

St. Mary's Church Guildford Surrey



Archaeological Investigations



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St. Mary's Church, Guildford, Surrey

Summary

St. Mary's Church is a Grade I listed building and is said to be the most historically significant building in Guildford. The tower of the current building is thought to be of Saxon origin, probably having been constructed in the 10th century and there is believed to have been an earlier church on the site, probably dating from the 8th or 9th century. Oxford Archaeology (OA) has undertaken a programme of archaeological investigations and recording at the site during two phases of quinquennial repairs to the church.

The work comprised several distinct elements. Phase 1, undertaken in May 2010, included:

- *Archaeological watching brief during exploratory excavation works to determine the locations for two soak-away drains;*
- *archaeobotanical analysis of straw under the roof tiles in St John's Chapel.*

The Phase 2 works, undertaken in the summer of 2011, included:

- *Archaeological watching brief during drain runs and during the excavation for the soakaways;*
- *Recording of the roof structure of St John's Chapel and the North Transept while it was temporarily uncovered.*

Although no significant archaeological remains were identified during the preliminary Phase 1 watching brief works the Phase 2 works partially exposed two articulated skeletons which were preserved in-situ. The works also revealed two brick culverts.

The investigation of the straw and organic material in the roof structure was of interest. The straw appears to have been used as a packing material rather than being traces of a former thatched roof and its use in this way appears to be very unusual. The use of cereal straw for insulation between floors is common but not as packing in a roof space. It is unlikely to be for insulation purposes and may have been intended to help prevent the breakage of tiles. This has significant implications for our interpretation of charred cereal straw/ rachis remains.

The works undertaken on the roof structure in St John's Chapel and the North Transept have provided a valuable opportunity to enhance understanding of the development of this part of the building. The main roof in this area is a scissor-brace roof of probable 13th or 14th century date although the roof in the apsidal east end appears later and to have undergone a substantial overhaul, possibly in the 18th or 19th century.





1 INTRODUCTION

1.1 Background

- 1.1.1 Oxford Archaeology (OA) was commissioned by Thomas Ford and Partners to carry out a programme of archaeological investigation and recording of St. Mary's Church, Guildford. This work is part of the quinquennial repairs of the church which concentrate on the re-roofing of St John's Chapel which is part of the church's 12th century eastern development, and the overhaul of the site's drainage system.
- 1.1.2 The archaeological works were split into two phases. The initial investigation was undertaken in May 2010 and comprised analysis of straw packing around roof tiles in St John's Chapel and watching brief during trial excavations in preparation for drainage soakaways. The second phase of works in the summer of 2011 comprised further archaeological watching brief during the excavation of the soakaways and drainage runs as well as recording of the roof above St John's Chapel while it was temporarily uncovered to allow the insertion of a breathable membrane.
- 1.1.3 St Mary's Church is located in the centre of Guildford on Quarry Street (NGR – SU9960 4930) (Figure 1), its historic importance is shown by its listing at Grade I (LBS no. 289077). There is believed to have been a church on this site since the 8th or 9th century (Mary Alexander pers comm) and the central tower of the current building dates from c. 1000AD. The east end and much of the Nave were constructed between 1080 and 1150.
- 1.1.4 The repair works provided an opportunity to provide further understanding of the building, and include analyse of the straw packing under the roof tile as well as below-ground watching brief recording during works.

1.2 Aims and objectives

- 1.2.1 The overall aim of the project was to investigate and record for posterity elements of St. Mary's Church during repairs works. The repairs concentrate on the re-roofing of St John's Chapel, the replacement of all gutters and downpipes, internal and external masonry repairs and the replacement of two soakaways (at the south west and north west of the church) with associated drainage.
- 1.2.2 The objectives were to:
- Analyse and possibly date straw packing which extends under the tile finish of St John's Chapel;
 - Undertake a watching brief of two trial excavations by an external contractor;
 - Undertake a watching brief during excavations for two new soakaways and drainage runs;
 - Record evidence of the roof above St John's Chapel while it was temporarily exposed;
 - Report and archive the findings.
- 1.2.3 More specific aims of the watching brief were:
- (i) To establish the presence/absence of any archaeological remains within the trial pits and to determine the extent, condition, nature, character, quality and date of any archaeological remains that may affect further need further investigation and recording;



- (ii) To establish the ecofactual and environmental potential of any archaeological deposits and features, and to make available the results of the archaeological investigation;
- (iii) To unify, where possible, the recording process and archaeology of the below ground remains and building recording of the standing structure.

1.3 Methodology

- 1.3.1 The *archaeological watching brief* element of the work was undertaken by an experienced archaeologist. In phase 1 two test pits were dug by an external contractor to determine positions for soakaways. In phase 2 the two soakaways were dug by an external contractor as well as drainage runs to the soakaways. Archaeological features identified during this work were planned at a scale of 1:50 or 1:20, and excavated sections drawn at a scale of 1:20. All excavated features were photographed using digital photography and black-and-white print negatives. All features and deposits revealed were also issued with unique context numbers, excavated where required, and context recording was carried out in accordance with established OA practice as detailed in the OA Field Manual (Wilkinson, 1992).
- 1.3.2 The *recording of the roof structure* was undertaken by a senior member of Oxford Archaeology's Historic Buildings Department. The recording was undertaken from external scaffolding erected for the purposes of the re-roofing works and comprised photographs, measured sketches and descriptive notes.
- 1.3.3 The *analysis and dating of the straw packing* which extends under the tile finish of St John's Chapel was undertaken by Oxford Archaeology's archaeobotanist, Wendy Smith. A site visit was undertaken and three samples of the straw taken, principally the cereal ear to provide information for identification. In addition Dr David Smith (Institute of Archaeology and Antiquity, University of Birmingham) sampled the straw for insect remains to provide further information regarding the development of the building and roof. The latter work is a separate research element of the project.
- 1.3.4 A small sub-sample from each of the three samples was rapidly scanned under a low-power binocular microscope at magnification between x8 – x30 in order to ascertain what cereal was in use and to establish if insect remains were present. Assessment also included establishing if any other types of plant were present, and if insect remains were preserved.

2 HISTORICAL BACKGROUND

- 2.1.1 The following description is primarily taken from information on the Guildford Borough Council website which has been obtained from Guildford Museum (<http://www.guildford.gov.uk>) as well as from *Guide to St Mary's Church, Guildford* (Alexander M, 2009). The listed building description of the church is included at Appendix C in this report (www.heritagegateway.org.uk)
- 2.1.2 St Mary's Church is the oldest surviving building in Guildford, thought to be the original church of the town. The first Anglo-Saxon church would have been of timber construction and this was rebuilt in stone, probably in the 10th century. This forms the tower in the current building.
- 2.1.3 After the Norman Conquest the chancel, to the east of the tower, was constructed and traces of the Norman windows can still be seen in the side walls. The nave and two transepts (the northern of which forms one of the main focuses of the current work) were



subsequently added to the north and south of the tower and arches were opened through the tower walls into the transepts. Evidence suggests that St Mary's may have been given to Merton Priory, probably soon after the foundation of the priory in 1114, and if this is so it is likely that this large phase of construction, including the addition of the transepts, was undertaken in this period, probably around 1120. The list description suggests a date of c.1100 for the construction of the transepts.

