 would appear to be too far south for this to be the case.

Aims and Results

4.1.22 The site specific aims (see 2.1.2 above) have been addressed as follows:

4.1.23 Natural gravel was encountered within the auger holes in both the Garden Quad and the car park trenches.

4.1.24 No evidence for any negative features was recovered from the auger holes in the Garden Quad.

4.1.25 The series of surfaces in both trenches suggests a well preserved sequence of late Saxon deposits and street surfaces survive beneath the possible 14th century metalling at the top of the hand-excavated sondages.

APPENDIX A. BIBLIOGRAPHY AND REFERENCES

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Appendix B. Trench Descriptions and Context Inventory

Context	Type	Depth	Comment	Soil Description	Spot date
Trench 1					
101	Deposit	0.2	Post-med deposit of indeterminate origin - 'made ground'	Mixed but predominantly mid-dark grey clay silt with 10-15% gravel inclusions	c1550-1625/50
102	Deposit	0.2	Possible levelling deposit/ construction debris	Mixed mortar and limestone rubble	
103	Deposit	0.2	?Trample layer over surface 104	Mixed but predominantly mid grey clay silt with concentrations of pale grey silt to east and occasional patches of compacted gravel (the latter probably part of 111)	
104	Surface	0.04-0.18	Possible 14th century surface	Metalled surface comprising large limestone blocks with smaller stones and limestone fragments rammed into gaps to create very compacted surface	c1075-1300
105	Cut	0.3	Possible posthole/pit cut through surface 104		
106	Fill	0.3	Fill of posthole/pit	Mixed but predominantly mid-dark grey clay silt with lenses and concentrations of mortar and occasional limestone fragments	c1400-1625
107	Cut		Unexcavated possible posthole/pit cut through surface 104		
108	Fill		Fill of unexcavated feature	Predominantly mid grey brown clay silt	
109	Cut		Unexcavated possible posthole/pit cut through surface 104		
110	Fill		Fill of unexcavated feature	Predominantly mid grey brown clay silt	
111	Deposit	0.04	Repair to surface 104 along eastern edge of Trench	Very compacted rounded gravel pebbles	
112	VOID	VOID	VOID	VOID	
113	Deposit	0.18	Silt accumulation over 'surface' 114/121	Mid-dark grey clay silt	c1150-1350
114	Deposit	0.2	Rudimentary surface	Loose limestone rubble	L12th-14thC
115	Cut	0.4	Possible "construction cut" for surface 114		
116	Deposit	0.24	Topmost of possible midden deposits over	Mixed mid grey clay silt and orangey brown sandy silt with	c1075-1150

Context	Type	Depth	Comment	Soil Description	Spot date
			'surface 117	c15% gravel inclusions	
117	Deposit	0.2	Possible localised surface or bedding deposit for surface	Mid orangey brown, fairly compacted re-deposited sand and gravel	c900-1100
118	Deposit	0.26	Possible midden deposit over 'surface' 117	Mid-dark grey clayey silt with 5% charcoal and 5% gravel inclusions	c1050-1150
119	VOID	VOID	VOID	VOID	
120	VOID	VOID	SAME AS 122	VOID	c1050-1150
121	Deposit	0.05	Possible repair to 'surface' 114	Gravel lens	
122	Deposit	0.18	Possible midden deposit overlying surface 123	Mid brown grey clay silt with 2-3% charcoal and occasional gravel inclusions	c900-1100
123	Deposit	0.16-0.24	Possible rudimentary surface	Limestone rubble in a mid-dark grey silty clay matrix	c900-1100
124	VOID	VOID	VOID	VOID	
125	Deposit	0.1	Probably a rubble rich variation in the composition of deposit 117	Limestone rubble in a mid orangey brown gravel matrix	
126	Deposit	0.2	Possible midden deposit overlying 'surface 123'	Tenacious mid grey silty clay	
127	Deposit	0.25	Possible midden deposit with some evidence of organic preservation and possible waterlogging	Very dark grey clay silt with 30% limestone rubble	c1000-1100
128	Deposit	0.15	Possible midden deposit	Tenacious mid-pale blueish grey clay	Roman?
129	Deposit	0.35	Possibly disturbed or re-deposited brickearth/ buried soil	Mid yellowish brown sandy clay with 2-3% charcoal inclusions and occasional mid grey brown silty patches	
130	Deposit	0.3-0.5	Sterile deposit encountered in auger - possible variation in loess / brickearth - partially disturbed / trampled	Very sterile mid yellowish brown clayey sand with reddish brown mottling and very occasional mid-grey silty clay patches - the latter of which contain charcoal	
131	Deposit	0.22	Possible midden deposit	Mid-dark blueish grey silty clay	
Trench 2					
200	Surface	0.05	Tarmac	Tarmac	
201	Deposit	0.2	Bedding for tarmac surface	Orange brown sand and gravel	
202	Deposit	0.18	Post-med deposit of indeterminate origin - 'made ground'	Friable mid grey brown sandy silt with 5% charcoal and 1% mortar inclusions	

Context	Type	Depth	Comment	Soil Description	Spot date
203	Deposit	0.16	Possible levelling deposit/ construction debris	Mixed mortar and limestone rubble	
204	Deposit	0.14	?Trample layer over surface 205	Compact mid grey sandy silt with occasional charcoal flecks and limestone fragments	c1550-1630
205	Surface	0.12-0.35	Probable repair to surface 206, or a later wholesale resurfacing of same	Surface comprised of rounded limestone cobbles and smaller rounded pebbles set in a yellowish 'mortar' matrix	c1075-1300
206	Surface	0.16	Possible 14th century surface	Surface comprised of large rounded limestone cobbles set in a sandy gravel matrix	
207	Deposit	0.06	Silt accumulation over 'surface' 208	Firm reddish brown clay silt with grey silty patches	c1225-1400
208	Deposit	0.30	Rudimentary surface	Fairly loose deposit of limestone rubble	c1150-1350
209	Deposit	0.10	Possibly occupation deposit associated with surface 211??	Firm reddish brown sandy clay with 5% gravel inclusions	
210	Deposit	0.005	Thin occupation / trample layer over surface 211	Friable dark grey sandy silt	c1150-1350
211	Surface	0.12	Compacted cobbled surface	Very compacted rounded river cobbles and some rounded limestone fragments set in a grey sandy matrix	c1225-1400
212	Deposit	0.05	Bedding layer for surface 211	Friable mid grey brown silty sand with 10% gravel inclusions	c1050-1150
213	Deposit	0.07	?Fill of 217 - possibly uppermost of ?midden deposits overlying 'surface' 216 with 217 representing a tip-line within same	Friable reddish brown sandy gravel with 5% charcoal inclusions	c1050-1150
214	Deposit	0.16	?Fill of possible pit 217 - possibly a midden deposit overlying 'surface' 216 with 217 representing a tip-line within same	Friable mid grey sandy silt with 5% oyster shell concentrations and 5% charcoal flecks	c1000-1100
215	Deposit	0.20	Possible midden deposit? A charcoal rich layer over 'surface' 216	Friable mid grey brown sandy silt with 10% charcoal inclusions	c1000-1100
216	Deposit	0.11	Possible rudimentary surface	Limestone rubble in a mid-dark grey silty clay matrix	
217	Cut	0.25	Possible pit cutting ?		

Context	Type	Depth	Comment	Soil Description	Spot date
			midden deposits, or a tip-line within same		
218	Deposit	0.08	Possible midden deposit	Firm dark grey brown clay silt with 5% charcoal inclusions	
219	Deposit	0.04	Possible midden deposit	Firm black charcoal stained silt	
220	Deposit	0.02	Possible midden deposit / surface	Friable light yellow brown sandy silt	
221	Deposit	0.13	Possibly disturbed or re-deposited brickearth/ buried soil - potentially originating from erosion of adjacent rampart?	Tenacious mid grey silty clay with reddish brown mottling and 1% charcoal flecks	Roman
222	Deposit	0.4	Relatively sterile deposit encountered in auger - possible variation in loess / brickearth - partially disturbed / trampled	light reddish brown sandy clay with gravel inclusions towards the base	
223	Cut		Unexcavated pit truncating surface 205 / 206		

APPENDIX C. FINDS REPORTS

C.1 Pottery *by John Cotter*

Introduction and methodology

C.1.1 A total of 115 sherds of pottery weighing 1643g were recovered from 25 contexts. An additional 53 mostly very small sherds (200g) were recovered from the sieved samples. These represent a range of medieval and post-medieval pottery fabrics but most of the contexts are of Saxo-Norman (late Saxon/early medieval) date. All the pottery was examined and spot-dated during the present assessment stage. For each context the total pottery sherd count and weight were recorded on an Excel spreadsheet (tabulated below), followed by the context spot-date which is the date-bracket during which the latest pottery types in the context are estimated to have been produced or were in general circulation. Comments on the presence of datable types were also recorded, usually with mention of vessel form (jugs, bowls etc.) and any other attributes worthy of note (eg decoration etc.).

Date and nature of the assemblage

C.1.2 Overall the pottery assemblage is in a very fragmentary condition and mostly quite worn/abraded although a few large and fairly fresh rim sherds occur in the earlier material. Ordinary domestic pottery types are represented. These are detailed in the table below and summarised here. Fabric codes referred to for the medieval wares are those of the Oxfordshire type series (Mellor 1994). The few post-medieval pottery fabric codes noted below are those of the Museum of London (LAARC 2007).

C.1.3 The few sherds of post-medieval pottery present are from context (101) one of the uppermost fills of Trench 1. These date to c 1550-1625/50 and include German Frechen stoneware - a common type of drinking jug often found on Oxford sites of this period. A few sherds of this also occur in (204) in Trench 2. Apart from these, however, post-medieval sherds are very much in the minority. The lack of clay tobacco pipe from the site also suggest a cut-off date of *c* 1625 for the sequence here. There are, likewise, only a very small number of glazed medieval jug sherds in Brill/Boarstall ware (*c* 1225-1625) from the upper part of the trench sequence. The upper part of the sequence in Trench 1 also produced many very worn pieces of glazed medieval peg tile (CBM) which must date after *c* 1170 when peg tile was introduced to the Oxford area. The lowest layer to contain glazed peg tile in Trench 1 is context (114) and the layer below this (116) produced one of the very few sherds of Medieval Oxford ware (OXY) from the site - suggesting a date of *c* 1075-1150 for this context (in combination with other earlier wares). There is some limited evidence, however, that Medieval Oxford ware may have been in use from *c* 1050 although the dating is mainly after *c* 1075. The sequence of layers below (116) produced a considerable number of sherds (including cooking pot and bowl rims) in wares characteristic of the Saxo-Norman period in Oxford (*c* 900-1100). These are dominated by St Neot's ware (OXR, *c* 900-1075/1100) and a very coarse flint- and quartz-tempered ware variously known as South-west Oxfordshire ware or (more recently) as Kennet Valley A ware (OXBF). The latter dates from as early as *c* 875/900 but is commonest in Oxford in the period *c* 1050-1250. Its frequent association on the New Library site in the same contexts as St Neot's ware suggests they are probably contemporary here and that most of the lower contexts in Trench 1 (from context 118 down) are probably of pre-Conquest date. The scarcity of Cotswold-type ware here (OXAC, from *c* 875, but mainly *c* 1050-1250) also supports this suggestion. In the lowest part of the sequence here contexts (122) and (123) produced only St Neot's ware while the layer below (127) produced the only three sherds of Late Saxon Oxford shelly ware (OXB) from the site, a single sherd of OXAC and a sherd of unidentified greyware (possibly Roman, or a Saxo-Norman import?). Fabric OXB dates to *c* 775-1030/50. The layer below (128) produced only a small residual sherd of Roman pottery. To some

extent all the pottery in the lower part of the Trench 1 sequence is redeposited/residual - as is evident from the worn condition of most sherds - but the quantity of it suggests that it may have been redeposited within the late Saxon period - or very shortly after this. The Trench 2 sequence appears to mirror that of Trench 1.

Recommendations

C.1.4 The assemblage contains a high proportion of late Saxon or Saxo-Norman wares including a number of rims. The whole assemblage deserves to be properly catalogued and reported on in more detail - perhaps as part of any further excavations on the site.

Ctxt	Spot-date	No.	Weight	Comments	Sieved No.	Sieve Wt
101	c1550-1625/50	3	49	Fresh bos (body sherds) 2 vess Frechen stoneware jugs (FREC). 16C-style good quality 'tiger' salt glaze ext & grey or pink int glaze		
104	c1075-1300	1	4	Bo Medieval Oxford ware (OXY) cpot. Sooted ext. fairly fresh		
106	c1400-1625?	2	15	1x late Brill (OXBX) worn ?flat base from jar or bowl/dish, with int clear glaze allover, poss 16C? 1x worn bo SW Oxon ware OXBF		
113	c1150-1350?	1	29	Bo East Wilts ware OXAQ (or OXBF?) jar/jug with traces combed wavy dec. Fairly worn		
114	c1050-1150?	3	59	1x worn shoulder bo SW Oxon ware (OXBF) jar with horiz grooves on neck. 2 joining fresh St Neots ware (OXR) bowl with classic inturned rim - v hard-fired and v marked throwing ridges int, rim damaged		
116	c1075-1150?	21	371	Early-looking asssemblage. Fresh & worn. 1x sag base OXY cpot - quartz poss red-stained by ground conditions? 3x crude bowl rims in coarse OXBF/early OXAQ (mostly with dark algal limestone & coarse flint), poss from 3 vessel incl 2 with thumbed rims (2 sooted ext). OXBF/OXAQ simple thickened & TFT cpot rims. A few worn Cotswold OXAC bos. 3-4 St Neots incl worn cpot rim & worn bos. No classic developed looking OXAQ (post c1150/75) & no glazed OXAW (c1175+) etc suggesting all pre-1200. Also scrappy sieved from <4> mainly OXBF but also 1x bo OXY cpot	18	71
117	c900-1100	2	23	St Neots ware (OXR). Cpot rim & bo. Fairly fresh. Both sooted ext		
118	c1050-1150?	2	28	Fairly fresh cpot rim OXBF - plain flaring everted with widely-spaced thumbed dec on lip (typical of OXBF), although it does contain some grey algal limestone like OXAQ - but forms look early & fabric fairly coarse. 1x small sag base sherd St Neots jar - sooted ext . Also scrappy sieved <6> mainly as above but incl joining plain flaring rims in v pale grey sandy fabric - possibly Stamford ware cooking pot, or poss Late Saxon N French import? Or poss Roman? Also 1x ?flat base in similar sandy fabric	28	105
120	c1050-1150?	3	58	2x worn St Neots ware incl rolled everted cpot rim - heavily sooted, & sooted bo. 1x sag base OXBF jar with int sooting (or early OXAQ? - grey algal limestone)		
122	c900-1100	6	46	All St Neots ware - fresh & worn bos from 4-5 vess mainly jars & prob 1 bowl, all sooted ext		
123	c900-1100	4	70	1 vessel large joining bos from 1 St Neots jar. Sooted ext & with rusty depsits int & ext		

Ctxt	Spot-date	No.	Weight	Comments	Sieved No.	Sieve Wt
127	c1000-1100?	0	0	Sieved <5>. Scrappy/worn incl 1x OXAC. 3x Oxford late Saxon shelly ware (OXB) incl TFT jar rim & 2 small bos. 1x bo (3g) v hard grey sandy ware - poss regional import (?Thetford-type ware c850-1100) or N. French or Roman?	5	20
128	ROMAN?	0	0	Sieved <3>. Worn scrap coarse grey sandy ware - Roman??	1	3
204	c1550-1630	3	40	1x FREC moulded jug base. 1x Raeren stoneware mug rim (RAER). 1x worn scrap late Brill OXBX or poss Cheam whiteware jug with bright copper green glaze int & ext		
205	c1075-1300	1	6	Worn OXY cpot base. Sooted		
207	c1225-1400	1	3	Worn bo Brill OXAM jug shoulder with splash of copper green glaze		
208	c1150-1350	1	4	bo OXAQ prob cpot with well-preserved ?water snail gastropod shell in break		
210	c1150-1350	2	9	Worn bos OXAQ - poss early? 1 sooted ext		
211	c1225-1400	10	118	1x OXAM green-glazed jug shoulder. 1x worn green-glz early Brill OXAW? 1 worn yell glazed prob Stamford ware (OXZ). Rest mainly worn bos & sag bases OXBF & poss 1-2 OXAC		
212	c1050-1150?	6	117	4x OXBF incl fairly fresh v plain flaring cpot rim with abund dark grey algal limestone & only sparse flint. Other worn OXBF bos & sag bases - some sooted. 2x St Neots incl large frag from worn classic inturned bowl rim (sooted) & beaded/thickened everted rim from small cpot - sooted		
213	c1050-1150?	13	261	Mainly OXBF/early OXAQ incls joining sherds & fresh rims from 2 jars/cpots with early-looking flaring/upright rims with ext bead. 1 jar has OXBF-style paired thumbed dec on rim (widely spaced) but all have reduced algal limestone/chalk as OXAQ but generally with a rougher/coarser texture & typology than OXAQ. Few sag bases & bos. 2 joining worn St Neots jar base		
214	c1000-1100?	15	216	13x St Neots ware incl rims from 5 separate cpots - fairly fresh/slightly worn, all sooted ext. Few St N bos incl 1 from a v small globular St Neots jar with a max body girth of c90mm - heavily sooted int. 1x bo in much finer shelly fabric. Sag base - probably JOINS (213). 2x bos v coarse OXBF		
215	c1000-1100?	14	112	Fairly scrappy/worn. Mostly OXBF incl fresh steeply flaring plain cpot rim (like OXAC forms) with flint & white algal limestone & poss some ooliths, sooted. OXBF sag base. 1 or 2 worn OXAC incl cpot rim. 5x smallish St Neots bos		
221	ROMAN	0	0	Sieved <2>. V worn basal sherd Roman glauconitic sandy ware	1	1
304	c1075-1300	1	5	OXY cpot bo. Sooted ext. fairly worn		
TOTAL		115	1643		53	200

C.2 Assessment of the ceramic building material (CBM) *by John Cotter*

Introduction and methodology

C.2.1 A total of 117 pieces of CBM weighing 3449g were recovered. These came from 14 contexts. This was examined and spot-dated during the present assessment stage in a similar way to the pottery (see above) and the data recorded on an Excel spreadsheet (tabulated below). As usual, the dating of broken fragments of ceramic or other building materials is an imprecise art and spot-dates derived from them are necessarily broad and should therefore be regarded with caution.