- 2.1.4 It is assumed the canons of Merton added the stone vault in the chancel and the very unusual apsidal chapels, possibly around 1180. The roof above the apse at the east end of St John's Chapel has been recorded in the current work. The same style of arches are used between St John's Chapel and the Chancel as between the nave and aisles and it is assumed that these were added in the same phase (c.1180).
- 2.1.5 Traces of early 13th-century wall-paintings are still visible in St John's Chapel, these were probably executed around 1200. At around the same time the chancel and the side chapels were remodelled in the current 'Early English' style, with ribbed vaulting. Under Henry III in the mid 13th century, the north doorway was made and the aisles were extended to their present width and height.
- 2.1.6 Essentially, St Mary's church has changed little since this work was finished at the height of Guildford Castle's prosperity. Later in the Middle Ages windows were added or replaced and in the 15th century the whole church, with the exception of St John's Chapel, was re-roofed.
- 2.1.7 There would have been at least six altars in the church in the later Middle Ages. The High Altar was in the chancel. There was an altar in each of the chapels, one on the east end of each aisle (where the aumbries to contain the sacramental vessels can be seen) and one in front of the rood screen. This was a wooden screen blocking the arch between the nave and the tower. Above it would have stood a large crucifix or rood, with a gallery or loft reached by the doorway visible high up in the tower wall. The west end was partitioned off in 1979 to house the SPCK bookshop, which closed in 2003.

3 ARCHAEOLOGICAL WATCHING BRIEF RESULTS

3.1 Phase 1: Archaeological Test Pits

- 3.1.1 A watching brief of two pits was undertaken in the church graveyard (Fig. 2). Test pit 1 (1.45m x 0.6m x 1m) located in the south-west corner did not identify any significant archaeological features or datable finds, a modern service trench for a water pipe. Test Pit 2 (1m x 0.8m x 0.9m) located in the north-west corner of the churchyard also did not reveal any significant archaeological features or datable finds.

3.2 Phase 2: Archaeological Deposits

Trench 1

- 3.2.1 Trench 1 was located to the south-west of St Mary's Church (Figs. 2 and 3) It was aligned NE-SW and measured 3.1m by 1.2m (Plate 4). Prior to the excavation of the trench flagstone paving, some kerb stones and their footings had to be removed from the north-eastern half of the trench. The south-western half of the trench was excavated through the churchyard's topsoil which was also present in Trench 2.
- 3.2.2 A north-south aligned extension to Trench 1 measured 4.3m in length, 0.4m in width and up to 0.8m was dug for the drainage pipes. Flagstone paving slabs and their bedding also had to be removed from this extension



- 3.2.3 Throughout Trench 1 and its extension a friable dark-brown silty loam extended up to a depth of 1m BGL (1). Beneath this lay a compact light grey-brown silty loam (2), which extended down to a depth the working depth of 1.86m BGL in the eastern half of the trench and 2.0m in the western half. These were interpreted as a graveyard soil, and an old graveyard soil respectively.
- 3.2.4 Excavation of the trench revealed two features (Figs 3 and 4), the first was a NW-SE orientated modern service trench (3). This cut extended across the trench and measured 0.42m wide and had its base 0.8m BGL. The second feature (8) was located in the north-eastern corner of the trench and was only partly uncovered. It extended for 1m along the northern side and 0.16m on the eastern side and was 1.52m deep. The fill of the cut (9) was identical to burial soil (1) making the feature very hard to see. At its base was a brick structure (7) which took up the entire revealed length and breadth of the cut and stood 0.44m high (Plate 5). It consisted of six courses of brick, two of which made up the walls whilst the other four made up the revealed portion of a vaulted roof. Whilst originally thought possibly be a brick lined and vaulted shaft tomb the further investigations show that it was a post-medieval culvert.
- 3.2.5 During the excavation of both the trench and the extension a significant quantity of disarticulated human remains were recovered from both the burial soil deposits (1 and 2).

Trench 2

- 3.2.6 Trench 2 was located to the north-west of St Mary's Church next to the church's small car park (Figs. 2 and 5). It was orientated east-west and measured 3.1m by 1.3m. The trench was excavated through topsoil. Throughout Trench 2 a friable dark-brown silty loam extended up to a depth of 0.26m BGL (5). Beneath this lay a compact light grey-brown silty loam, which extended down to a depth the working depth of 1.3m BGL (6). These were interpreted as a graveyard soil, and an old graveyard soil respectively and are thought to be the same layers as found in Trench 1 (1 and 2).
- 3.2.7 At a depth of 1.3m BGL two human skeletons were partly uncovered (skeletons 10 and 11) (Plate 7). The skeletal remains of a juvenile (11) were located central to the trench and an adult skull along with the decayed remains of a coffin (10) were located next to the eastern end of the trench. Neither skeleton was fully excavated and were covered over to prevent any further damage or disturbance to them. The grave cuts could not be seen due to the similarity between the backfill and the surrounding soils and as such were not recorded.
- 3.2.8 The shape and target depth of Trench 2 was altered to allow the necessary volume of the soakaway to be constructed without disturbing any more burials or damaging the Church's car park. An extension was excavated on the western end of the trench measuring 4.0m in length, 1.3m wide and orientated north-south, making Trench 2 into an L shape in plan (Plate 6).
- 3.2.9 No further burials were uncovered during the extension of Trench 2, but a post-medieval brick culvert was uncovered (12) (Plate 8). It was orientated on an east-west alignment and measured 0.44m wide and 0.44m high. Its construction was found to be identical to culvert (7) in Trench 1. Once it was established that it was fully out of use it was demolished to allow for the construction of the soakaway. A target depth of 1.3m was obtained without the discovery of any further archaeologically significant deposits.
- 3.2.10 During the excavation of both the trench a small quantity of disarticulated human remains were recovered from both the graveyard soil deposits (5 and 6).



3.3 Finds summary

Articulated human remains

- 3.3.1 Two articulated burials were recorded in one context (**6**) in Trench 2. The first was a juvenile skeleton, assessed to be neonate (birth- 1 month) or an infant (1-12 months). The second was an adult, represented by only a skull within the trench. Both were orientated west-east. No date could be established for the juvenile skeleton, but the adult is likely to have been post-medieval as a number of coffin fittings were exposed along with the skull. Both skeletons were only partly exposed during the excavations where upon they were reburied and preserved *in situ*.

Disarticulated human remains

- 3.3.2 A small quantity material was recovered from two contexts (**1** and **2**). The material was generally well preserved and mostly came from Trench 1. A brief examination of the remains established that they consisted of mostly long bone and skull fragments with minimum number of individuals of nine. Five of these individuals would have been adult, with the remaining four being juveniles. One bone, a tibia, exhibited a well healed but badly aligned oblique fracture to the mid-shaft. All of the material was redeposited in the trench from which it came after construction of the soakaways.

Metalwork

- 3.3.3 This assemblage comprises of a number of iron nails found surrounding adult skull (**10**) in Trench 2. None of the material was closely datable, however, it is probable that the nails were fixings for the coffin of skeleton **10** and dated from the post-medieval period. The nails were preserved *in situ*.

Animal bone

- 3.3.4 A small quantity of animal bone was recovered from contexts **1** and **2**. It was of no archaeological significance and was reburied without analysis.

3.4 Discussion of archaeological investigations

- 3.4.1 The Phase 2 groundworks have indicated that the burial ground has been used repeatedly over the life of the St Mary's Church, showing that the surrounding soils have been dug and re-dug repeatedly producing two generally homogeneous layers (**1** and **2** in Trench 1 and **5** and **6** in Trench 2) in which all but the most recent of cuts are difficult or impossible to see. The repeated use of the Churchyard for inhumations is not only evident in the difficulty of recognising grave and construction cuts, but in the significant quantity of disarticulated human remains found within both trenches.
- 3.4.2 The lack of any burials being discovered in Trench 1 despite its greater depth may indicate that area to the south-west of the church has been turned over more frequently, not only for burials, but for services, both modern and archaeological. Alternately, the lack of any burials may be due to a greater depth of burial soil or less interments per burial plot in that location.
- 3.4.3 Despite their shallow depth of burial at only 1.3m BGL it is likely that the two burials from Trench 2 (**10** and **11**) are post-medieval. This is due to evidence of a coffin with SK 10; the practice of placing the corpse within a coffin for burial was relatively rare in the medieval period (Gilchrist and Sloane 2005), but became increasingly popular from the seventeenth century, and ubiquitous from the early eighteenth century onwards (Litten 1991). Given the good condition and low degree of fragmentation of skeleton **11** it seems unlikely that is of a medieval date and it is entirely possible that it was too interred in a



coffin, the reduced size of the fittings on young juveniles coffins often makes them more difficult to observe in the ground, especially when a grave is not fully excavated.

- 3.4.4 A total of two brick built structures were revealed within the church grounds (7 and 12). Both were culverts, and could not be dated any more accurately than to the post-medieval period.

4 RECORDING OF ST JOHN'S CHAPEL AND NORTH TRANSEPT ROOF

4.1 Introduction

- 4.1.1 The current project has included a small-scale programme of building recording to investigate the roof above St John's Chapel and the North Transept while it was temporarily uncovered to allow the insertion of a breathable *Tyvek* membrane beneath the tiles. The recording was undertaken on one day from an external scaffold frame and therefore the analysis of the roof was from above. The removal of tiles and works to insert the membrane were undertaken in small sections with one area being exposed and recovered before the next area was started. Therefore although the recording visit was timed to allow the largest number of timbers to be seen as possible it was not possible to see the entire roof structure.
- 4.1.2 Only the lowest quarter of the rafters was visible along the north side of the roof and the semi-circular east end. On the south side the roof slopes down to a valley adjacent to the tower and thus there is no scaffold frame allowing access to this area.

4.2 Description

- 4.2.1 The section of roof investigated in the current works divided into two distinct areas: the main block above the North Transept and western half of the Chapel and that above the rounded apsidal east end. As detailed in the historical background the north transept is believed to have been constructed around 1120 while the apsidal end was probably added in c.1180. The roof above the transept/chapel is a scissor-braced structure and the *Guide to St Mary's Church Guildford* states that it is of 14th or possibly 13th century date.
- 4.2.2 Within the roof space there is a full height stone wall dividing the semi-circular structure above the apse and that above the main chapel and the two sections of roof are structurally entirely separate.
- 4.2.3 *Transept/main chapel***
- 4.2.4 The roof above the North Transept and the main part of St John's Chapel is largely of oak and comprises 17 rafters with the lowest quarter of each of these visible within a small void above the top of the stone wall and behind a series of timber studs (or ashlar pieces). The rafters at each end of the block, and one towards the centre (9th from east) are pegged to tie-beams (see Plate 12) although these ties may be secondary insertions. The tie-beams at each end are 18 cm wide while that towards the centre is 29 cm wide by 25 cm tall.
- 4.2.5 The main rafters range between 19 – 22 cm wide (mostly 19 cm) by c.13-15 cm deep. At their base they have had short, thin secondary spurs nailed on to support the gutter. The rafters which are pegged into the ties are broadly the same size as the other rafters.
- 4.2.6 Other than those which now sit on the tie-beams, the rafters sit on a wall plate (c.21 cm wide x 16 cm deep) set on top of the outer edge of the stone wall while there is also a further timber plate (18 cm tall) on the inner edge of the wall (see Fig 6). On top of this base is a smaller horizontal bearer (11 cm tall) supporting the base of a series of vertical



ashlar pieces which rise up to the underside of each rafter. Between each of the ashlar studs is lath and plaster. The void behind the plaster, above the wall and at the base of the rafters, is c.60 cm wide and contains extensive detritus such as old laths, broken tiles, straw and chicken wire which limits visibility.

- 4.2.7 The ashlar pieces appear to be secondary additions (or replacements). This is partly based on their different colour and weathering to the rafters but also because at the east end of the void there is what appears to be a small fragment from an older plaster surface behind the ashlar pieces (Plate 17). This plaster is on the west side of the stone wall which divides the apsidal end from the main chapel, and as it is now entirely hidden by the lath and plaster between the ashlar pieces it presumably survives from an earlier arrangement. The section of old plaster is rough and cracked and fits neatly in the triangular shaped panel formed between the rafter, the tie-beam and the ashlar piece. The laths supporting the plaster between the ashlar pieces are generally thin and suggestive of a possible 18th or 19th century date although some are wider so it may be that an older section of plaster was repaired rather than entirely replaced.
- 4.2.8 One minor feature of some interest in the roof is a single circular hole visible in the east side of almost all the rafters, c.20 cm up from the base (Plates 10-11). The holes are c. 2.5 cm in diameter and they are generally just in the east side so they clearly don't extend right through the rafters. Similar features have been noted by OA and other buildings archaeologists in other historic roof structures and their function has been the subject of speculation in a number of articles (see Johnson B, 1987). It is believed that they may have related to the initial temporary setting out of the roof timbers on the ground before all the joints are firmly fixed together. It may be that there were small ties in these holes to hold the roof together.
- 4.2.9 Another feature of interest is that towards the eastern end of the roof there is a horizontal bearer or trimmer between the 2nd and 5th rafters from the east end while on the 3rd and 4th rafters there are raking struts which clearly support this feature (Plates 15, 18). The base of the raking struts rest on the inner wall plate and at their heads they are tenoned into the common rafters. The trimmer is set immediately above this and it appears that it was the base member for a roof light or dormer window. It is interesting to note that the underside of a similar bearer between the 2nd and 5th rafters is also visible from within the church (Plate 28). This is at a higher level than the bearer identified in the current work and was presumably the top of the former roof light. As the base and top of the probable former window are either side of the vertical lath and plaster this is further evidence that the lath and plaster is secondary. The raking struts appear primary and the trimmer is morticed into the sides of the 2nd and 5th rafters. There is no evidence of other former trimmers or former windows in the roof.
- 4.2.10 There are no visible carpenters marks on the rafters but several can be seen on the rear of the ashlar studs and there is one on the underside of the raking strut. These marks are all scratched rather than chiselled.
- 4.2.11 *Apsidal east end***
- 4.2.12 The semi-circular roof structure at the east end is separate from that of the rest of the chapel and is from a different phase of construction. There are three trusses adjacent to each other at the junction between the apsidal and end the main range (see Plate 14). The two western trusses relate to the main chapel roof while the eastern truss supports the semi-circular roof structure.
- 4.2.13 Access to the western two trusses has been very limited in the current study but the eastern truss, in the semi-circular roof space is visible and comprises two principal rafters



and a pegged main collar from which a series of horizontal collars radiate to the main rafters. These collars have a wide variety of sizes, some with a broadly square section and some relatively flat, and they are pegged to the main 'collar'.