Date and nature of the assemblage

C.2.2 The CBM assemblage is in a very fragmentary and mostly very worn condition - suggesting redeposition in every instance. The assemblage is described in some detail in the table below and summarised only briefly here as there is little of much note. Early (often glazed) peg tile fragments comprise almost the entire assemblage. These date after *c* 1170 when flat roofing tiles or peg tiles were introduced to the Oxford area and most of the fabrics here are probably no later than c 1400. What is most noticeable about the assemblage is its extremely worn/abraded condition - some pieces almost have the appearance of being water-rolled. This is probably the result of centuries of redeposition and abrasion. Such pieces may have been used as metalling for trackways or courtyards etc. A few glazed ridge tile fragments were also noted and a very small number of ridge tile fragments seem to be in late medieval fabrics (15th/16th-century). Two pieces of residual Roman brick/tile were also noted. In view of the poor condition of the assemblage, no further work is recommended.

Ctxt	Spot-date	No.	Weight	Comments
101	L12-14C	7	328	Early peg tile Fabric 3B/7BB, mostly scrappy/worn but includes larger corner frag with circular nailhole (nh). Glaze splashes on 2
104	L12-14C	24	312	Unusually worn/scrappy early pegtile - poss used as road or yard metalling? Or field manuring? Some smaller bits quite rounded from abrasion. Mostly Fab 7BB, several glazed
106	15-17C?	6	153	All worn/scrappy. 1x 18mm thick frag poss unglazed/worn ridge tile in late med St Giles fabric. V worn early pegtile - some glazed
113	L12-14C	5	248	All worn/scrappy early pegtile - some glazed. Pink F7B & F7BB, F3
114	L12-14C	2	58	Worn scraps early F3 pegtile - 1 with greenish glaze
204	14-16C?	8	260	Mostly v scrappy/worn early pegtile incl F3B, F7B & a scrap of gritty Abingdon-type tile with glaze. Fresher v thick frag F3B curved ridge tile oxidised throughout & with glaze specks - prob late med? 1x v battered crest from a crested ridge tile in fine buff fabric with yellowish glaze - possibly Brill F3A? Latter prob 14-16C?
205	L12-14C	9	132	All worn/scrappy early pegtile. Possibly from just 3 crushed tiles with worn edges. Some glazed. F3
207	L12-14C	12	356	All worn/scrappy. Mostly early pegtile - some glazed. Probably 1-2 frags curved ridge tile - also early
208	L12-14C	2	309	Fairly fresh joining frags (fresh break) from a single early F3B/7BB ridge tile - almost one side profile with lower edge and patchy decayed greenish glaze on upper two-thirds
209	L12-14C	1	19	Worn scrap early F7BB pegtile with trace circular nailhole
210	L12-14C	4	56	Exceptionally worn/scrappy early pegtile frags. F3/7BB, Some glazed
211	L12-14C	30	1053	Exceptionally worn/scrappy early pegtile frags with rounded edges - but not water-rolled. F7B & F7BB, rare F7A. Some glazed. 2x worn Roman brick (320g) incl flatter (22mm thick) piece poss from a tegula & thicker (38mm) piece with grey core - probably a brick?
212	L12-14C	5	109	Exceptionally worn/scrappy early pegtile frags, F7B, F7BB, F3. 1 with circular nailhole

Ctxt	Spot-date	No.	Weight	Comments
213	L12-14C	2	56	Worn/scrappy early pegtile - 1 glazed
TOTAL		117	3449	

C.3 Bone *by Lena Strid*

C.3.1 A total of 1684 animal bone fragments were recovered from this site. This included 821 fragments (48.8%) which came from sieved soil samples. The vast majority of the assemblage came from layers that were dated to the Saxo-Norman and early Medieval period. The post-medieval period is represented by a total of 14 hand-collected bones and will not be discussed further.

C.3.2 The bone condition was generally good to fair. Gnaw marks from carnivores and traces of burning were found on 19 and 79 bones respectively. Most of the burnt bones were small fragments from sieved soil samples.

C.3.3 The assemblage contains bones from cattle, sheep/goat, pig, horse, dog, cat, ?red/fallow deer, domestic fowl, goose, duck, small wader, passerine and microfauna such as field vole, shrew and frog/toad (Table C3.1). A total of 12 bones could be identified as sheep and none as goat (cf Boessneck *et al*. 1964; Prummel and Frisch 1986). Goat is generally rare in Saxon and medieval bone assemblages, suggesting that most or all of the sheep/goat bones are of sheep.

C.3.4 Sheep/goat are more numerous than cattle, both when using fragment count and when calculating the minimum number of individuals (MNI) present in the assemblage. It is unclear whether the proportionally greater dominance of sheep/goat when using MNI (cf Table C3.1) is related to greater ease of identification of certain elements or whether a strong predominance of sheep/goat accurately reflects the animals slaughtered and eaten in this area of Oxford. Oxford assemblages from Saxo-Norman and early medieval period are generally dominated by either cattle or sheep/goat (cf Strid forthcoming). This is probably related to socio-economic differences amongst the inhabitants, as the local environment of the hinterland provides suitable grazing for both species.

C.3.5 The ageing data suggests that cattle and pig were mostly slaughtered as sub-adults and sheep/goat as adults (Table C3.2-3). The cattle may represent surplus stock that were fattened for sale at the urban markets. While sheep were primarily kept for wool, meat and skin were important by-products, necessitating slaughter of adult rather than elderly animals. Most sheep in the assemblage were slaughtered at 2-4 years of age. Neonatal or juvenile animals are represented by three sheep/goat and two pig limb bones and one large mammal vertebra.

C.3.6 Other animals that formed part of the diet include ?red/fallow deer, domestic fowl, goose, duck, wader and possibly also songbirds (passerine). Of these, domestic fowl were the most common animal. The scarcity of bones from juvenile birds suggests that fowl would have been kept mainly for eggs.

C.3.7 Butchery marks were noted on bones from cattle, sheep/goat and pig, as well as from medium and large mammals. Skinning is indicated by cut marks on cattle and sheep/goat metapodials and on a cattle first phalanx. Chop marks at the base of horn cores from cattle and sheep suggest that the horns were removed, probably for utilisation of the horn sheath as a raw material. Sagittally-split vertebrae from medium and large mammals, including atlas and axis from cattle and sheep, indicate division of the carcass in the initial butchery stage. Sagittal splitting also occurred on a sheep skull, facilitating access to the brain. Portioning of the carcass into cuts suitable for cooking was indicated by transverse division of one sheep/goat and two cattle scapula blades, one cattle and one pig humerus-scapula joint and two sheep/goat pelves – one divided across the ischium and the other across the ilium. The coronoid process from a sheep/goat mandible had been chopped off, suggesting disarticulation of the mandible.

C.3.8 Pathological conditions were rare in the assemblage, only present on three fragments. A cattle incisor had a deep wedge laterally at the cemento-enamel junction, a condition which may be caused by the ingestion of long abrasive grass (Miles and Grigson 1990, 494-495). A cattle femur displayed a discrete formation of porous new bone growth (23.6x17.1mm, *c* 5mm high) inside the marrow cavity on lower third of the shaft. No pathology was visible on the outside of the shaft. The aetiology is unknown. An ossified ligament was present on a horse scapula, on the medial side between the glenoid process and the glenoid joint.

C.3.9 The number of animal bones that could be measured is too small for an intra-site comparison. However, to facilitate future research measurements have been included in Table C3.4. Withers' heights were calculated on one dog tibia (65.6cm), one horse humerus (134.7cm) and one horse metacarpal (136.1cm) (cf Harcourt 1974; May 1985).

C.3.10 The assemblage has been fully recorded. If further excavations take place on the site, the bones should be considered alongside any additional material.

	Saxo-Norman / early Medieval	Early Post-medieval
Cattle	124 (4)	2
Sheep/goat	153 (9)	3
Sheep	12	
Pig	50 (2)	1
Horse	10 (2)	
Dog	1 (1)	
Cat	4 (1)	
?Red/fallow deer	1 (1)	
Domestic fowl	20 (3)	
Duck	2 (1)	
Goose	3 (2)	
Wader	1 (1)	
Passerine	2 (1)	
Indet. bird	27	
Field vole	4 (1)	
Shrew	1 (1)	
Frog/toad	1 (1)	
Microfauna	29	
Small mammal	4	
Medium mammal	284	1
Large mammal	145	4
Indeterminate	792	3
TOTAL	1670	14
Weight (g)	12916	440

Table C3.1. Total number of fragments/taxon from the bone assemblage

Phase	Species	Dp4	M1	M2	M3	MWS	Estimated age
Saxo-Norman/ early Medieval	Cattle	k				23-29	18-36 months
		k				23-29	18-36 months
			g	g	PM	27-32	18-36 months
					g	37-49	Adult
	Pig		a	C		7	Juvenile

Phase	Species	Dp4	M1	M2	M3	MWS	Estimated age
	Sheep/goat	n	g	e	C	23	1-2 years
			PM	f	E	26	1-2 years
			g	g	c	32	2-3 years
			g	g	e	34	3-4 years
			g	g	c-e	36	2-4 years
			h	g	f	36	3-4 years
			m	g		41	4-6 years
			m	h		42	6-8 years
Post-medieval	Sheep/goat		m	g	g	41	4-6 years

Table C3.2. Tooth wear and estimated age of cattle and sheep/goat

Saxo-Norman/ early Medieval		Unfused	Fusing	Fused
Cattle	Early fusion	1		11
	Mid fusion	5		16
	Late fusion	5		1
Sheep/goat	Early fusion	1	1	22
	Mid fusion	6	1	12
	Late fusion	6		8
Pig	Early fusion	1	1	5
	Mid fusion	11		2
	Late fusion	1		
Horse	Early fusion			4
	Mid fusion			
	Late fusion			3
Post-medieval		Unfused	Fusing	Fused
Cattle	Early fusion			
	Mid fusion			1
	Late fusion			
Sheep/goat	Early fusion			1
	Mid fusion			
	Late fusion			
Pig	Early fusion			
	Mid fusion			
	Late fusion	1		

Table C3.3. Epiphyseal fusion of cattle, sheep/goat, pig and horse

Species	Bone	Measurement	N	Mean	Min	Max
Cattle	Metacarpal	Bd	2	56.2	49.5	62.9
	Metatarsal	GL	1	215.5		
		Bd	1	48.0		
	Tibia	Bd	3	57.9	55.8	60.9
Sheep	Metacarpal	GL	1	119.4		
		Bd	2	22.8	21.5	24.0
	Metatarsal	GL	2	138.4	137.7	139.0
		Bd	3	22.7	20.9	24.1

Species	Bone	Measurement	N	Mean	Min	Max
Sheep/goat	Tibia	Bd	5	24.4	23.5	25.7
Pig	Tibia	Bd	1	33.0		
Horse	Humerus	GL	1	273.0		
	Metacarpal	GL	1	223.0*		
Dog	Tibia	GL	1	221.5		
		Bd	1	25.0		
Domestic fowl	Radius	GL	2	57.0	56.7	57.2
	Ulna	GL	1	72.4		

Table C3.4. Measurements of bones from cattle, sheep/goat, pig, horse, dog and domestic fowl

C.4 Marine Shell *by Rebecca Nicholson*

C.4.1 Shell was hand collected on site from nine contexts. All was from the flat oyster *Ostrea edulis.* Most contexts contained only one or two valves, but a minimum of 20 oysters was recovered from context 214, the fill of "pit" 217. Most valves are in fair or good condition, although in many cases the shell margins are broken. While valves are of moderate to large size, very few are sufficiently complete to be measurable. Both round-hinged and elongated hinge types are present, with a few specimens having an irregular shape suggestive of growth in crowded beds. A single left valve from context 211 was elongated – a form more typical of the Portuguese oyster *Crassostrea,* but the hinge is typical of *O. edulis*. A few valves are thickened and chalky and many have some internal and/or external staining, generally orange-brown, from iron in the burial matrix. Evidence of parastic infestation are limited to a small number of shells with internal blistering consistent with *Polydora hoplura* Claparède burrowing. One valve from context (214) has been bored by a marine gastropod – probably dog whelk (*Nucella lapillus*). A very small number of valves from (214) have opening notches on the lower margin.

C.4.2 These remains add to the evidence for oyster importation and consumption documented from other Late Saxon/early medieval sites in Oxford (eg Oxford Castle, Nicholson nd). Although Oxford is about as far from the sea as anywhere in England, the *burh* was situated on a major routeway from Winchester and the south, and also next to the river Thames, which would have meant that transport from the coast could have been relatively swift. Oysters can remain alive for up to 12 days if kept cool and wet (Wilson 1973, 46) and would have been transported in brine, or packed with seaweed. They probably came from native oyster beds around the Solent or Thames estuaries.

C.5 Fish bones *by Rebecca Nicholson*

C.5.1 Fish remains were recovered from the dried residues of several bulk sieved soil samples taken from the middeny deposits probably relating to the construction and use of Shidyerd Street and, for context 221, possibly redeposited brickearth. All are in good condition. They comprise:

C.5.2 Sample 1 (219): four eel (Anguilla anguilla) vertebrae, a cyprinid (Cyprinidae) caudal vertebra and a distorted centrum facet, possibly from a small pike (Esox lucius).

C.5.3 Sample 2 (221): three eel vertebrae, one small cyprinid precaudal vertebra and a bullhead (Cottus gobio) cleithrum and caudal vertebra.

C.5.4 Sample 3 (128): one eel vertebra

C.5.5 Sample 4 (116): three small pike vertebrae (20-30cm fish), four herring (Clupea harengus) vertebrae, five eel vertebrae, one small cyprinid caudal vertebra, one XX and one flatfish precaudal vertebra (right eyed: Pleuronectidae) from a fish of 30-40cm. Also a small pike quadrate and two scute fragments, probably of sturgeon (Accipenser sturio). One small unidentified precaudal vertebra.

C.5.6 Sample 5 (127): one eel vertebra

C.5.7 Sample 6 (118): one perch (Perca fluviatilis) vertebra and one cyprinid caudal vertebra (probably bream, Abramis brama). One eel dentary (left side) and one pike dentary (right side), from a fish of ca. 35-40cm.