- 4.2.14 The apse roof structure comprises two timber ring plates set on top of the semi-circular wall, one at the inner edge of the wall and one at the outer edge (see Fig 7). Each plate is c.20 cm wide by 15 cm tall. There are a series of rafters the base of which rest on the outer ring and which are supported by vertical struts which sit on the inner ring. The struts appear to sit in mortices in the upper face of the inner ring and the height of the struts varies considerably depending on their position in the roof. The rafter feet and struts are secured together by a short timber tie which is a secondary insertion and sits on top of the wall. This tie is half lapped and nailed over the side of the strut and rafter.
- 4.2.15 The general construction of the roof has a relatively crude form and although some of the rafters and other members are pegged many are nailed and it appears that the overall structure was heavily repaired or partially reconstructed, possibly in the 19th century. However the form of the roof probably broadly followed the historic form. Most of the timbers are old but some are clearly secondary and it is likely that some of the older ones are also reused.
- 4.2.16 The rendered tops of the three vaults in St Johns Chapel are visible in the roofspace. No access into this area was possible.
- 4.2.17 The east face of the full height wall dividing the main chapel area from the apsidal end has various patches of mortar but no render or plaster. Four put-log holes are also visible in the wall which is of rough uncoursed stone
- 4.2.18 Two square section iron tie rods radiate from the centre of the stone wall to secure the apsidal end.

5 ASSESSMENT OF ORGANIC TILE PACKING

By Wendy Smith

- 5.1.1 A sample of desiccated organic packing was taken by OA from between ceramic roof tiles from the north end of the chapel roof and from the south and north sides of the chancel roof of St. Mary's Church, Guildford, Surrey. The packing was clearly primarily cereal straw and there was no obvious lime/mortar binding it to the tiles. It appears to have been held in place simply through the weight of the tiles, which were pinned into position with wooden pegs. The church architect has suggested that this material most likely is derived from repairs to the church roof recorded in either 1825 or 1863.
- 5.1.2 A small sub-sample from each of the three samples was rapidly scanned under a low-power binocular microscope at magnifications between x8 – x30 in order to ascertain what cereal was in use and to establish if insect remains were present. Assessment also included establishing if any other types of plant remains were present (i.e. other crops or weeds of crops) and if insect remains also were preserved. The results of the assessment are presented in Table 1.
- 5.1.3 The plant remains were well preserved and had acquired a golden patina (see Plates 29-30). Intact cereal ears or partial segments of ears were recovered in all three samples, but the cereal grain had either been removed prior to the use of the straw/ears for roofing material or had in fact been consumed or simply fallen out of the ears whilst in situ. Surprisingly it appears that all three samples have generated packing material from



different cereal crops. The chapel roof appears to have utilised bread wheat (*Triticum aestivum* L.), the north side of the chancel roof appears to have utilised rye (*Secale cereale* L.) and the south side of the chancel roof appears to have utilised two-row barley (*Hordeum distichum* L.). One would expect if the roofing was done all at the same time that the same cereals or fairly even mixture of a number of cereals would be recovered. The recovery of distinctly different packing material suggests the possibility that a number of separate events utilising cereal straw packing between tiles took place. This may suggest a long-lived tradition of packing the church tiles with cereal straw. The use of this packing as insulation seems unlikely, since it is placed quite specifically at the top of the underlying tile and does not appear to cover the entirety of the underside of the roof. It is possible that this cereal straw packing between tiles was a measure to prevent breakage of tiles.

- 5.1.4 It was hoped that the assessment of these remains might also produce two other classes of remains. Previous work with desiccated thatch from medieval buildings has generated a useful flora of weeds of crops, sometimes producing nearly intact and extremely well-preserved weed plants (e.g. de Moulins 2005). However, no weed/wild plant remains were noted during the assessment of the St. Mary's Church tile packing material. A similar result has transpired for the insect remains. Previous work on thatch roofs has resulted in the recovery of insect remains, even from long-abandoned, unoccupied housing (e.g. D. Smith 1996a, 1996b; Smith et al. 1999, 2005). Only a few mites and one or two small fly or gnat wings were noted, as well as spider (arachnid) parts, but no beetle (Coleoptera) remains were noted. The absence of these primarily small-sized weeds of crop and insect remains may in fact be related to the open nature of the tile packing. These cereal straw/ears could easily have been consumed in situ in the past by insects or birds and/or settled out of the packing. Certainly the floor of the Chancel roof space had roughly 15 to 20 cm of sediment accreted upon it. This again has implications for excavation of buildings burned in situ – as it certainly was a surprise to see what was in effect was 'an earthen floor' in an attic space.
- 5.1.5 Although it is well documented that cereal straw is used for thatch (e.g. Letts 1999; de Moulins 2007) or for packing/ insulation between floors between beams (e.g. Ernst and Jacomet 2005), the use of cereal straw as packing between roof tiles has not been reported archaeobotanically to the author's knowledge. This practice is of interest and certainly there is a need to ascertain how wide-spread this was in the early modern period. If one were to excavate a building destroyed by fire, the archaeological recovery of roof tiles would be interpreted as the main roofing material and any charred cereal straw/ rachis fragments are likely to be interpreted as bedding, floor litter and/or stored straw. The possibility that cereal straw may be used regularly as packing between tiles, possibly to extend their life on the roof, clearly will have implications for our interpretation of charred cereal straw/ rachis remains in association with roof tiles in future. As a result, it is recommended that these remains are fully analysed, since although a small assemblage it has clear wider significance nationally for the recognition of this most unexpected use of cereal straw with roof tiles.



Sample	Location in Building	Cereal Grain	Cereal chaff	Weed/ wild Plants	Other	Insects	Comments
1	From north chapel roof - East End		++++			++	Intact segments of bread wheat (<i>Triticum aestivum</i> L.) ears often noted (photo taken). Abundant cereal straw culm nodes present. <i>Triticum</i> spp. Glumes frequently noted. A few mite and arachnid fragments noted. No Coleoptera observed. Hair fibres noted.
2	North side of roof tiles Chancel Roof		++++			+	Abundant straw fragments, culm nodes often noted. Rye (<i>Secale cereale</i> L.) ears often noted (photo taken). A few wings - small-sized flies/ ?gnats noted. Several hairs/ fibres noted.
3	South Side of roof tiles Chancel Roof		++++				Abundant straw fragments, culm nodes often noted. Two-row barley (<i>Hordeum distichum</i> L.) ears often noted. Some feathers noted. No insects noted.

6 CONCLUSION

- 6.1.1 St Mary's Church is a Grade I listed building which is by definition of national significance and the current two-phase project has provided a valuable range of archaeological investigations. These have including below-ground watching brief which has recorded two articulated skeletons and several culverts, analysis of straw packing and building recording of the chapel roof.
- 6.1.2 The straw packing may have been used to reduce the breakage of the roof tiles, rather than as thatch or for sound insulation and it's use in this way would appear to be very unusual. The apparent use of cereal straw in this way will have implications for our interpretation of charred cereal straw/ rachis remains in association with roof tiles in future
- 6.1.3 The works to the chapel roof have provided a valuable opportunity to record part of the structure and to help understand its construction.



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APPENDIX B. ARCHAEOLOGICAL CONTEXT INVENTORY

Table 1: Archaeological context inventory

Context	Type	Depth(m BGL)	Width (m)	Length (m)	Comments
1	Layer	1.86	-	-	Graveyard soil (TP1 and TR1)
2	Layer	>2.0	-	-	Old graveyard soil (TP1 and TR1)
3	Cut	0.80	0.42	>1.20	Modern service trench
4	Fill	0.80	0.42	>1.20	Fill of service trench
5	Layer	0.26	-	-	Graveyard soil (TP2 and TR2)
6	Layer	>1.3	-	-	Old graveyard soil (TP2 and TR2)
7	Structure	1.52	>1.00	>0.16	Brick culvert
8	Cut	1.52	>1.00	>0.16	Construction cut
9	Fill	1.08	>1.00	>0.16	Backfill
10	Burial	-	-	-	Adult skeleton and coffin (unexcavated)
11	Burial	-	-	-	Juvenile skeleton (unexcavated)
12	Structure	1.30	0.44	>1.30	Brick culvert



APPENDIX C. LISTED BUILDING DESCRIPTION

Church of St. Mary, Quarry Street, Guildford, Surrey, GU1 3XG

Listed Building No. 298077

Listed: 1st May 1953

NGR: SU 9961449344

Listed: Grade: I

Church. Pre-conquest tower, circa 1040, with Norman transepts, circa 1100, lengthened into apsidal chapels in circa 1180. Nave arcades circa 1170-1180, with aisles widened in C13 and re-roofed in C15. Majority of windows inserted in C14, chancel apse removed in 1825 and church restored by T. Goodchild in 1882. Flint and chalk rubble with clunch dressings, the clunch replaced by Bargate stone on the tower parapet. Plain tiled roofs. Cruciform plan with central crossing tower, truncated chancel with apsidal chapels on north and south to east, aisled nave to west with porch to north. Triple gabled west end flanked by angle buttresses and with apex crucifix on centre gable. C19 trefoil windows in outer gables; foiled 3-light and roundel window in north gable over lower square window below. Decorated style four-light and mouchette window in south gable of west end, with chalk-dressed niche below. Double doors to centre in deep surround and under hood moulding. South Side:- Lancet windows in aisle alternate with offset buttresses; 3-light C19 window to west and two 3-light windows on south chancel chapel with buttress between; stair-vice to end of south aisle. East End:- Apsidal chancel chapels flank central gabled chancel with diamond panel and roundel over large 5 cinquefoil-light east window. North Side:- Decorated style chancel chapel window of three lights breaking through string course with oval tracery in upper lights; triple ogee-head window in chamfered surround adjoining. Lancet fenestration in chamfered surround to north aisle with end buttresses flanking. C19 timber framed and flint porch with scalloped bargeboards to gable and ogee-tracery leaded glazing on sides to west end of north side. North door C13, with three orders of Sussex marble shafts on double roll bases and under moulded bell caps. Arch moulded in rolls and hollows, one with triple fillet the other with keeled moulding. Tower:- Three-stage tower with thin pilaster strip buttresses on lower stages. Battlemented parapet and some tile-on- edge quoining above. Scrolled gilt wrought-iron finial above with crowning weather-vane. Clock faces on north and south sides; lancet window to east and two trefoil- head lights to north.

Interior:- Four-bay nave arcades on round piers with half-pier responds and pointed arches of square section with hollow chamfer on north arcade, keeled roll-moulding to south. Capitals on north arcade, with exception of middle one, are square with scalloped decoration encircled with spirals, nail head, dogtooth and hollow chamfers and grooved abaci. thick wooden wall plate on corbels above the arcade with collared-rafter roof over nave. Roofs over aisles have chamfered and braced 4-centre arched tie-beams on corbelled wall plate, with mouchette style piercing in spandrels and floral decoration on corbels. Crossing displays earliest work in Church, approached up 5 steps from the nave. Massive attached semi-circular responds attached to west piers of crossing, under scalloped capitals, with western arch decorated with roll moulding between. Smaller arches to north and south sides, early Norman with impost courses, double-splayed Saxon windows and pilaster strips above. Flat roof over crossing itself. Further three steps up to chancel, with flanking chapels, to east. Chancel:- Vault of two bays, circa 1220, that to east 2 feet narrower on transverse arch of one order rising from attached wall shafts comprising 3 smaller shafts, the central one keeled in section, with plain bell caps. Main rib on east wall rests on pairs of shafts on pointed corbel; diagonal ribs to quadripartite vault have hollow chamfer between roll mouldings, the hollow chamfer of the western bay decorated with a dog tooth band.

Central floral bosses to vaults. Blocked lancet windows in deep reveals on the east side of the main transverse arch, two round-headed windows in deep reveals on north and south sides of east bays now looking through to flanking chapels. Two bay braced collared-rafter



roof over north and south chapels with thick vaulting ribs running against the entrance arches and some scissor bracing in the chapel of St. John. North Chancel Chapel:- Entrance arch with flattened responds, caps scalloped and abaci grooved and chamfered. Three windows, the middle one of 3-lights, the northern one C14 and of 2 lights. Early C14 north window, next to the apse, of 3 ogee lights, cinquefoil and with quatrefoils over in square head. South Chancel Chapel (St. Mary's Chapel):- Entrance arch on square jambs with small engaged half-round shafts on moulded bases, moulded bell caps above with grooved and hollow chamfered abaci. Two lancet windows, that to east original, that to south raised in C13. Over north jamb of tower arch is late C15 door to rood loft.

Fittings:- Piscina in South Chancel Chapel with aumbry/paten place above under trefoil head and with round bowl projecting. Square recess on north aisle wall (aumbry?), piscina on south aisle wall with mutilated boss and small credence shelf over. C19 chalk and grey marble Victorian Gothic pulpit with dog-tooth mouldings, floral carving and hexagonal body on centre stem; each face of the pulpit pierced by a two-light and foiled roundel opening. Chalk font with square plinth and bowl on centre stem and surrounding angle piers with scalloped caps. Hatchment over North door 1707. Part of C15 reredos from the south chapel made up into organ case. Wall paintings - All over the north chancel chapel apse; recorded in C19 but now largely gone, some traces of painting survive on soffit of entrance arch to Chapel. Stained glass:- West window of north aisle by the Royal Bavarian Art Institute for Stained Glass circa 1850. The church tower is the most important structural pre-conquest work remaining in Surrey. As Guildford was a popular Royal abode in the C12 and C13 the church was used for Royal worship and Thomas Becket may have celebrated Mass here. The Reverend Charles Dodgson (Lewis Carroll) also preached at St. Mary's.