C.5.8 With the exception of flatfish and herring and the provisional identification of the anadromous sturgeon, all bones come from freshwater fish or – in the case of the catadromous eel – likely to have been caught in freshwater. The consumption of eels and freshwater fish in the Saxon period was overtaken by the increasing availability and popularity of seafish from around the 11th century. The majority of fish would have been caught in local rivers: the Thames and Cherwell and their tributaries. Eel fisheries were often associated with mills, and by the time of Domesday the yields were so plentiful that rents were often paid in eels (Loyn 2013, 373). Herring and flatfish bones are also typically found in later Saxon assemblages, and as with the marine shells demonstrates that produce from the sea was available far inland by the 10th-11th century. It is possible, but unproven, that they had been preserved by salting or pickling in brine. The scutes, if from sturgeon, are of particular significance in a deposit of this date. Sturgeon are usually associated with 'high status' sites. Should the site proceed to excavation then confirming the identification of these items would be high priority.

C.6 Metals *by Ian R Scott*

C.6.1 There are 12 metal objects (16 fragts) from 7 contexts. There is also piece of iron corrosion or iron pan (non-magnetic) from context 129 that is not catalogued below.

- Context 106 (1) Nail, hand-made, small head and complete. Fe. L: 89mm
- Context 113 (2) Nail, hand-made, large circular slightly domed head, probably complete. Fe. L: 45mm
- Context 116 (3) Nail, hand-made, small head, possibly complete. Fe L: 43mm

  (4) Strip or Binding. Rectangular fragment (2 x refitting pieces), encrusted with possible nail or rivet at one end. Fe. L extant: 77mm; W: 42mm.

  (5) Small iron fragment with corrosion (magnetic). Not measured (sample 4)
- Context 118 (6) Nail stem fragments x 4. Not measured (sample 6)
- Context 204 (7) Strip or binding, bent at a right. No visible nails or nail holes. Fe. L extant: 81mm; W: 18mm.

  (8) Plate or washer, square with small chamfers at corners and pierced at the centre. The object is folded on the diagonal. Cu alloy. 40mm x c 55mm.
- Context 211 (9) Nail or nail stem, encrusted. Fe. Not measured

  (10) Nail, hand made, with flat sub rectangular head, incomplete. Fe. Not measured.

  (11) Small rectangular collar or block, with chamfered corners, with fragment of iron strip of rectangular section through the middle. Cu alloy and fe. 16mm x 13mm x 9mm.
- Context 212 (12) Probable iron corrosion with embedded pieces of copper alloy. Not an identifiable object. Not measured.

C.6.2 None of the metal objects is closely datable. The metals assemblage is very small and of limited interest.

C.7 Stone *by Ruth Shaffrey*

Introduction and methodology

C.7.1 Five fragments of stone were retained. Three of these are burnt but unworked and can be discarded (130g). The other two are fragments of a shelly Bath stone ashlar – each retains flat worked faces (106 100g, 204 253g). They were certainly used structurally and are presumably post-medieval. The larger fragment (204) should be retained for reference; the smaller piece can be discarded.

C.8 Flint *by Geraldine Crann*

C.8.1 Two flints, both residual in later contexts, were recovered during the evaluation. The heavily damaged flint from context 207 retains no technologically diagnostic features that would aid dating. The flint from 221 has features that would suggest a Mesolithic date. The size and nature of the assemblage limits interpretation and the assemblage simply attests to human presence in the landscape during the prehistoric period. The flints from the evaluation should be fully integrated into any future analysis arising from further investigation on the site.

Context	Description	Date
207	Thick, irregular flake, heavily damaged, hard hammer struck, grey-black flint,13g	-
221	Thick, triangular section blade with platform preparation, soft hammer lip, diffuse bulb. Abrupt retouch to dorsal distal end forming convex end scraper. Edge damage to ventral left distal margin, dark brown mottled flint, 7g	?Mesolithic

C.9 Human bone *identified by Helen Webb*

C.9.1 A single tooth crown was recovered from environmental sample 6. The root is absent probably as a result of post-depositional damage. The crown itself is worn consistent with Brothwell (1981) age span 25-35 years, but without the rest of the dentition it is not possible to make a definitive statement on age.

Context	Description
118	<6> A single left mandibular permanent first molar crown, root absent, no obvious pathology – caries, calculus or dental enamel hypoplasia,1g

C.10 Leather *by Geraldine Crann*

C.10.1 Four small scraps of waterlogged leather were recovered from environmental sample 5. They should be retained and included in any further analysis if more leather is recovered from future work on the site.

Context	Description
127	<5> 4 small scraps waterlogged leather, 2g

C.11 Iron Slag and related high temperature debris *by Lynne Keys*

C.11.1 A very tiny assemblage of slag (15g) was examined and quantified for this report. Each slag type was tested with a magnet, the magnetic material was weighed separately from the non-magnetic.

C.11.2 The assemblage was a mixture of fragmentary iron slag types, mainly cinder (the vitrified portion of a hearth lining closest to the tuyere hole, where the heat was greatest). Some undiagnostic slag, which may derive from larger micro-slags, was present but the quantity is so small that nothing more can be said; they are probably the product of iron smithing, and found their way onto the site during deposition of other material at some time in the past.

C.12 Evaluation of Six Environmental Samples *by Julia Meen*

C.12.1 A total of seven bulk samples were taken during archaeological evaluation works at Corpus Christi College, Oxford, in April 2015. These were taken primarily for the recovery of material such as plant remains preserved through charring or waterlogging, animal bone and other artefacts. The recovered material was examined to evaluate its potential to provide evidence of the environment in the vicinity of the site, of the natural resources available, and the manner in which these resources were exploited by past inhabitants of the area.

C.12.2 All of the samples are taken from Saxo-Norman levels thought to be associated with a sequence of rudimentary surfaces and accumulation of midden-like deposits dating from the 10th-11th century and relating to Shidyerd Street. Two of the sampled contexts contained pottery dating to the Romano-British period, but this is thought to be residual.

C.12.3 The table below provides details of context, sediment type, dating and volume of sediment processed for each sample.

Methodology

C.12.4 Samples 1-6 were processed by water flotation using a modified Siraf style flotation machine. With the exception of sample 5, the flots were collected on a 250µm mesh and the heavy residues were sieved to 500µm and dried in a heated room, after which the residues were sorted by eye for artefacts and ecofactual remains. In the case of sample 5, it became apparent during flotation that the sample contained material preserved through waterlogging, and therefore, the whole of the flot was stored wet to prevent damage to the plant remains through drying out. All six flots were scanned for plant remains using a binocular microscope at approximately x15 magnification and identifications made with reference to published guides and the comparative seed collection held at OAS, and with guidance from Kath Hunter. Plant nomenclature follows Stace (2010). Sample 7 was taken to assess whether it represented a primary fill or the underlying, natural sediment of the area; it was established that the material was not anthropogenic in origin, and therefore the sample was discarded.

Results

Finds

C.12.5 Mammal and fish bone were recovered from all six processed samples, and pottery from all samples except sample 1. Samples 2, 4 and 5 all contained slag, 4 and 6 contained iron, and samples 2, 4 and 6 all contained marine shell. Sample 6 also contained eggshell and human bone. All finds recovered through sieving were passed to the relevant specialist for further study.

Plant Remains

C.12.6 All samples contained some charcoal and similar assemblages of charred grain and seeds (see Table 1).

Discussion and recommendations

C.12.7 The flots from samples 1, 2, 3, 4 and 6 were predominately composed of charred material and were quite similar in their contents. All contained charcoal of a size and quantity to potentially make further analysis worthwhile. The samples showed consistency in that they all contained low to moderate numbers of cereal grain which, although generally quite poorly preserved, could be seen to include wheat and, to a lesser extent, barley. They also included similar charred weed seeds. Sample 5, by contrast, included mainly waterlogged wood and waterlogged seeds, although some of

the taxa identified in this sample are also similar to those in the other charred flots. Most of the waterlogged seeds are typical of damp and waste ground and are likely to have come from plants growing around the site. The similarity of material in the charred flots suggests that the plant remains recovered from them are contemporary and may well be derived from the same source. The fact that the cereal remains, in particular, are quite poorly preserved and fragmentary, and that remains are found in quite low numbers, is consistent with the interpretation of the sampled layers being secondary or tertiary deposits; the material may have suffered from considerable reworking. The remains are fairly typical of crop-processing waste and may represent activity occurring on the periphery of the town, or could have been included in material brought into the settlement for fodder, fuel or bedding.

C.12.8 The presence of both charred material and, from the lowermost context, waterlogged wood and seeds does show that conditions are locally conducive to the preservation of both kinds of plant remains. Excavations at Corpus Christi by Oxford Archaeology in 2008 recovered a similar range of charred cereal and weed seeds from four late-Norman deposits, analysed by W. Smith (2010). There was also some evidence from the current samples of low-level mineralisation, with the preservation of seeds of elder, henbane and field gromwell in a non-charred state.

Sample No.	Context No.	Feature	Date	Sample Volume	Sediment Description	Flot Volume	% scanned	Plant Remains								Flot description
								Grain – Triticum sp.	Grain – Horduem sp.	Grain – indeterminate	C haff	Legume	Seed	Hazelnutshell	Charcoal	
1	219	Layer	Saxon-Norman	20L	Very dark greyish brown (10YR 3/2) silty clay	75ml	60%	++	+	+++			++	+	+++	Charcoal preservation good, with many potentially identifiable items. Frequent charred cereal grain, greater proportion indeterminate cereal grain. Grain generally fairly poorly preserved/fragmentary. Low number of grains ***Triticum*** sp. (wheat) and ***Hordeum*** sp. (barley). Occasional charred seeds of Poaceae (grass family), ***Ranunculus*** sp**.** (buttercup), Cyperaceae (sedge family), ***Trifolium/Lotus*** sp. (clover/trefoil), and ***Avena/Bromus*** sp. (oat/brome), as well as two seeds provisionally identified as immature ***Malus/Pyrus*** sp. (apple/pear). Rare shell fragments of ***Corylus avellena*** (hazel).
2	221	Layer	Saxon-Norman	40L	Olive brown (2.5Y 4/4) sandy clay loam	75ml	50%	++	+	+++	+		++		+++	Charcoal frequent, with moderate potential for further identification. Charred creal grain frequent although mostly indeterminate. Occasional ***Triticum*** sp. (wheat) grain, with some probable free-threshing examples observed. Rare ***Hordeum*** sp. (barley) grain. Occasional charred weed seeds, including examples of ***Galium*** sp. (bedstraw), ***Avena/Bromus*** sp. (oat/brome) and Poaceae (grass family). Single fragment of cereal glume base.
3	128	Layer	Saxon-Norman	30L	Dark greyish brown (2.5Y 4/2) silty clay	30ml	50%	+++	++	++	+		+++		++	Moderate quantity of charcoal present. Charred cereal grain fairly frequent, mostly ***Triticum*** sp.(wheat), some of which appears to be of free-threshing type, with some indeterminate cereal grains also present. A small number of grains and two rachis fragments of ***Hordeum*** sp. (barley) were also noted. Charred weed seeds include small numbers of Poaceae/***Avena/Bromus*** (grass family/oat/brome), ***Anthemis cotula*** (stinking chamomile), Caryophyllaceae (pink family), Cyperaceae (sedge family), Apiaceae (carrot family), as well as possibly mineralised ***Hyoscyamus niger*** (henbane) and ***Sambus nigra*** (elder).
4	116	Layer	Saxon-Norman	40L	Brown (7.5YR 4/4) sandy silt loam with 60% gravel	125ml	50%	++		+++		+	++	+	+++	Charcoal preservation is good. Charred cereal grains are frequent, although are generally are poorly preserved and are mostly indeterminate. Low numbers of ***Triticum*** sp. (wheat) grain. Occasional charred grain of ***Avena/Bromus*** sp. (oat/brome), as well as examples of Poaceae (grass family), cf ***Persicaria*** sp. (knotweed), Astercaeae (daisy family), and ***Chenopodium*** type. A large legume of ***Pisum/Lathyrus*** type (pea) was noted, as well as charred fragments of ***Corylus avellena*** (hazel) nut shell. A non-charred seed of ***Lithospermum arvense*** (field gromwell) also present.
5	127	Layer	Saxon-Norman	40L	Dark greyish brown (10YR 4/2) silty clay loam		3 teaspoons						++	+++	+++	Little charred material present in flot, although some larger charcoal fragments extracted from heavy resisdues. Flot dominated by fragments of waterlogged wood. Moderate numbers of waterlogged seeds present, including ***Anthemis cotula*** (stinking chamomile), ***Urtica*** sp. (nettle), cf ***Ranunculus*** sp. (buttercup), cf ***Leontodon hispidus*** (rough hawkbit) and fragments of moss.
6	118	Layer	Saxon-Norman	40L	Brown (7.5YR 4/3) sandy silt loam with gravel	250ml	20%	++	++	+		+	++	+	+++	Flot dominated by charcoal, with good potential for further identification. Low to moderate numbers of charred cereal grain, many indeterminate, with some ***Triticum*** sp (wheat) and rare ***Hordeum*** sp. (barley). A small number of very small cereal grains also noted. Charred seeds of ***Avena/Bromus*** sp. (oat/brome), Poaceae (grass family), ***Anthemis cotula*** (stinking chamomile), and ***Rumex*** sp. (dock) present. Small (2mm) legume and hazelnut shell (***Corylus avellena***) fragments noted. A single non-charred seed of ***Lithospermum arvense*** (field gromwell) was noted.

APPENDIX D. GEOPHYSICAL SURVEY

GEOPHYSICAL SURVEY REPORT G1547

Archaeological Evaluation at Corpus Christi College Oxford New Library

Client:

oxfordarchaeology
southsouthsouth

On Behalf Of:

Corpus Christi College Oxford

GSB PROSPECTION Ltd

Celebrating over 25 years at the forefront of Archaeological Geophysics

sumo Survey Services

GSB Survey Report No. G1547

Archaeological Evaluation at Corpus Christi College Oxford New Library

Contents

List of Figures (Printed and on CD)

Archive CD Content

- GPR Time-slice and Radargram Images and Animations for Reference
- DWG Viewer
- Digital Copies of Report Text and Figures (both PDF and native formats)

Survey Personnel

Field Co-ordinator: Jimmy Adcock BSc MSc MCIfA

Report Author: Jimmy Adcock BSc MSc MCIfA

Dates

Fieldwork: 27 March 2015
Report: 14 April 2015

Report Approved: Dr John Gater MCIfA FSA

Background Project Details

NGR	SP 515 060
Location	Survey was across the lawn of the *Small Garden* immediately south of *The Library* and between the *6 & West Building* and *Fellows' Building* within Corpus Christi College.
HER/SMR	Oxford Urban Archaeological Database (UAD)
District	Oxford
Parish	n/a
Topography	Flat
Current Land Use	Grass lawn
Soils	None recorded: urban (SSEW 1983)
Geology	Jurassic mudstone of the Oxford Clay and West Walton formations (undifferentiated) overlaid by superficial deposits of sand and gravel belonging to either the Northmoor or Summertown-radley members (BGS 2015).
Archaeology	Historical and archaeological evidence suggests a possibility of the original Saxon Burh defences lying close to or within the Site. If such deposits do survive they would be of regional, potentially national significance. The Site also contains the potential for medieval and post-medieval street front properties and academic halls (OA 2015).
Survey Methods	Earth Resistance & Ground Penetrating Radar (GPR)
Study Area	~0.1ha

Aims

To locate and characterise any anomalies of possible archaeological interest within the study area. The work forms part of a wider archaeological assessment being carried out by **Oxford Archaeology (South)** on behalf of **Corpus Christi College Oxford**.

Summary of Results

Both the GPR and resistance surveys correlate well but appear to be dominated by garden features and service lines. There are some less well-defined responses in both datasets which may indicate the presence of former buildings but the line of the Saxon Burh has not been identified; it may be that the undisturbed section of the ditch, if present, is deeper than the GPR could penetrate.

Method

All survey grid positioning was carried out using tapes. The geophysical survey area is georeferenced relative to the Ordnance Survey National Grid by tying in to local detail and corrected to the OS Mastermap provided by the client.

Technique	*Instrument*	*Traverse Interval*	*Sample Interval*
Resistance	RM15 (0.5m & 1.5m twin-probe array)	0.5m	0.5m
GPR	IDS Duo (2 channel - 250MHz & 700MHz)	0.5m orthogonal	0.05m

All survey work is carried out in accordance with the current English Heritage guidelines (EH 2008, IfA 2002, CIfA 2013).

Data Processing

Data processing was performed as appropriate using commercial software packages (Geoplot & GPR Slice) as outlined below.

Resistance Data
Interpolation and high-pass filter (where indicated).