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Listing NGR: SU9961449344



APPENDIX D. SUMMARY OF SITE DETAILS

Site name: St Mary's Church, Guildford, Surrey

Site code: GUSTMA 10

Grid reference: NGR SU 9960 4930

Type: Watching Brief

Date and duration: 18/05/2010 to 19/08/2011 - a total of six site visits were made during the course of the ground works and two visits were made during the repairs to the roof.

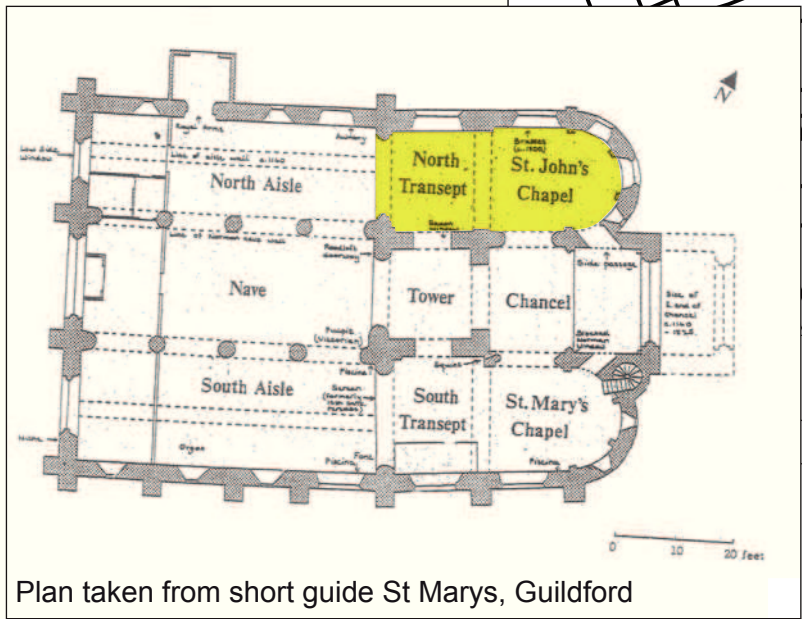
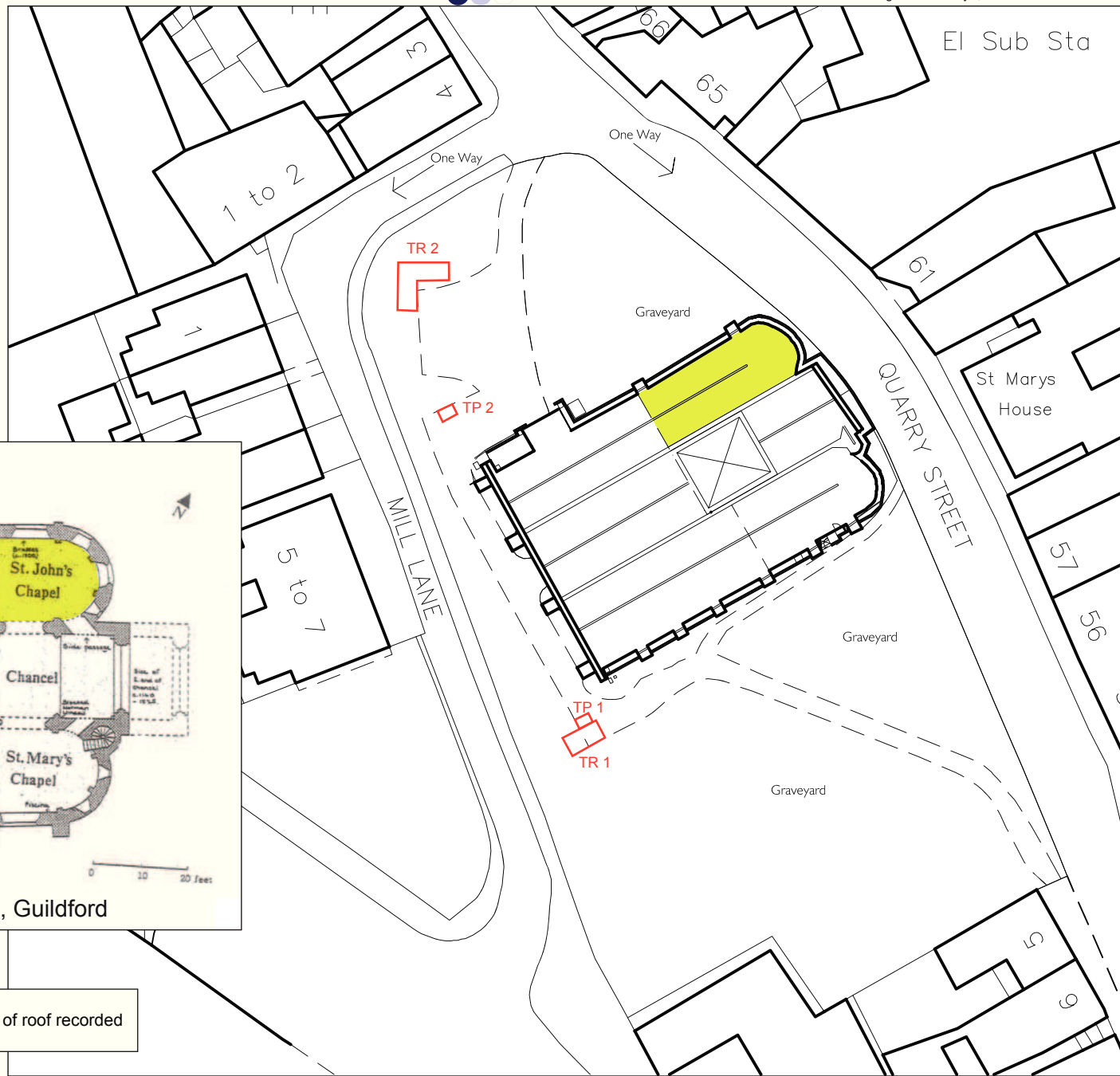
Summary of results: The watching brief revealed two post-medieval burials and two brick built culverts.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with Guildford Museum in due course.