Ground Penetrating Radar Data
De-wow/DC-Shift and manual gain (all data); background removal and migration (where indicated).

Interpretation

When interpreting the results several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to very specific known features documented in other sources, this is done (for example: *Abbey Wall*, *Roman Road*). For the generic categories, levels of confidence are indicated, for example: *Archaeology – ?Archaeology*. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification *?Archaeology*. All GPR interpretations are based on analysis of both raw and filtered radargrams. Copies of the radargrams can be found on the accompanying Archive CD for more detailed viewing. Details of the data plot formats and interpretation categories used are given in the Appendix: Technical Information at the end of the report.

General Considerations

Site conditions were very good as the survey area was generally free of obstructions and under a cover of short grass. The weather remained dry for the duration of the survey.

Any depths referred to in the GPR data are only ever an approximation. The conversion from delay time to depth depends upon the propagation velocity of radar waves through the ground; this can vary significantly both laterally and vertically on some sites. An average velocity of 0.095m/ns has been used after an iterative process of fitting hyperbolic curves to point-source reflections. Where there is a strong electromagnetic contrast, the GPR signal can be inter-reflected, producing a delay in the reflection of the signal. This is termed 'ringing' and happens to some extent with all reflections, resulting in a greater apparent depth extent than actually exists. As a result, it is often not possible to detect the base of features; only the tops of buried deposits are detected with any kind of certainty (Annan 1997). Particularly strong ringing is often seen when buried metallic debris is encountered and this material is generally assumed to be of modern origins unless the site-type dictates otherwise.

NOTE: numbers and letters in square parentheses (e.g. [**2**] *or* [**B**]*) within the report text refer to specific anomalies highlighted on the resistance and radar interpretation diagrams, respectively.*

1.0 Survey Results - Resistance Survey

1.1 The 0.5m twin-probe array is sensitive to variation within the top ~0.75m whereas the 1.5m twin-probe will respond to features within the first ~2.0m of deposits. Sometimes the two datasets can look relatively similar but, in the instance, they are markedly different.

1.2 The shallower dataset has revealed an east-west band of increased resistance [**1**] surrounded by much lower contrast variation, with the exception of a high resistance extension [**2**] at the western end. The most likely cause of this patterning is some form of earlier garden feature, such as a path or planting bed, running shallowly east-west, with 'softer' detailing either side; having said that, the lesser responses north and south of [**1**] could simply be natural variation within the overburden. The strong response [**2**] is likely to be modern, as are high resistance values along the southern edge of the lawn where it abuts the paving.

1.3 The deeper dataset records little of the linear band [**1**] but instead shows a well-defined low-resistance linear anomaly [**3**] running diagonally across the lawn. Although "low resistance linear" is the characteristic response associated with former ditches, the alignment and scale of this example is not consistent with the character of the Saxon Burh ditch; this is certainly a service trench.

1.4 To the east of the trench-cut is a broad zone of increased resistance [**4**] which could be from any number of sources: it could be the result of variation within the make-up of the overburden or *in situ* remnants of previous buildings believed to encroach upon what is now the *Small Garden* (OA 2015).

2.0 Survey Results - GPR Survey

2.1 Whilst the resistance data have not revealed any anomalies directly attributable to the burh ditch, the GPR survey was thought to offer the best opportunity to detect it. The IDS Duo radar is dual channel operating at two different frequencies: 250MHz and 700MHz. The higher frequency will provided good resolution but have only limited penetration whilst the lower frequency dataset can "see" deeper but at the cost of resolution. This generally means that a compromise must be sought when collecting GPR data, however, in this instance, the higher frequency data are likely to be of less value. The burh ditch is very large and excavation in the quad to the north in the 1970's (OA 2015) suggested that the cut feature they found extended to around 4m below ground level. This system would normally only get to 4 metres in very good conditions, but it should be possible to identify the top of the ditch and some of the fill.

2.2 In the radargrams, reflections can be seen down to around only 1.6m and that is regardless of the antenna used. This would suggest that the overburden at this depth is acting as a physical barrier to the transmission and that this would be the limit of penetration with any antenna; this may indicate a particularly wet or otherwise conductive layer.

2.3 There is a faint suggestions of reflectors [**A**] (see radargram below) which extend ever so slightly deeper than the average limit of penetration but this is very tentative, and only really visible in a couple of lines; it would be difficult to draw a firm interpretation from these ephemeral responses.

2.4 The shallow time-slices reveal responses [**B**] that correlate with the high resistance anomalies [**1**] which are probably a former garden feature. The line of a service pipe [**C**] sits within the trench identified by the resistance survey. A second potential service [**D**] runs across the south-western corner of the garden and a strong reflector [**E**] on the western edge of the lawn looks modern and has a reasonable depth extent; it may be a soakaway or similar and matches the resistance response [**2**]. Deeper reflectors [**F**] seem to tally with the high resistance zone [**4**] but the lack of definition and limited survey area means that interpretation is still very much speculative, but the could be the remnants for former buildings on site.

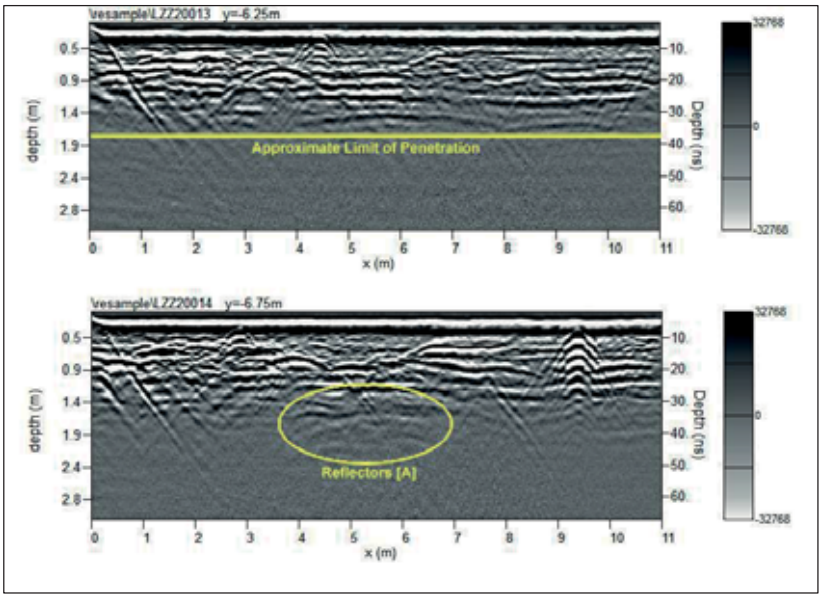

Plate 1.
Example Radargrams

3.0 Conclusions

3.1 It has not been possible to positively identify the line of the medieval ditch associated with the Saxon burh. This is, in part, due to a lack of achievable penetration with the GPR and resistance systems being limited to around 2.0m below ground level whereas the cut feature found in previous excavations just to the north was around 4.0m deep.

3.2 Both techniques have revealed similar features within the top 1.5m which amount to service routes and probable garden features. Other, less well-defined responses may be remnants of previous college buildings.

References

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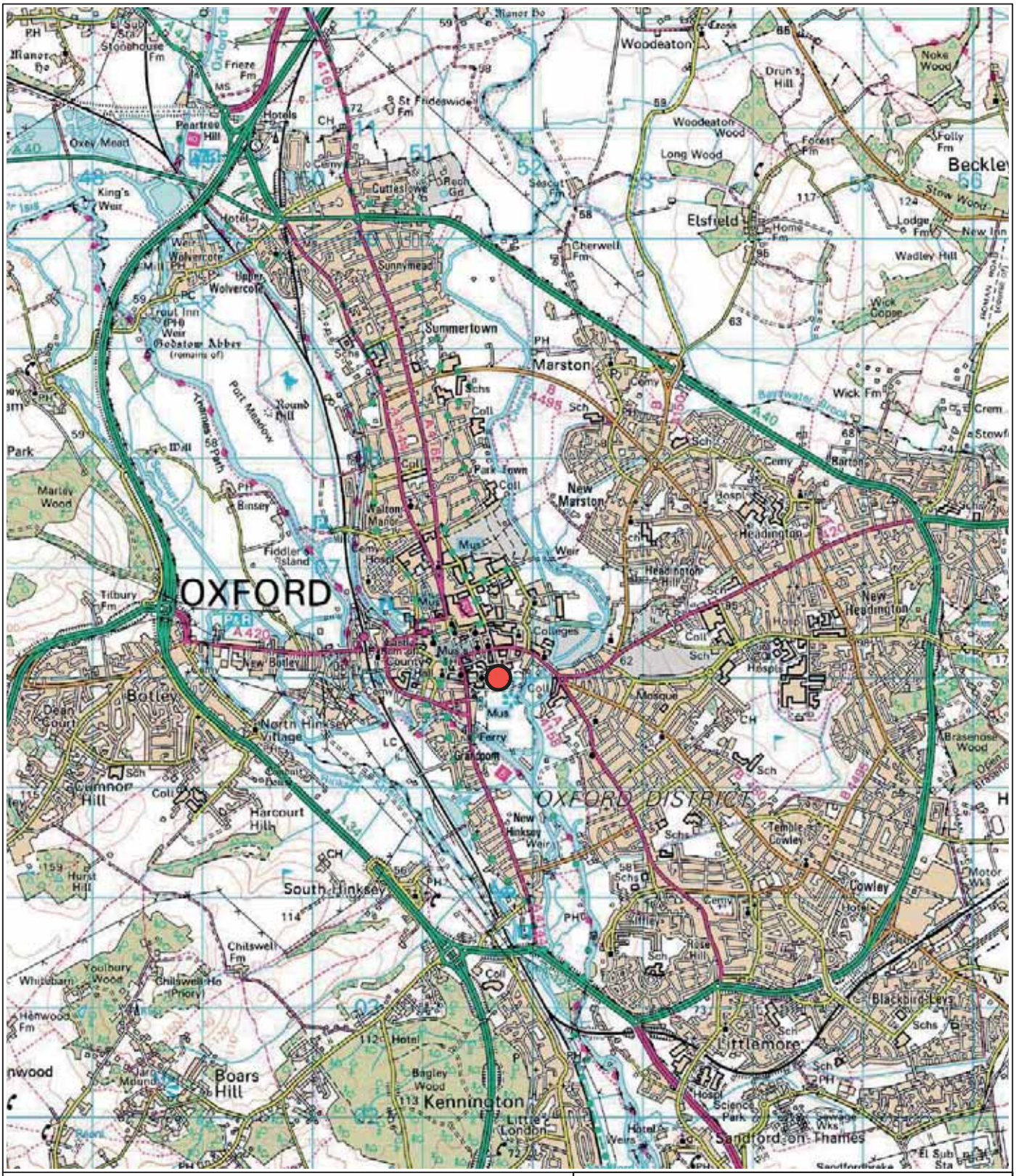

N

0 metres 2000

1:50,000 @ A4

Site Location

GSB Prospection Ltd
Cowburn Farm, 21 Market Street
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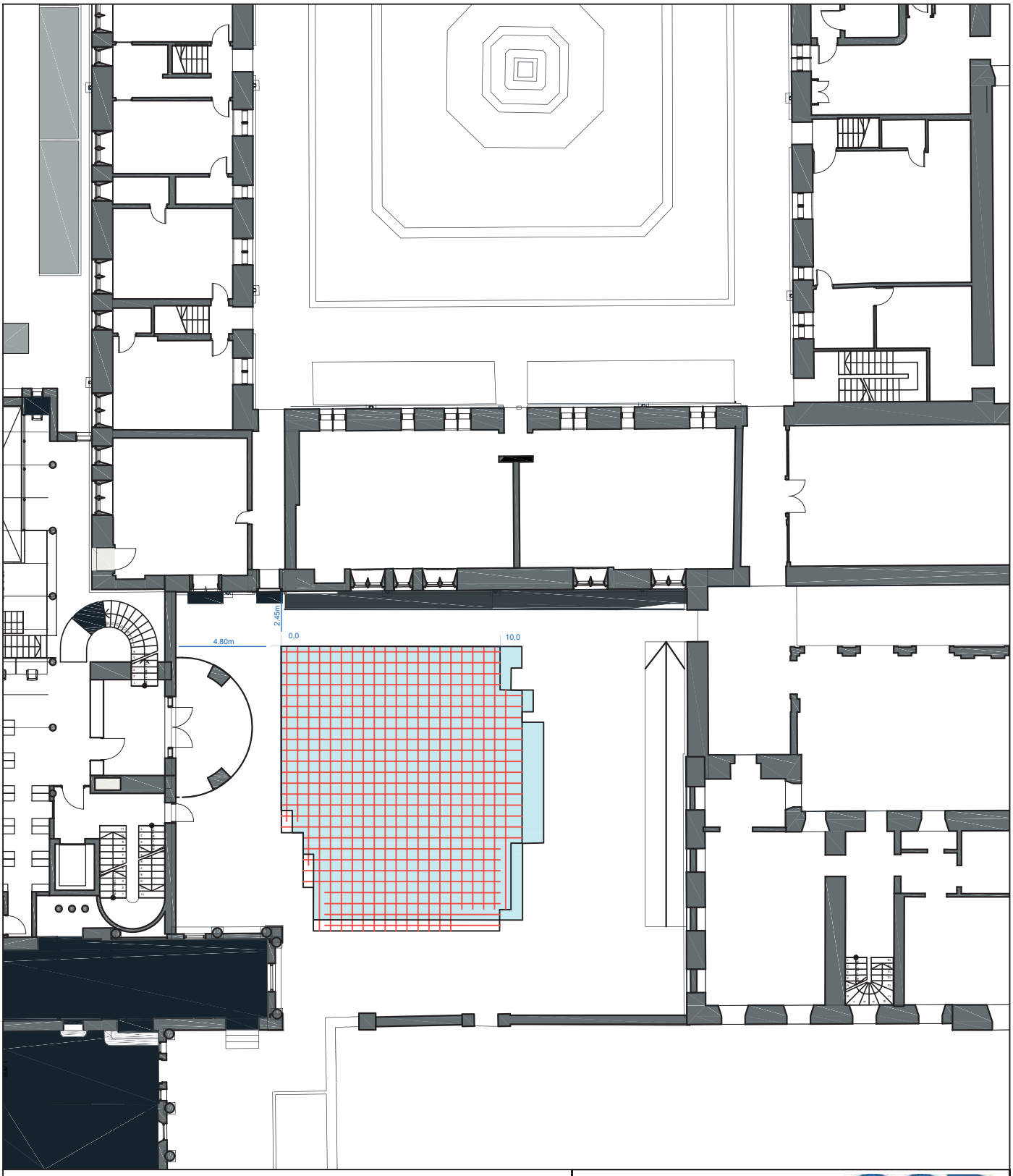
Bradford
BD13 3HW
+44 (0)1274 835016

Project: G1547 Corpus Christi College, Oxford

Title: Site Location Diagram

Drawn by: JMT

Figure 1



N

0 metres 10

1:250 @ A4

Resistance Survey

GPR Traverses

0,0 Marker Peg Left In-situ

NB: 0,0 marker is in north-west corner of lawn

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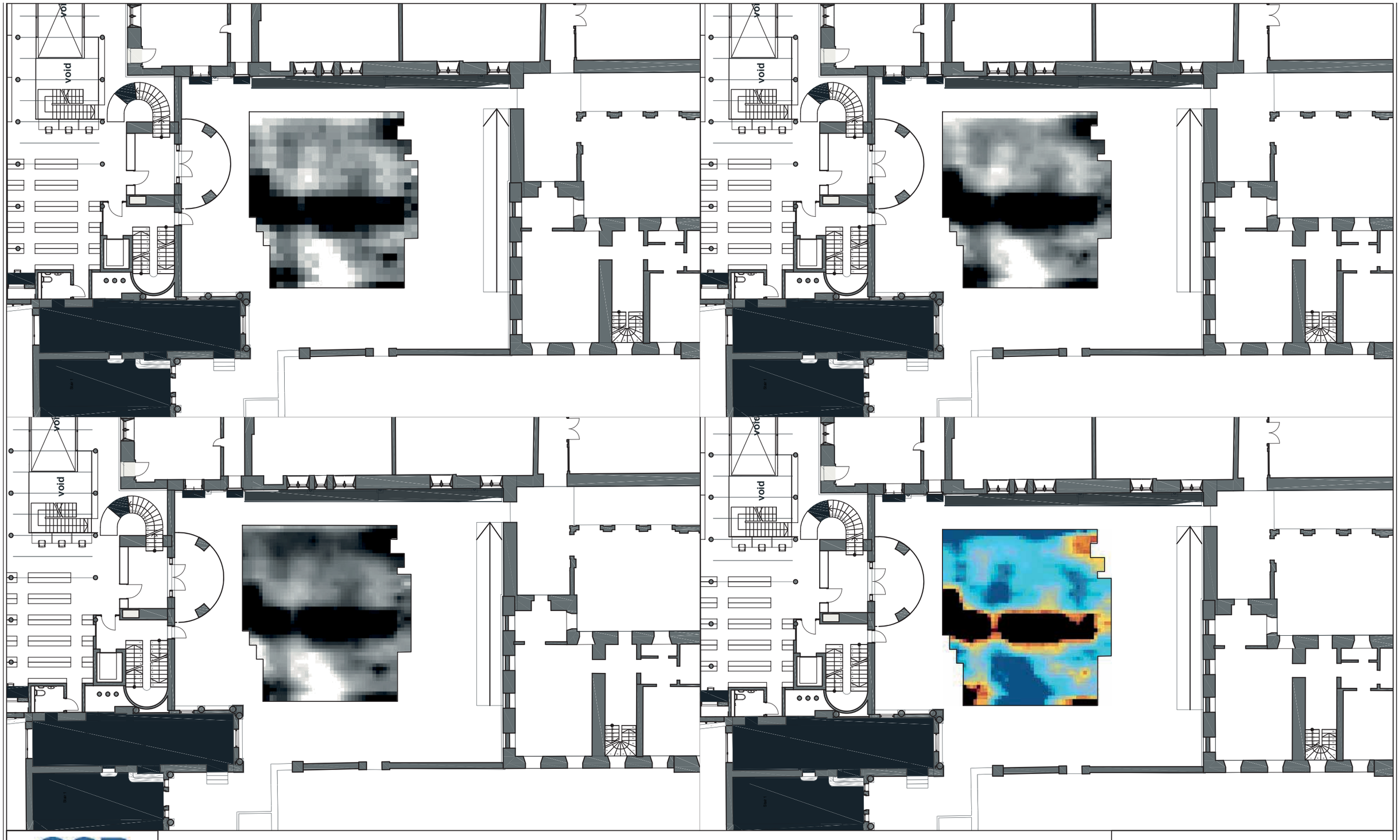
Title: Location of Resistance & GPR Survey

Drawn by: JAA

Figure 2



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N

0 metres 10

1:250 @ A3

1 Std. Dev. -1

1 Std. Dev. -1

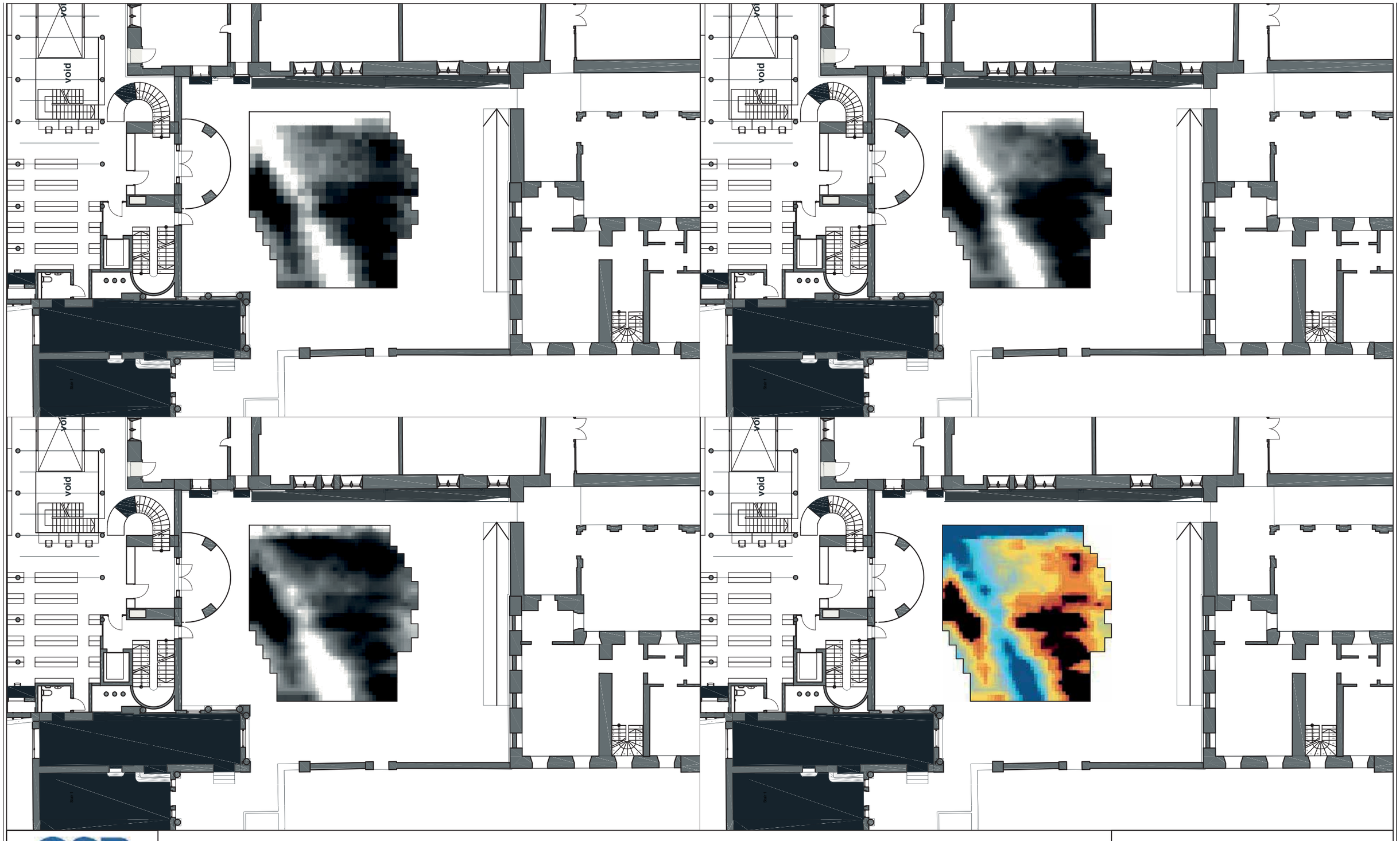
Top Left: Raw Data
Top Right: Interpolated Data
Bottom Left: High-Pass Filter
Bottom Right: Colour Plot

Project: G1547 Corpus Christi College, Oxford

Title: Shallow Resistance Data (0.5m Twin-probe)

Drawn by: JAA

Figure 3



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N

0 metres 10

1:250 @ A3

1
Std. Dev.
-1

1
Std. Dev.
-1

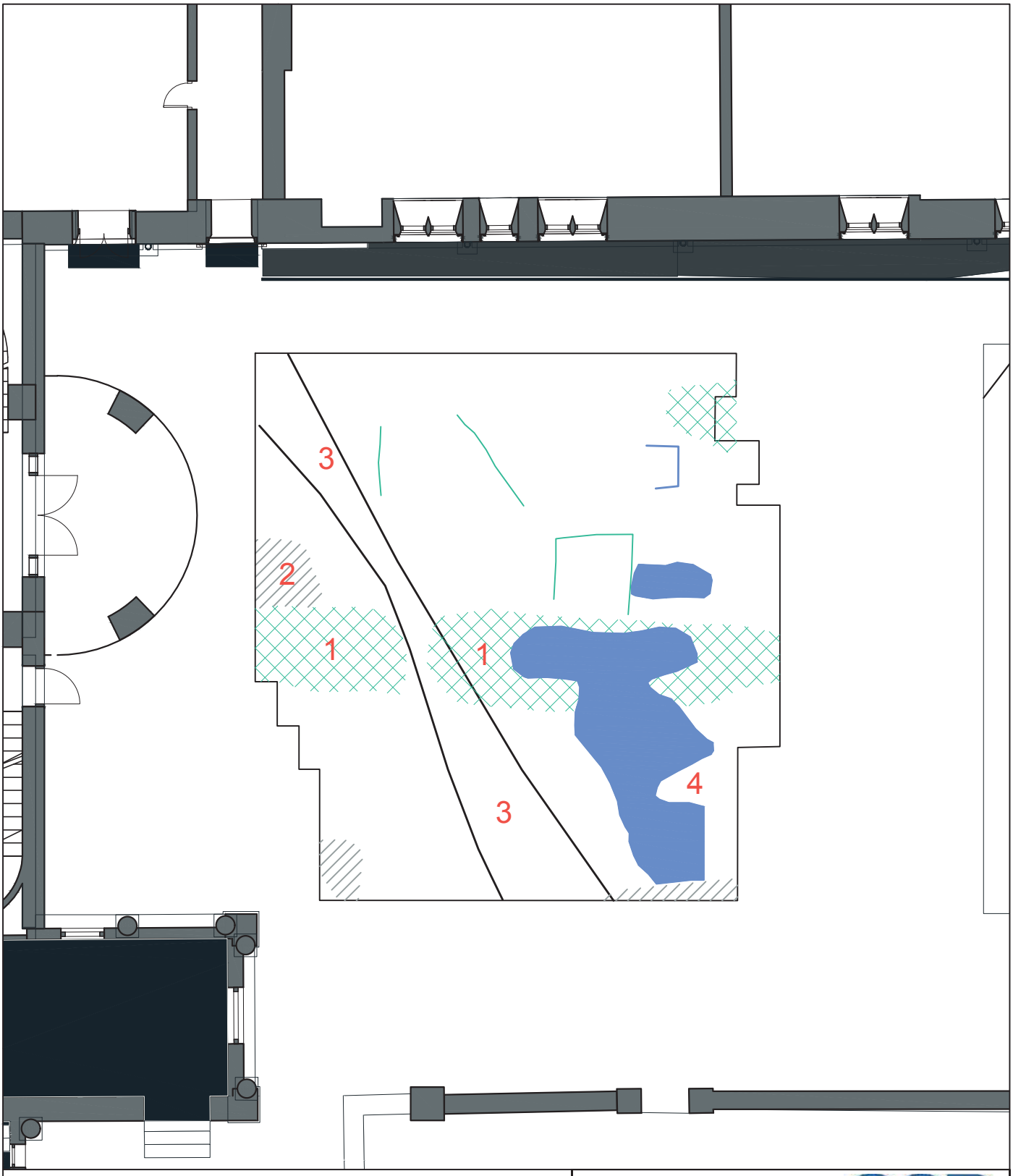
Top Left: Raw Data
Top Right: Interpolated Data
Bottom Left: High-Pass Filter
Bottom Right: Colour Plot

Project: G1547 Corpus Christi College, Oxford

Title: Deep Resistance Data (1.5m Twin-probe)

Drawn by: JAA

Figure 4



N

0 metres 5

1:125 @ A4

Archaeology (discrete anomaly / trend)

Garden Feature (?path / trend)

Service Cutting (Edge)

Modern (discrete anomaly)

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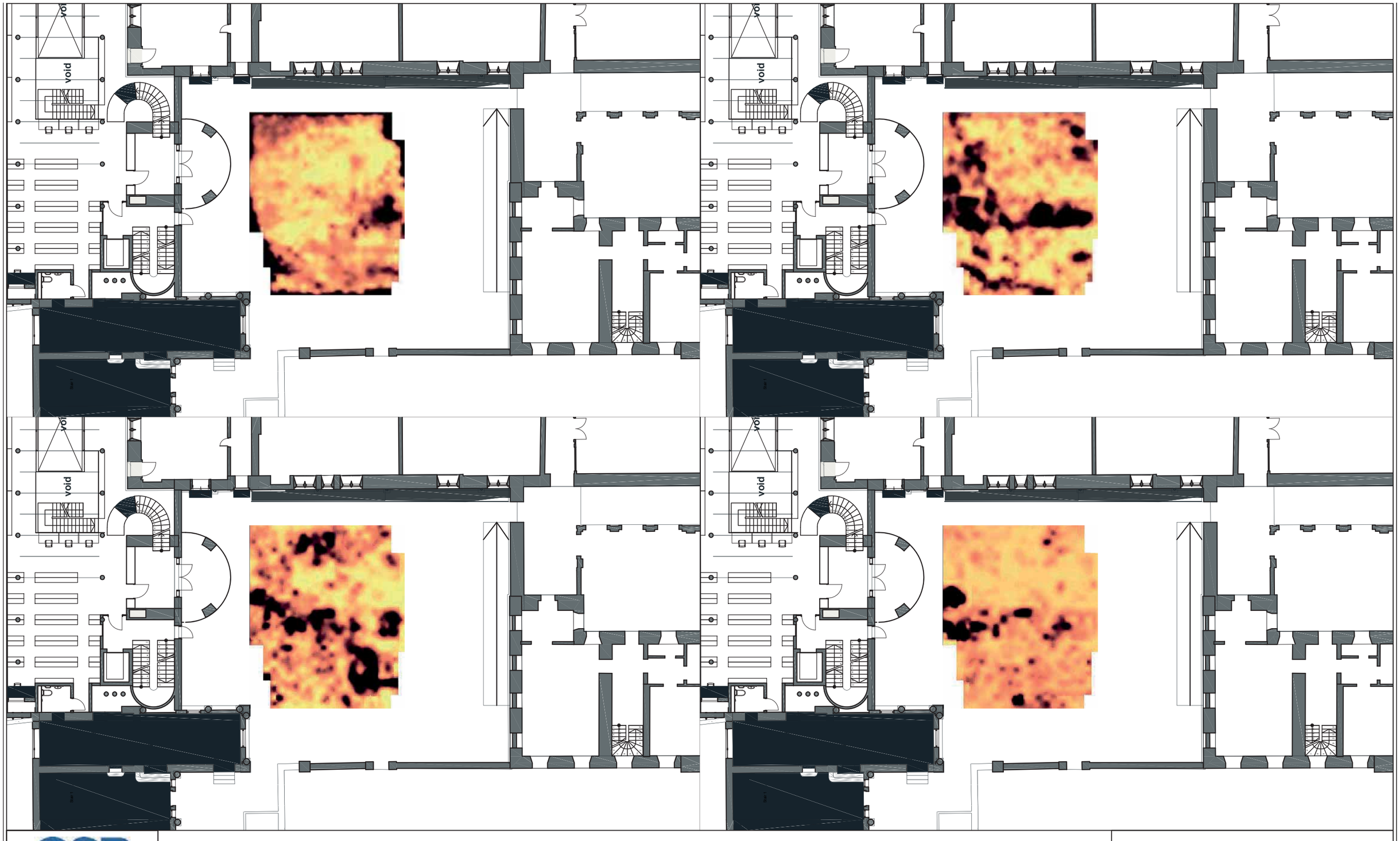
Project: G1547 Corpus Christi College, Oxford