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Figure 1: Site location



Plan taken from short guide St Marys, Guildford


 Area of roof recorded

Figure 2 : Trench locations

Figure 3: Plan of trench 1

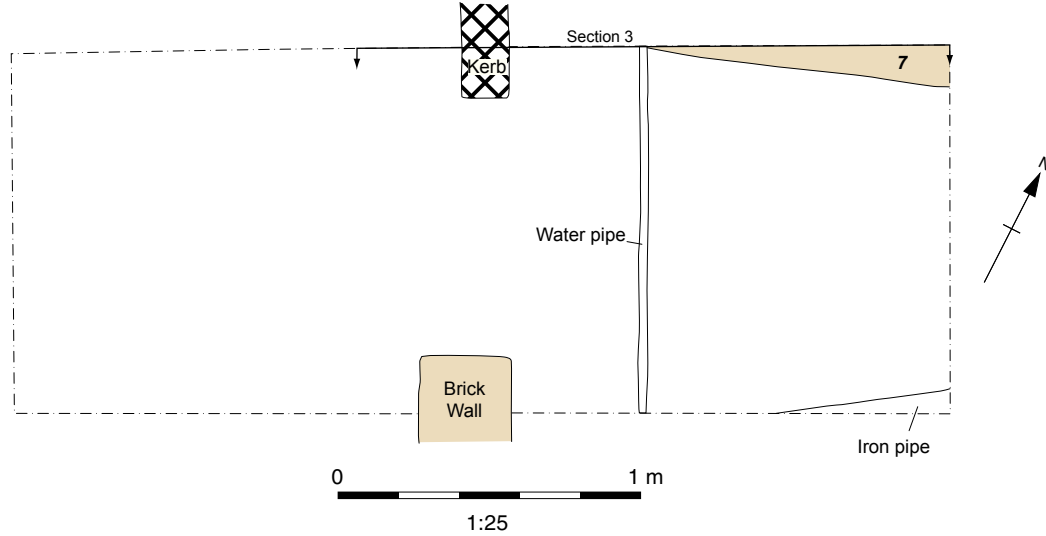


Figure 4: Section 3 - south-east facing section of trench 1

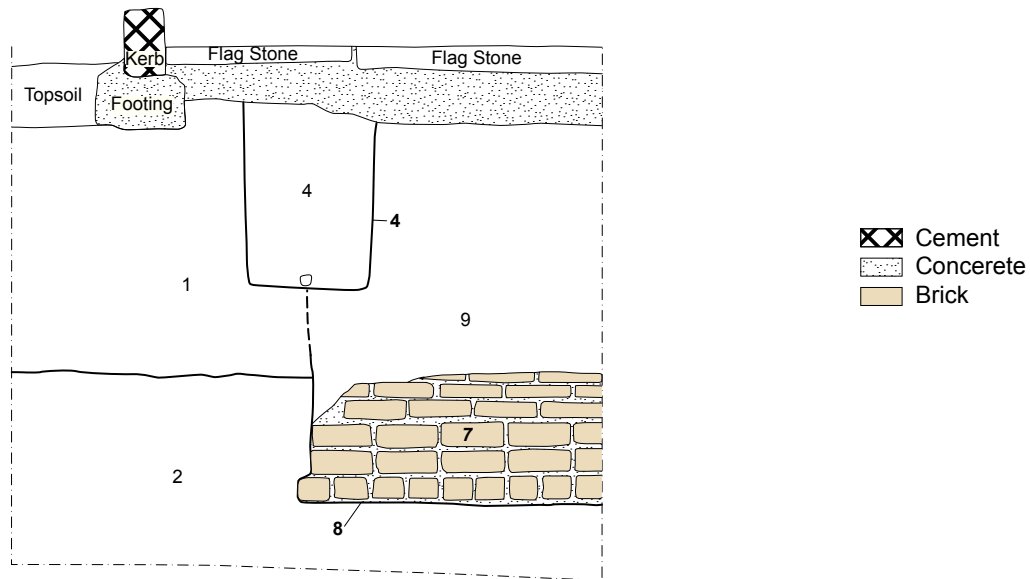
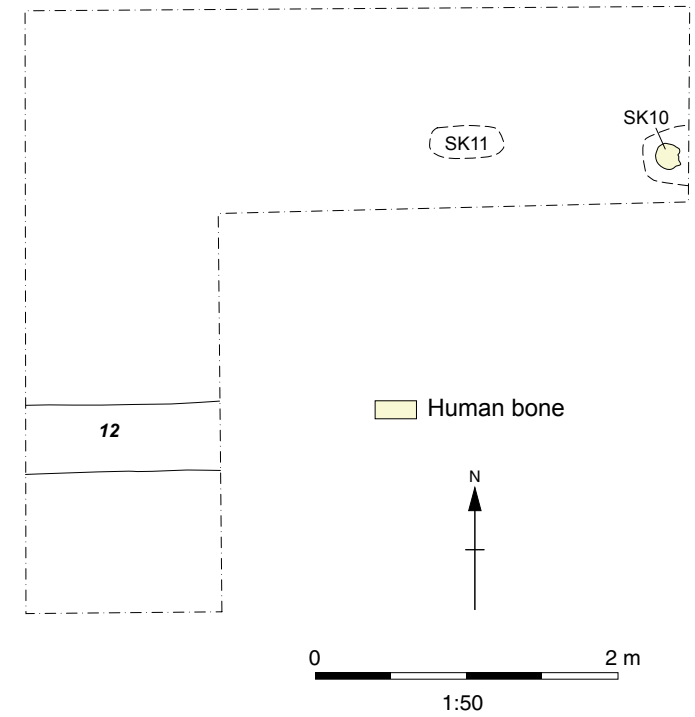