Title: Resistance - Interpretation

Drawn by: JAA

Figure 5



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N

0 metres 10

1:250 @ A3

High

Amplitude

Low

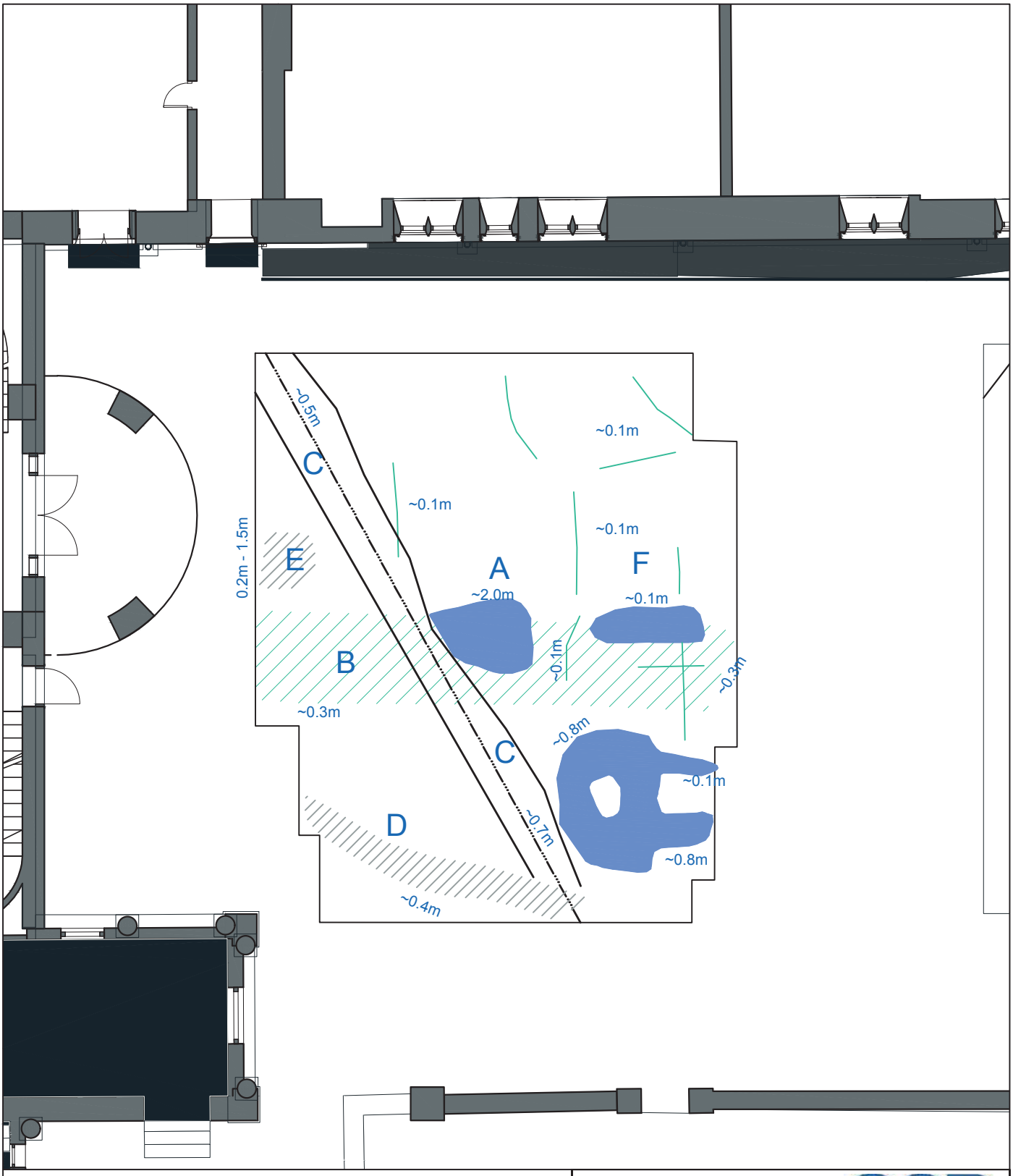
Top Left:	0.00m - 0.40m
Top Right:	0.40m - 0.8m
Bottom Left:	0.80m -1.20m
Bottom Right:	1.20m - 1.60m

Project: G1547 Corpus Christi College, Oxford

Title: GPR Survey - Selected Time-slices

Drawn by: JAA

Figure 6



N

0 metres 5

1:125 @ A4

Archaeology (discrete anomaly)

Garden Feature (?Garden Path / trend)

Service (trench edge / pipe)

Modern (discrete anomaly)

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Project: G1547 Corpus Christi College, Oxford

Title: GPR Survey - Interpretation

Drawn by: JAA

Figure 7

Appendix - Technical Information: Ground Penetrating Radar (GPR) Survey

Instrumentation IDS MF

The IDS MF is a fully integrated system comprising an onboard digital video logger, antenna, an odometer wheel and battery. The MF records two channels of data simultaneously: one is relatively high frequency (600MHz) giving improved near-surface resolution whilst the second is lower frequency (200MHz) to provide greater depth penetration, albeit at the cost of resolution. The built-in software uses the integrated odometer to provide an accurate distance measurement to the response. The GPR data can be viewed in "real time" as radargrams on the instrument display.

Data are typically displayed as radargrams, time-slices and, occasionally, volume plots (isosurfaces) as discussed below. All formats can be displayed as greyscale or colourscale images (where a given palette is applied to a defined range of data values).

Data Processing

There are a wide range of GPR filters available and their application will vary from project to project. The most commonly used are:

Dewow	Removes low frequency, down-trace instrument noise
DC-Shift	Re-establishes oscillation of the radar pulse around the zero point)
Bandpass Filtering	Suppresses frequencies outside of the antenna's peak bandwidth thus reducing noise
Background Removal	Can remove ringing, instrument noise and minimize the near-surface 'coupling' effect
Migration	Collapses hyperbolic tails back towards the reflection source

Display

Radargram	Radar data comprise a record of reflection intensity against the time taken for the emitted energy to travel from the transmitter down to the reflector and back to the receiver. The resultant plot is effectively a vertical section through the ground along the line of the traverse, with time (depth) on the vertical axis, displacement on the horizontal axis and reflection intensity as a grey or colour scale.
Depth-Slice	If a number of radargrams are collected over a grid, or in conjunction with GPS data, it is possible to reconstruct the entire dataset into a 3D volume. This can then be resampled to compile 'plan' maps of response strength at increasing time offsets (typically converted to show approximate depth), thus simplifying the visualisation of how anomalies vary beneath the surface across a survey area.
Volume Plot	Rather than looking at discrete slices of data from the 3D volume, it is possible to strip away all reflections with intensity below a user-defined threshold, leaving just the strongest anomalies. This serves to create a rendered 3D model of the most substantial subsurface deposits which can then be rotated or enlarged/reduced to either animate the display or view it from any perspective.

Interpretation Categories

Wall/ Foundation / Vault / Culvert etc.	High amplitude anomaly definitions used when other evidence is available that supports a clear archaeological interpretation.
Archaeology	Anomalies whose form, nature and pattern indicate archaeology but where little or no supporting evidence exists. If a more precise archaeological interpretation is possible, for example the responses appear to respect known local archaeology, then this will be indicated in the accompanying text. As low amplitude responses are less obvious features it is unlikely that they would have a definitive categorisation.

?Archaeology	When the anomaly could be archaeologically significant, given its discrete nature, but where the distribution of the responses is not clearly archaeological. Interpretation of such anomalies is often tentative, exhibiting either little contrast or forming incomplete archaeological patterns.
Recent Historic	Responses showing clear correlation with earlier map evidence.
?Recent Historic	Responses relating to features not directly recorded on earlier maps but which appear to respect features that are. May form patterns suggestive of formal gardens, landscaping or footpaths.
Area of Anomalous Response	An area in which the response levels are very slightly elevated or diminished with respect to the 'background'. Where no obvious surface features or documentary evidence can explain this spread of altered reflectivity it is assumed to denote some kind of disturbance, though the origins could be of any age and either anthropogenic or natural. Possible explanations are changes in subsurface composition and groundwater ‘ponding’.
Landscaping	Anomalies which are clearly the result of artificial alterations to the topography or where documentary evidence records that such alterations have been made. These changes may be due to the levelling of a site, the introduction of consolidation material, the construction of features such as berms or raised lawns.
?Landscaping	Anomalies that would suggest a buried surface, the presence of consolidation material or ‘made’ ground but which lack evidence of such alterations at the surface and where no supporting documentary sources or local knowledge have been supplied.
Natural	Anomalies relating to natural sub-surface features as indicated by documentary sources, local knowledge or evidence on the surface.
?Natural	Responses forming patterns akin to subsoil/geological variations either attenuating or reflecting greater amounts of energy. An archaeological origin such as rubble spreads or robbed out remains cannot be dismissed.
Trend	An ill defined, weak or isolated linear anomaly of unknown cause or date.
Modern	Reflections that indicate features such as rebar and modern cellars correlating with available evidence (maps, communications with the client, etc.) or responses resulting from surface discontinuities, the effects of which may be seen to 'ring' down through radargrams and so incorrectly appearing in the deeper time-slices.
?Modern	Reflections appearing to indicate buried structures not of any great antiquity but where there is no supporting evidence. Also applies to responses which form patterns, or are at a depth which suggests a modern origin. An archaeological source cannot be completely dismissed.
Service	Reflections that indicate features such as drains, culverts, cables, pipes, conduits or tanks correlating with available evidence (maps, communications with the client, alignment of drain covers etc.).
?Service	Reflections appearing to indicate buried services (as listed above) but where there is no supporting evidence. The relative antiquity of features cannot necessarily be determined and they may still be related to the archaeological resource under investigation.

Where appropriate some anomalies will be further classified according to their form (high amplitude: stronger and well defined; increased amplitude: weaker and less well defined; isolated hyperbola: individual reflector from a confined source; etc.).

Appendix - Technical Information: Resistance Survey

Instrumentation Geoscan RM15 resistance meter (with optional MPX multiplexer)

This instrument measures the electrical resistance of the earth, using a system of four electrodes (two current and two potential.) Depending on the arrangement of these electrodes an exact measurement of a specific volume of earth may be acquired. This resistance value may then be used to calculate the earth resistivity. The most common arrangement is the Twin Probe configuration which involves two pairs of electrodes (one current and one potential): one pair remain in a fixed position, whilst the other measures the resistance variations across a grid. The resistance is measured in ohms and, when calculated, resistivity is in ohm-metres. The resistance method as used for standard area survey employs a probe separation of 0.5m, which samples to a depth of approximately 0.75m. The nature of the overburden and underlying geology will cause variations in this depth.

Data Processing

Despike	In resistance survey, spurious readings can occasionally occur, usually due to a poor contact of the probes with the surface. This process removes the spurious readings, replacing them with values calculated by taking the mean and standard deviation of surrounding data points.
Grid Edge Match	If a twin probe survey is carried out over several sessions it is not always possible to position the remote probes to adequately compensate for broad changes in ground moisture. This can give rise to distinct edges between adjacent grids where data have been collected at different times. The grid edge match function removes these discontinuities.
High Pass Filter	Carried out over a whole resistance data-set, the filter removes low frequency, large scale spatial detail, such as that produced by broad geological changes. The result is to enhance the visibility of the smaller scale archaeological anomalies that are otherwise hidden within the broad ‘background’ change in resistance.
Low Pass Filter	This process removes high frequency, small scale spatial detail, making it useful for smoothing data or enhancing larger weaker features. It can be applied across a whole data-set or limited to a specific area.
Interpolation	When geophysical data are presented as a greyscale, each data point is represented as a small square. The resulting plot can sometimes have a 'blocky' appearance. The interpolation process calculates and inserts additional values between existing data points. The process can be carried out with points along a traverse (the x axis) and/or between traverses (the y axis) and results in a smoother greyscale image.

Display

Greyscale / Colourscale Plot	This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.
Relief Plot	This is a method of display that creates a three dimensional effect by directing an imaginary light source on a given data-set. Particular elements of the results are highlighted depending on the angle of strike of the light source. This display method is particularly useful when applied to resistance data to highlight subtle changes in resistance that might otherwise be obscured.

Interpretation Categories

Wall / Foundation / Drain / Bank	These are (usually) high resistance anomalies forming patterns that clearly indicate that they represent some type of structural remains and there is evidence for such features from other sources (documentary, cropmarks etc).
?Wall / ?Foundation / ?Drain / ?Bank	Other evidence (documentary, cropmarks, other geophysics results etc.) suggests the presence of structural remains but the resistance anomalies themselves are weak, poorly defined and / or form incomplete patterns, thereby reducing confidence in the interpretation. (For example: there is an expectation of a building at a known site; some resistance anomalies are present which clearly indicate wall lines of part of the building but these 'fade out' and become indistinct. The indistinct responses will be classified as ?Wall etc.)
Ditch	These are (usually) low resistance anomalies forming patterns that clearly indicate that they represent some type of archaeological ditch feature (as opposed to drainage ditches or similar) and there is evidence for such features from other sources (documentary, cropmarks etc).
?Ditch	As with the ?Wall category above, a reduced confidence is applied when the response becomes indistinct and / or the pattern is fragmentary.
Archaeology (High/Low Resistance)	Well-defined anomalies forming patterns that indicate archaeology but where no supporting evidence exists. The anomalies are sub-categorised into high and low resistance.
?Archaeology (High/Low Resistance)	Weak / poorly defined anomalies forming incomplete patterns that suggest archaeology might be present. No supporting evidence exists. This is the least confident of the archaeological interpretations.
Ridge & Furrow	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases the response may be the result of more recent agricultural activity.
Ploughing	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
Natural (High/Low Resistance)	These are anomalies (often broad zones of higher or lower resistance) that are probably natural in origin; either caused by the underlying geology, or localised natural variations in soil moisture.
Landscaping / Topography	An interpretation assigned when the topography or other evidence suggests these factors might be responsible.
Modern (High/Low Resistance)	Anomalies which can be directly attributed to known modern features.
Uncertain Origin (High/Low Resistance)	Anomalies which stand out from the background yet show little to suggest an exact origin. Either archaeological, natural or modern factors may be responsible, but it has not been possible to determine the most likely cause. The anomalies are sub-categorised into high and low resistance.

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APPENDIX E. AUGER SURVEY

The results of the auger survey in the Garden Quad are shown on the table below, and the stratigraphical correlation and elevations of the brickearth and terrace gravel in both the Carpark and Garden Quad are shown on Figure 7. Plates 8 and 9 show the cores from OA01 and OA02 respectively.

Bore	Top (m)	Base (m)	Stratigraphy	Lithological description
OA01	0	0.2	Made ground	Brownish grey slightly fine sandy silt. Few (10%) subrounded to rounded flint and limestone pebbles <30mm, fine grass roots present. Clear contact
OA01	0.2	0.7	Made ground	Moderately firm, mid-brown sandy silt, trace of clay, inclusions of common (25%) small-medium (<30mm) flint and limestone pebbles, sub-rounded to sub-angular, rare angular large limestone fragments (building stone fragments?) <120mm, rare CBM. Clear contact
OA01	0.7	1.05	Made ground	Moderately firm yellowish brown clayey sand, slightly silty. Frequent sub-angular/sub-rounded small/large pebbles (30-50mm). Clear contact
OA01	1.05	1.75	Made ground	Firm olive grey silt, slightly sandy and slightly clayey, common small angular to sub-rounded pebbles (<20mm) of limestone and flint. Dark grey silt lens (30mm) at 1.3m, rare charcoal fragments. Clear contact
OA01	1.75	2.3	Brickearth	Moderately firm, brownish yellow mottled dark grey and light yellow clayey silt. Slightly coarse sandy, few small sub-angular limestone pebbles <20mm. Rare charcoal fragments. Mixed deposited sediment. Clear contact
OA01	2.3	2.4	Terrace gravel	Firm brownish yellow silt, sandy clay, frequent (30-40%) small-medium (<30mm) sub-angular/sub-rounded pebbles of limestone and flint. Possible residue of terrace gravel. Clear contact
OA01	2.4	3.3	Oxford Clay	Stiff light yellow olive silty clay
OA02	0	0.18	Made ground	Friable, dark brownish grey, fine to medium silty sand, fine grass roots abundant, rare small pebbles above 0.07m, common small sub-angular/sub-rounded pebbles <0.3m below 0.07m. Abrupt contact
OA02	0.18	0.5	Made ground	Firm brown sandy (mainly fine) silt, trace of clay, frequent (30%) small-medium sub-angular/sub-rounded pebbles of flint and limestone, becoming less gravelly with depth. Clear contact
OA02	0.5	0.75	Made ground	Moderately firm , dark greyish brown mainly fine sandy silt, slightly clayey, frequent animal bone and red CBM fragments. Rare charcoal. Clear contact
OA02	0.75	0.95	Made ground	Firm light brownish yellow clayey medium sand, small sub-rounded pebbles of flint <20mm and common white mortar/plaster fragments. Abrupt contact
OA02	0.95	1.8	Made ground	Firm dark greyish brown slightly sandy silt, trace of clay, common small sub-rounded to rounded gravel, un-evenly distributed. Several large sub-rounded limestone pebbles (60mm) at 0.25m above base of deposit. Abrupt contact
OA02	1.8	2.4	Brickearth	Firm slightly plastic yellowish brown fine sandy clay. Contact clear (obscured in cutting shoe)
OA02	2.4	3	Terrace gravel	Moderately firm to loose light reddish brown slightly silty fine to coarse sand, common sub-rounded pebbles <20mm in top 100mm, rare small pebbles below <10mm, and sand becoming yellow medium to firm sand below 2.85m. Abrupt contact

Bore	Top (m)	Base (m)	Stratigraphy	Lithological description
OA02	3	3.4	Oxford Clay	Stiff, light brown mottled pale greenish grey silty clay. Fine to small rare white inclusions (fossils?)
OA03	0	0.05	Turf	
OA03	0.05	0.24	Topsoil	
OA03	0.24	0.75	?Landscaping	Mixed mid grey clay silt with concentrations of re-deposited gravel (Ctxt 307)
OA03	0.75	1	?Landscaping	Mid-pale grey brown clay silt with 15% gravel and occasional mortar at base (Ctxt 306)
OA03	1	1.1	Limestone	Limestone fragment (Ctxt 305)
OA03	1.1	1.3	?Fill	Mid-dark grey clay silt with 5-10% gravel (Ctxt 304)
OA03	1.3	1.35	?Fill	Very dark grey clay silt (Ctxt 303)
OA03	1.35	1.98	?Fill	Mid olive brown clay silt (Ctxt 302)
OA03	1.98	2.48	Brickearth	Very sterile reddish brown sandy clay (Ctxt 301)
OA03	2.48	2.5	Terrace gravel	Mid yellowish brown sandy gravel (Ctxt 300)

Appendix F. Summary of Site Details

Site name:

Site code: OXCT15

Grid reference: SP 515 060

Type: Evaluation

Date and duration: 10 days between 13th-24th April 2015

Summary of results: In April 2015, Oxford Archaeology (OA) carried out a field evaluation at Corpus Christi College, Oxford (SP 515 060). The evaluation revealed the top of the second terrace gravels, which did not appear to have been truncated and were overlain by a possible buried soil horizon which may have represented a variation in the composition of the post-glacial brickearth deposit which overlies the second terrace.

The possible buried soil was overlain by a series of clay silt deposits, some of which contained waterlogged material, which may have represented trample and/or domestic refuse associated with an unmetalled right of way pre-dating late Saxon Shidyerd Street, thought to run through the site. These deposits were overlain by a layer of limestone rubble which may have represented the first in a series of rudimentary surfaces interspersed with thick accumulations of silty material which produced a considerable quantity of animal bone, presumably deposited by the occupiers of structures fronting on to the street. The majority of datable artefacts recovered from these layers appear to suggest that they were deposited between the 11th and 12th centuries, with the predominance of St Neot's ware probably suggesting a pre-conquest date for the majority of the sequence, with the latest of the rudimentary surfaces dating from the 12th–14th century.

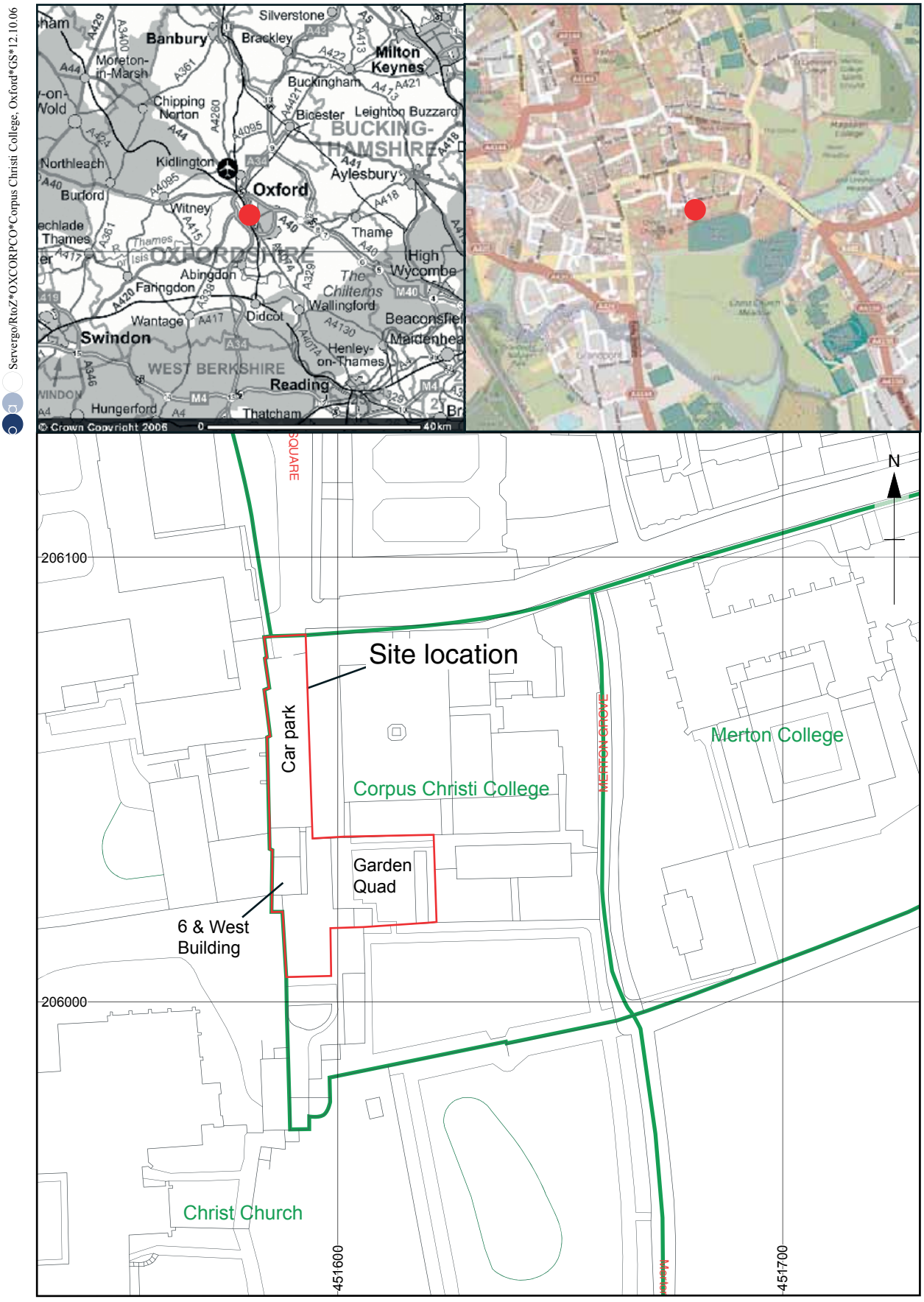
The uppermost of the sequence of surfaces was well-metalled and was predominantly constructed from large limestone cobbles. The dating evidence suggested that this may have been laid as early as the 14th century, and is perhaps contemporary with the acquisition of the lower end of Shidyerd Street by Merton College in 1321, with the materials used to construct it possibly originating from buildings which are documented as having been demolished by the College in 1317.

The deposits overlying this surface were of uncertain origin, although they are likely to be 16th century in origin and may relate to the early use of the site following the foundation of Corpus Christi in 1517. The paucity of evidence for any activity between the 14th and 16th centuries may reflect the economic decline in Oxford throughout the 15th century.

The lack of any later surfaces associated with the construction of the President's Lodging in 1607 implied a degree of truncation prior to the construction of the existing car park, as it seems highly likely that the access to the newly built lodging would have been through the site.

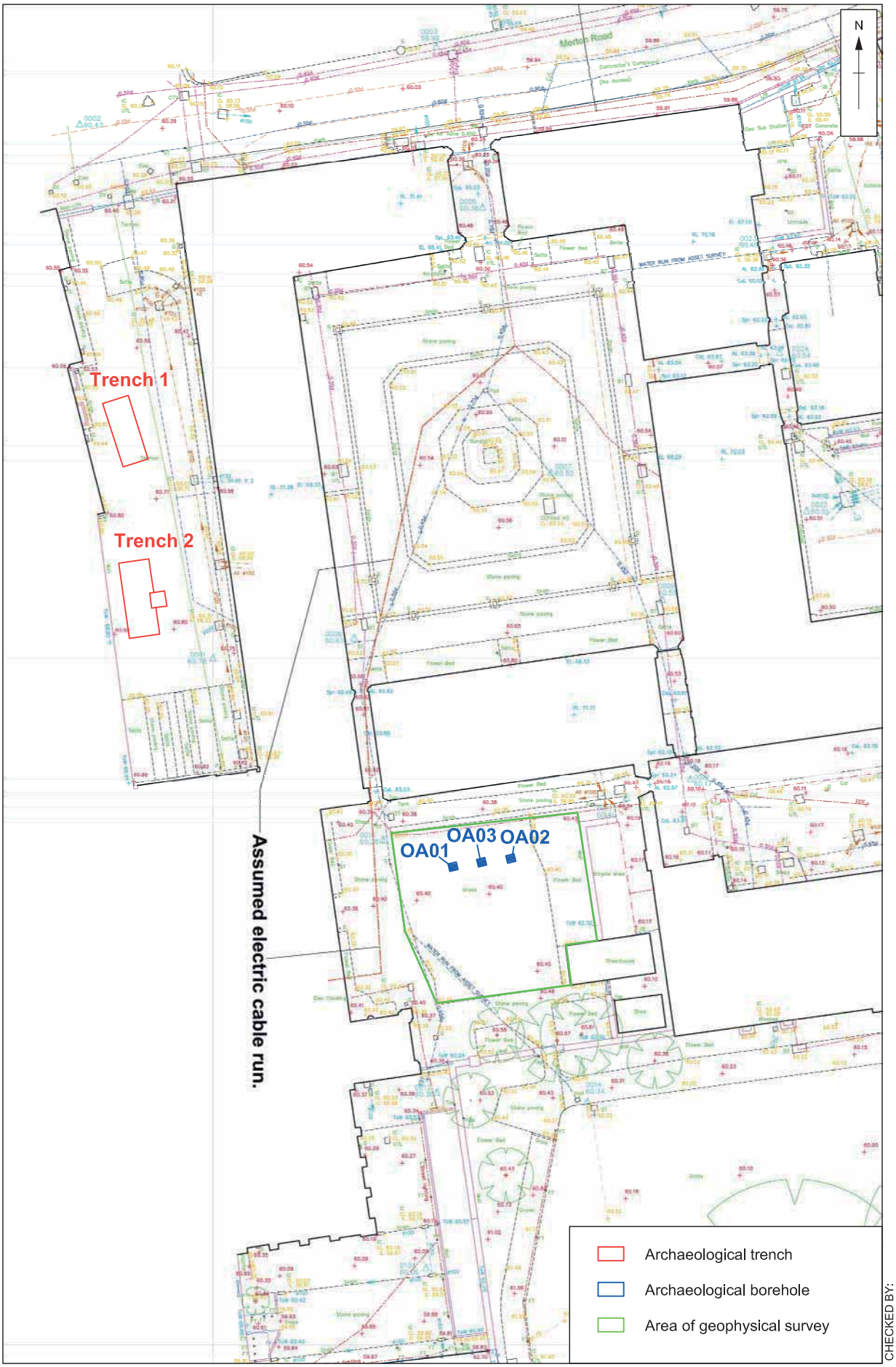
A number of possible post holes which truncated the possible 14th century surface, and possibly the seies of deposits overlying it, may have been associated with the construction of the Canterbury Gate and eastern range of the Canterbury Quad of Christ Church College in 1778. These deposits were directly overlain by the modern bedding deposit for the existing tarmac surface.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Museum of Oxford in due course, under the following accession number: OXCMS.2015.92