Figure 5: Plan of trench 2



Figures 3 to 5: Trench plans and sections

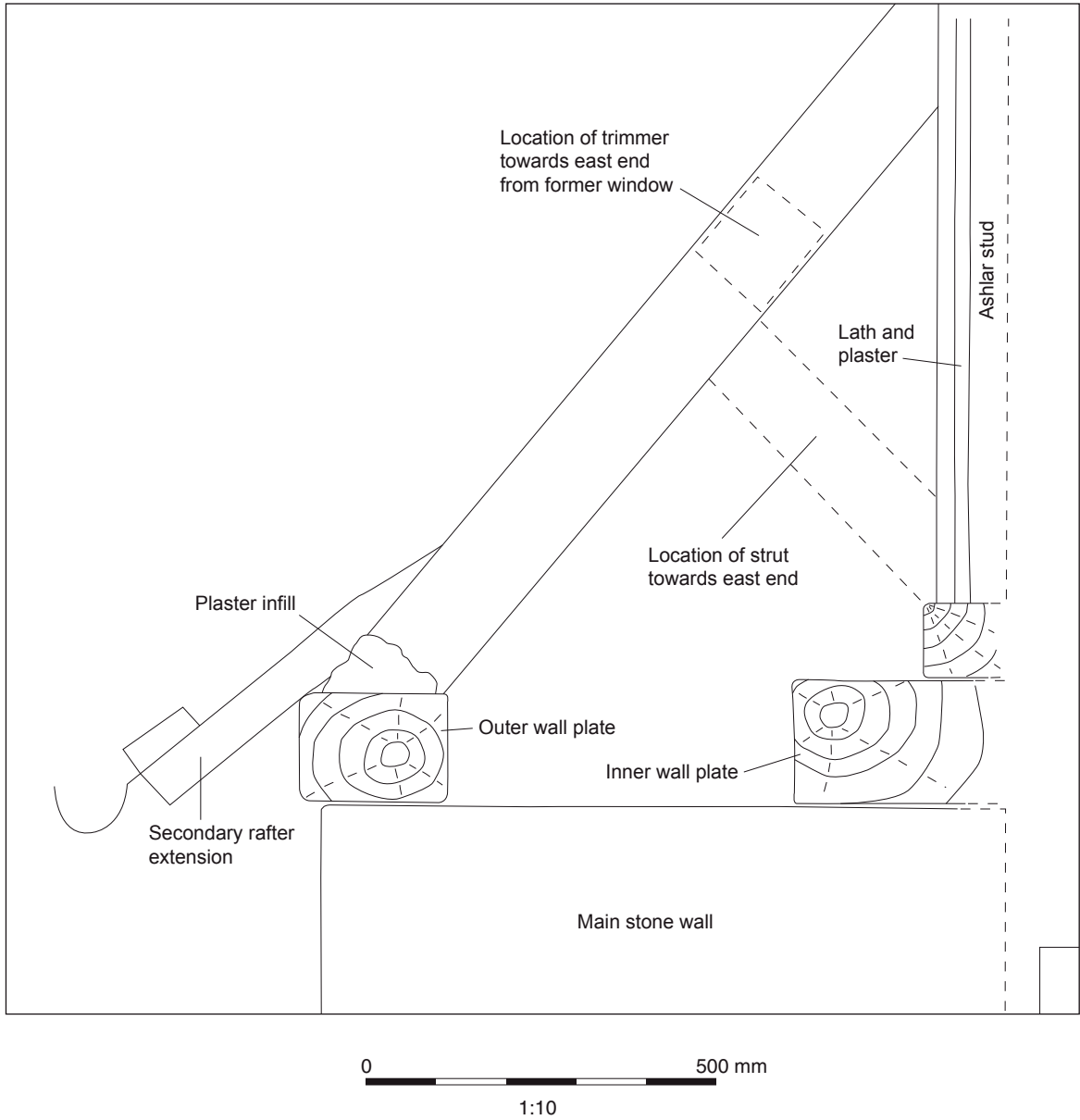


Figure 6: Eaves detail on north side of North Transept/ St John's Chapel

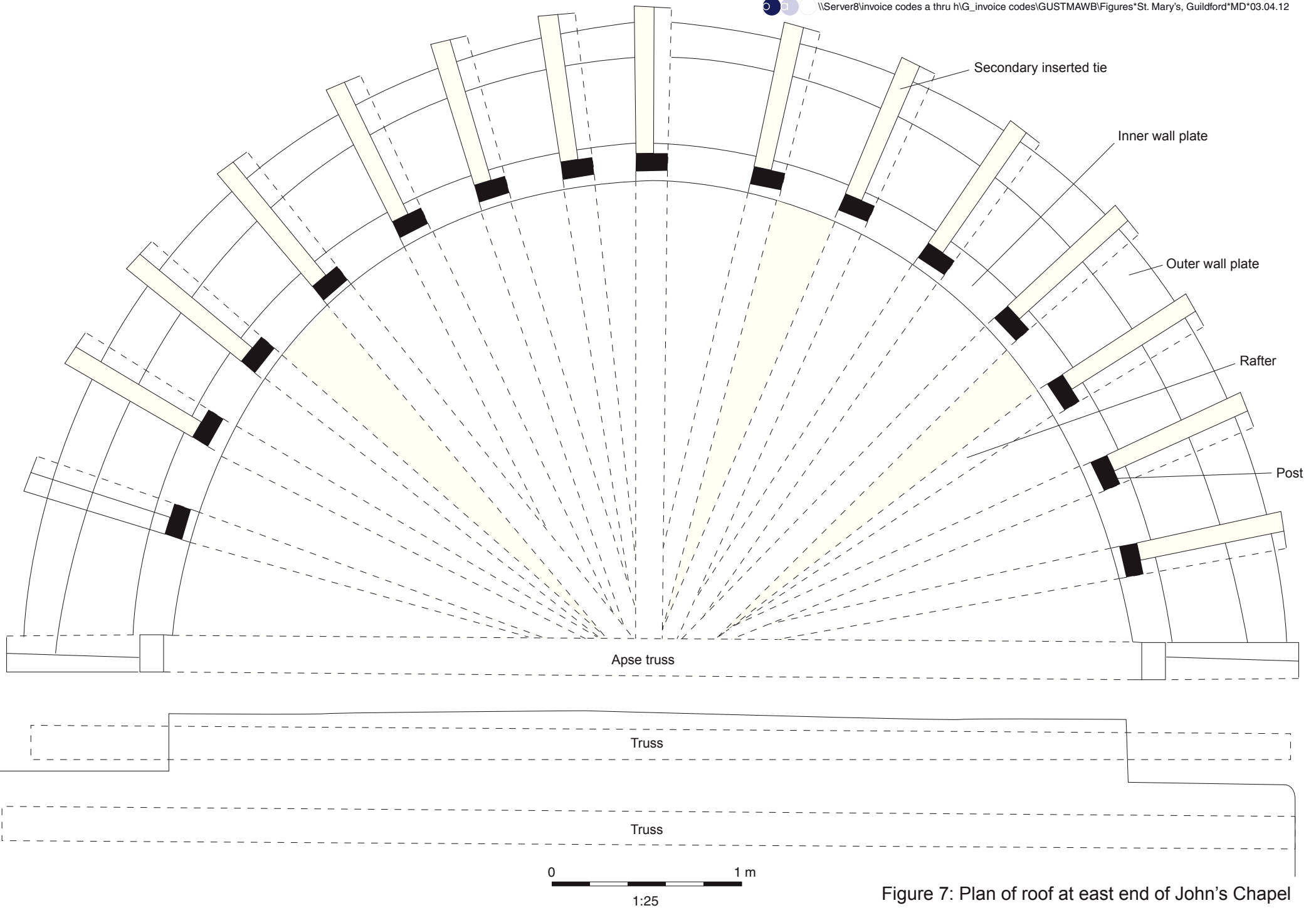


Figure 7: Plan of roof at east end of John's Chapel



Plate 1: St. Mary's Church, general view



Plate 2: St. Mary's Church roof, showing pegged tiles and laths overlying joists



Plate 3: St. Mary's Church roof, showing straw packing



Plate 4: Trench 1



Plate 5: Culvert 7



Plate 6: Trench 2



Plate 7: Burials 10 and 11



Plate 8: Culvert 12



Plate 9: St Marys from the NW during works



Plate 10: Rafter feet exposed on north side of roof



Plate 11: Rafter feet exposed on north side of roof



Plate 12: Tie-beam towards centre of chapel roof



Plate 13: Rafter feet at semi-circular east end



Plate 14: Three principal rafters at junction between apsidal roof and main roof.



Plate 15: Rafter feed towards east end of main roof



Plate 16: Semi-circular east end



Plate 18: Strut supporting trimmer from former light



Plate 17: Plastered wall at east end of main roof



Plate 20: Roof at semi-circular east end



Plate 19: Ashlar studs along main part of roof



Plate 21: Tie rods in roof at east end



Plate 22: Roof detail at east end



Plate 23: Roof apex at east end



Plate 24: Detail of studs in semi circular east part of roof



Plate 25: East face of wall between semi-circular end and main roof



Plate 26: Underside of roof



Plate 27: Vaulting in St John's Chapel



Plate 28: Trimmer visible from beneath in chapel



Plate 29: Bread wheat rachis segments from the tile packing in the east end of the north chapel roof



Plate 30: Rye rachis from tile packing on north side of Chancellery roof



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