Scale 1:1250

Figure 1: Site location



0 20 m

Scale at A4 1:400

Figure 2: Trench and borehole locations

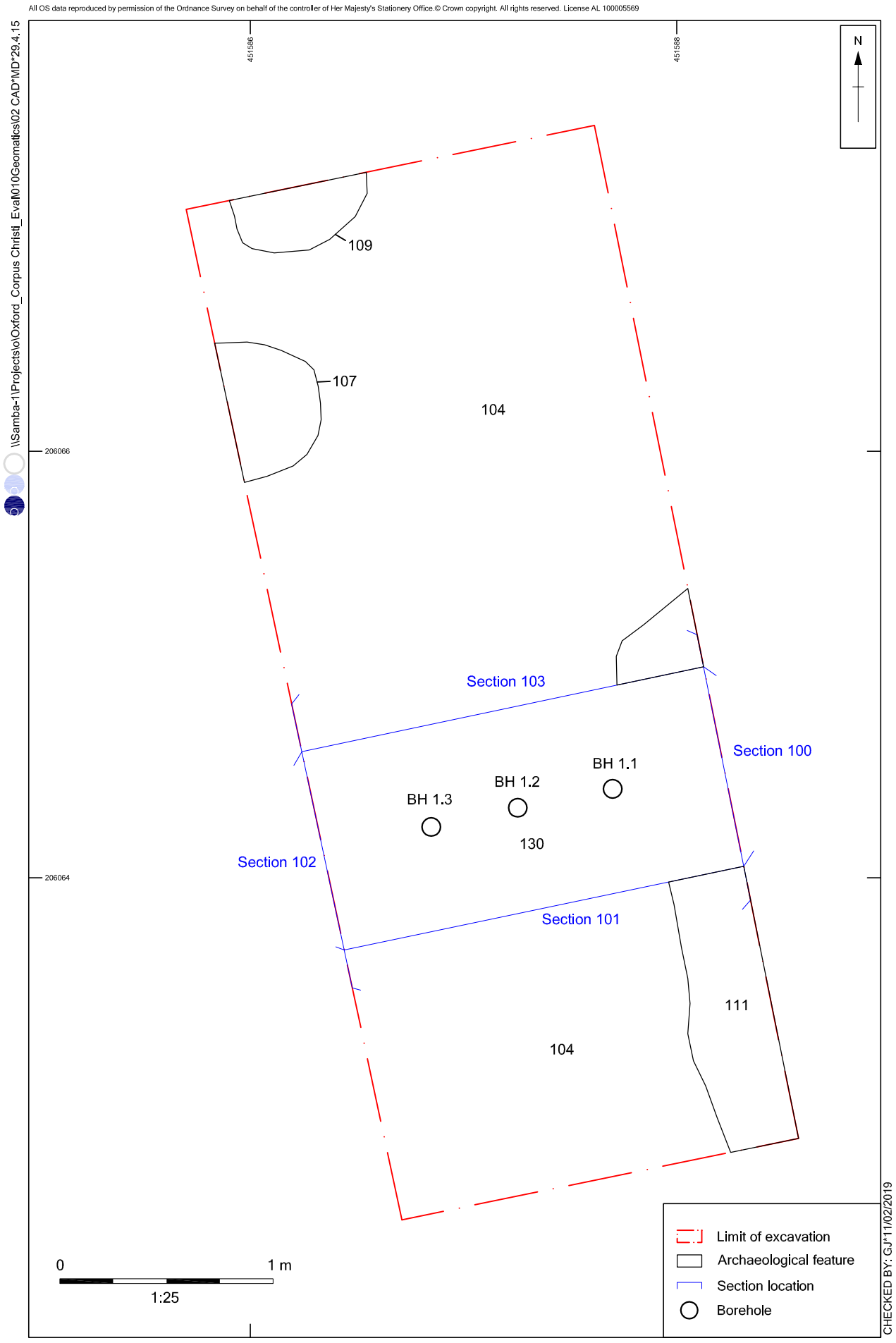


Figure 3: Trench 1, post-excavation

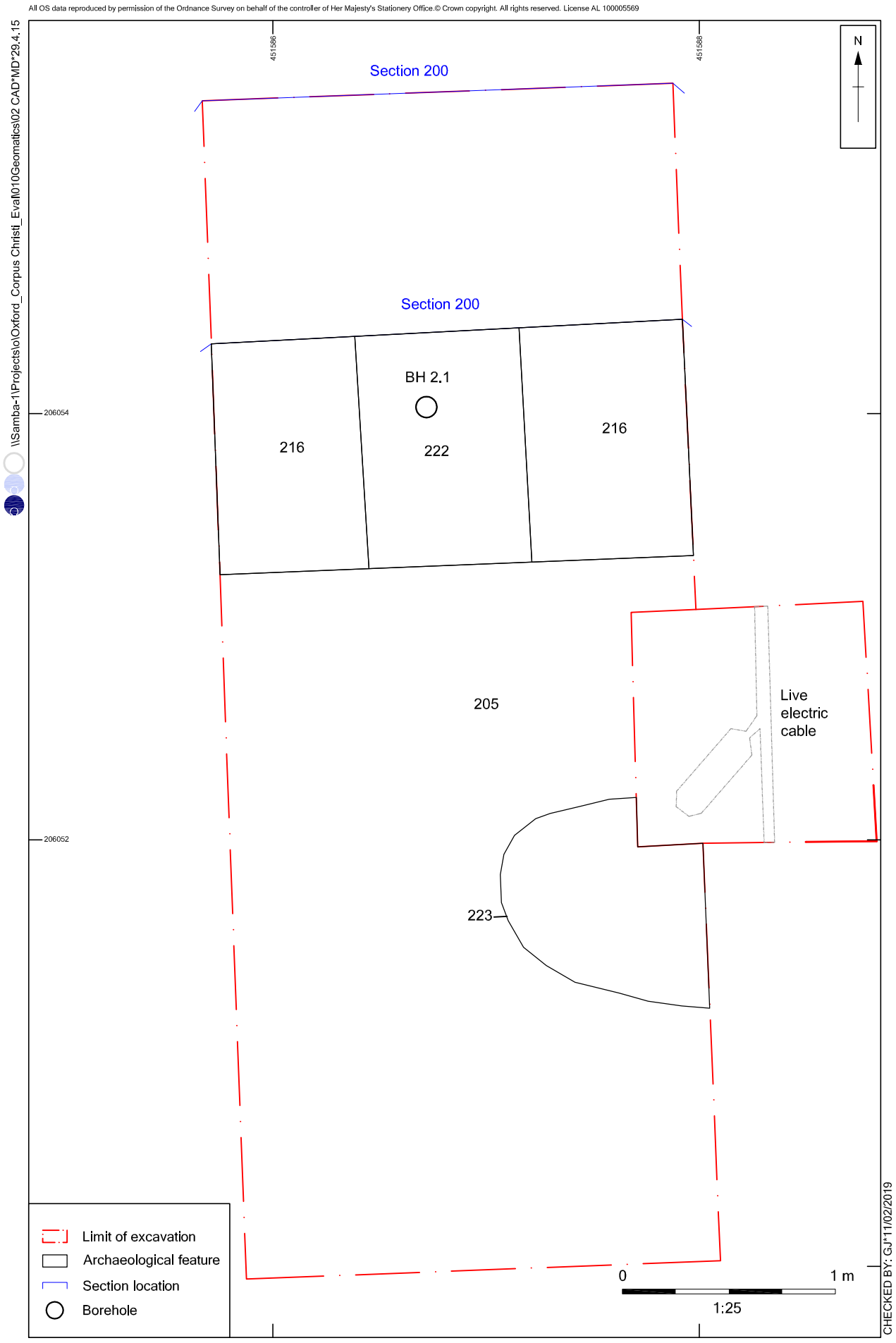


Figure 4: Trench 2, post-excavation

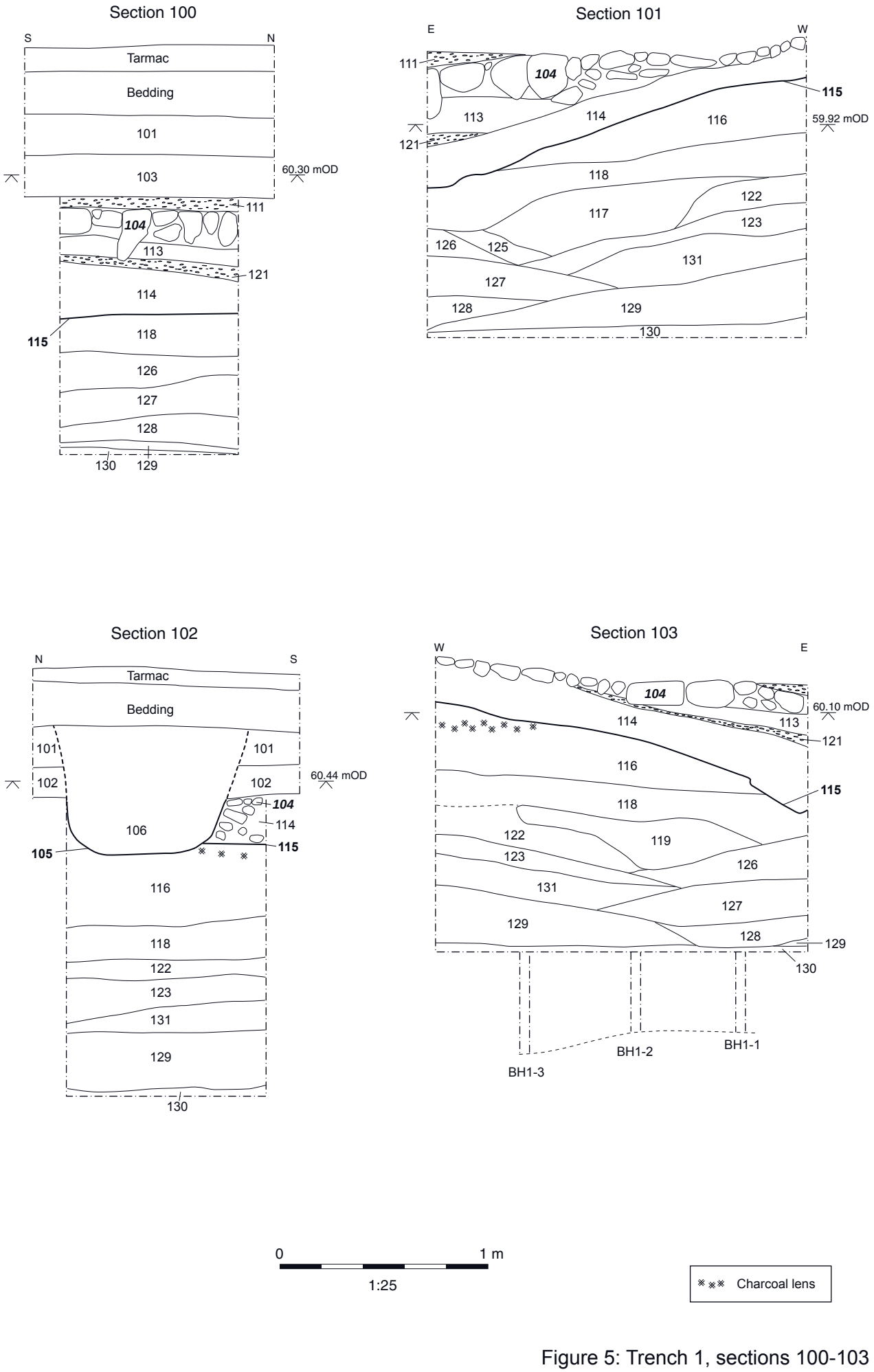


Figure 5: Trench 1, sections 100-103

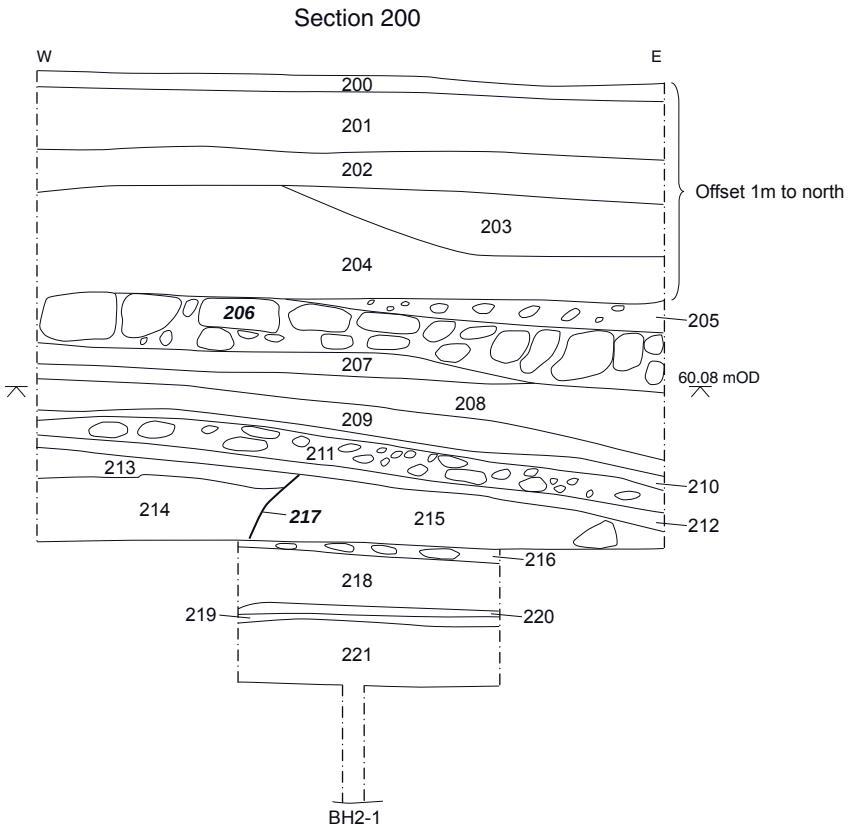


Figure 6: Trench 2, section 200

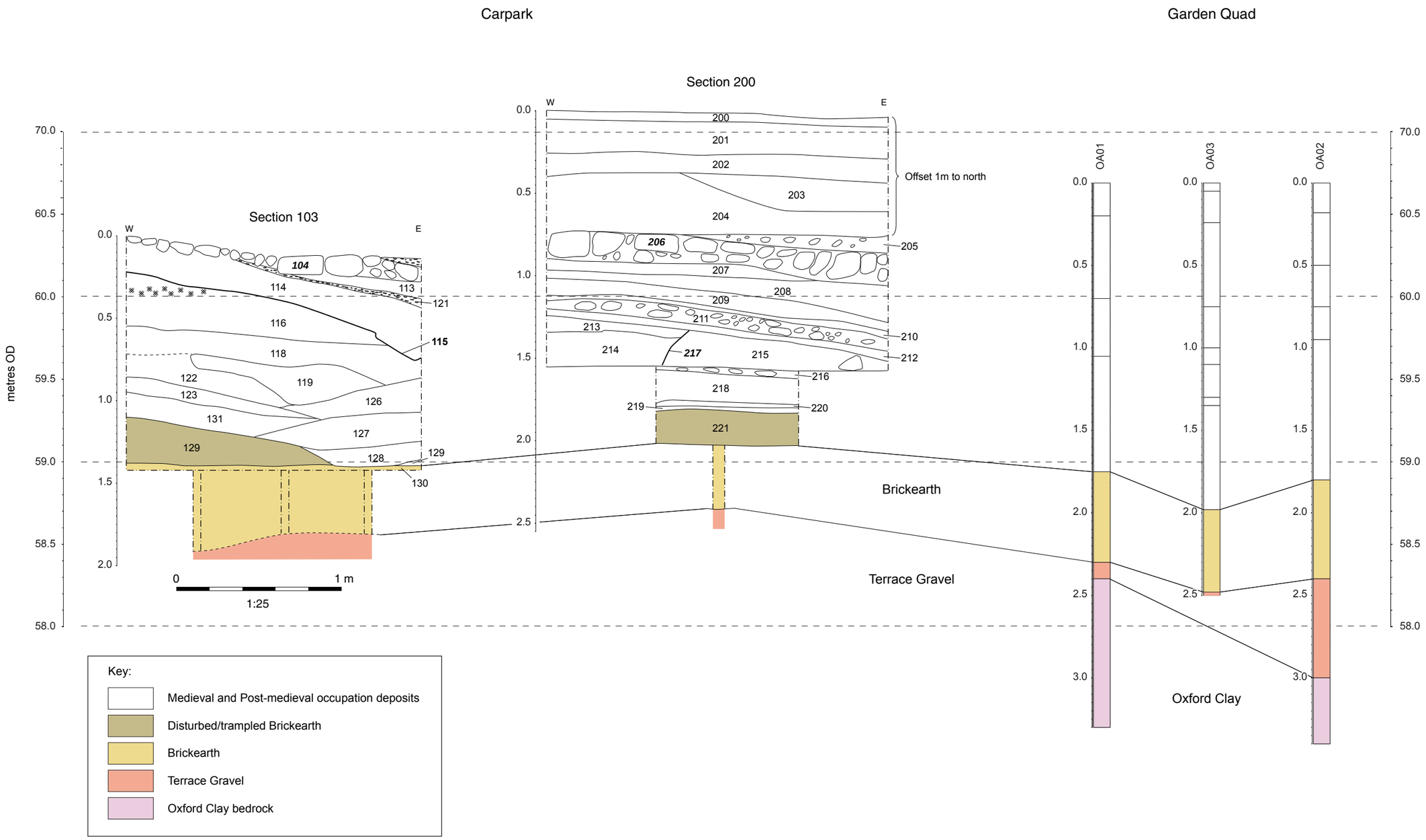


Figure 7: Stratigraphical correlation and elevations of the Brickearth and Terrace Gravel in the Carpark and Garden Quad

Plate 1:Trench 1, Surface 104 looking south

Plate 2:Trench 2, Surface 205 looking south

Plate 3:Trench 2, Surface 211 looking north

Plate 4:Trench 1, Deposit 123 looking west

Plate 5:Trench 2, Deposit 216 looking west

Plate 6:Trench 1, post-excavation (top of Deposit 130)

Plate 7:Trench 2, post-excavation (top of Deposit 222 in sondage)

Plate 8: Auger hole OA01

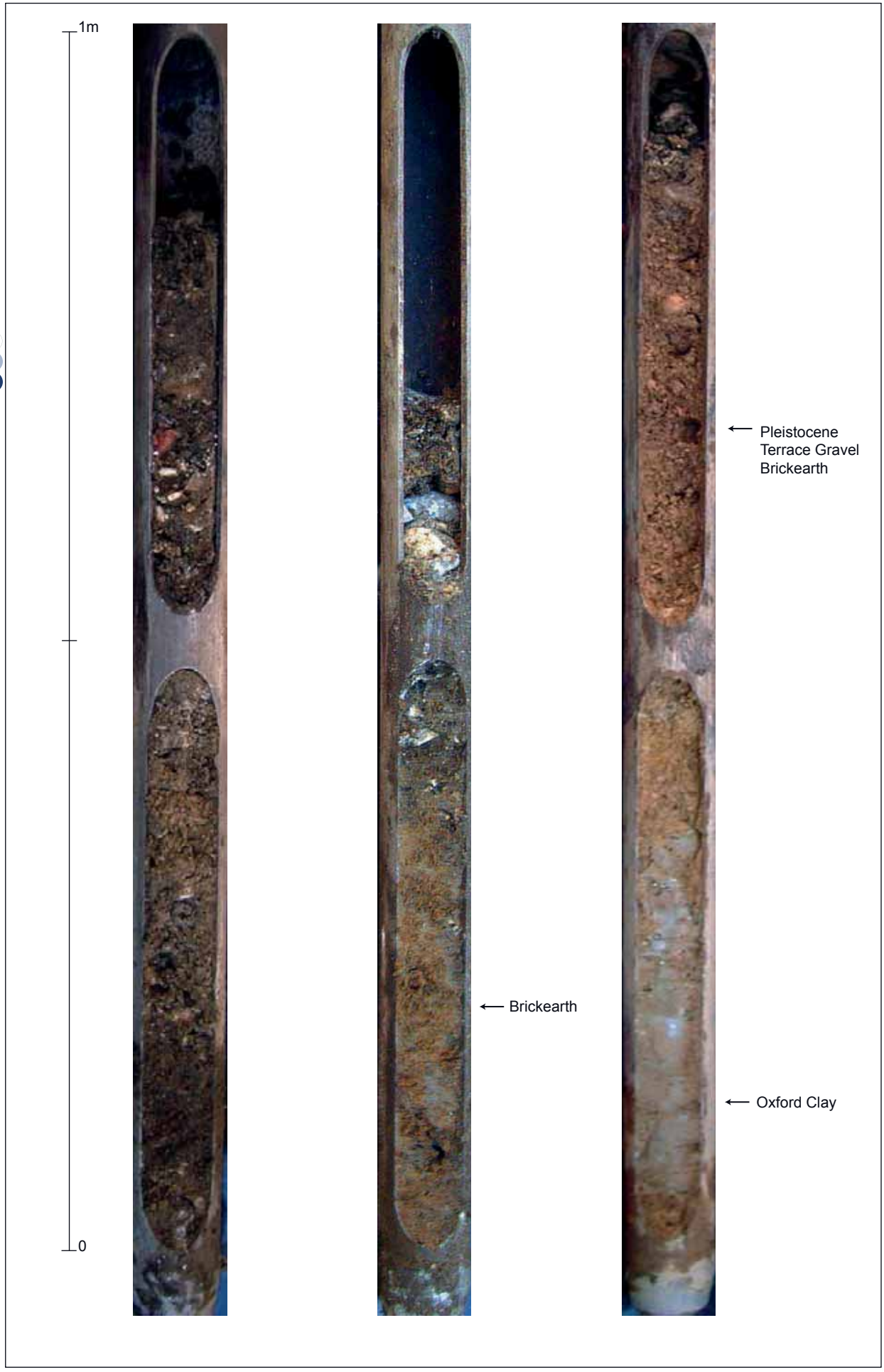


Plate 9: Auger hole OA02

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