WINCHESTER A CITY IN THE MAKING

Archaeological excavations between 2002 - 2007

on the sites of Northgate House, Staple Gardens and the former Winchester Library, Jewry St



Section 5

Structural and Fired Clay by Cynthia Poole

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by Cynthia Poole

Introduction

Structural and fired clay comprising 3261 fragments (37366 g) with an overall mean fragment weight (MFW) of 11.5 g was recovered from 262 contexts, 1877 fragments (4986 g; MFW 1.1 g) from sieved samples. When the MFW is less than 10-15 g little diagnostic material normally survives. Whilst the sieved material enhances the spatial and temporal distribution of furnace lining, it added no information in other categories. The hand recovered assemblage had a relatively high MFW of 25.6 g, reflecting fairly good preservation. Individual fragments ranged up to 400 g and the largest single group of material comprised 508 fragments weighing nearly 8 kg. Surprisingly little fired clay came from ovens or hearths, and no *in situ* clay structures were sampled to allow comparison with fragments from secondary deposits.

A third of the assemblage was recovered from Roman deposits, just under half from late Saxon contexts and about a fifth from medieval and later deposits (Table 1). Minimal quantities were found in prehistoric contexts and amounts decreased after the Saxon period. The largest proportion (40%) was found in pit fills and the remainder was distributed through a wide range of other features and layers.

Fabrics

Fabrics were characterised both according to macroscopic features and with the aid of a binocular microscope at x 15 to x 40 magnification. Nine provisional fabrics were allocated during the assessment, of which one (H) is a pottery fabric. The remainder were placed in two broad groups: a sandy group (fabrics A, B and F) and a calcareous group (fabrics C, D, E and G). Pieces of mortar, cement and concrete were also noted. The fabrics are quantified in Table 2.

Sandy Group

Fabric A: clay matrix fired red; common-frequent coarse sand mostly quartz, occasional shell and flint grit up to 16 mm, rare small chalk grit. Late Roman and late Saxon levels only, used exclusively for oven wall. Spatial distribution concentrated in the western area of the site suggests it is a Roman fabric and all the examples from Saxon deposits interpreted as residual.

Fabric F (including *Fabric B*): Dark orange, orange-brown, reddish-brown, or grey fine sandy micaceous clay sometimes containing rare chalk sand - fine grit size or flint grit less than 5 mm size, or more rarely (fabric B) large angular and rounded burnt flint up to 17 mm. Few fragments assigned to fabric B, all found in late Saxon and Anglo-Norman contexts.

Small sub-group Fch contained fine chaff temper, all late Saxon and Anglo-Norman, including all mould fragments, so fabric possibly confined to manufacture of moulds or related items.

Calcareous Group

Fabric C: Yellowish-red, brown and grey fired calcareous clay matrix with moderate to frequent chalk and flint 1-30 mm. Small fragments resemble E, but C generally much coarser.

Fabric D: Reddish yellow, light brown calcareous clay matrix, frequent rounded chalk and burnt chalk grit under 5 mm. May be intensely fired fabric D in which chalk is turned grey. Small quantities in late Roman, Saxon and Anglo-Norman deposits.

Fabric E: Light brown, yellowish brown/red, grey calcareous clay matrix, moderate to frequent quantity of rounded chalk, occasionally burnt, *c*. 1-8 mm and rare-occasional angular flint of similar size.

Fabric G: Orange very fine, soft powdery clay matrix with fine chalk: possibly variant of E or a mortar/plaster fabric. (Two examples. Included with fabric E in the tables).

Mortar

Fabric M1: Light yellowish-red or reddish-brown soft matrix containing coarse quartz and chalk, sand and small chalk grit under 5 mm. Mortar or unpainted plaster, equivalent to plaster fabric 1 (see Biddulph *Section 6*).

Fabric M2: white-cream calcareous mortar containing high density of rounded chalk and occasional flint up to 5 mm.

Other mortar, cement and concrete, mainly post-medieval or modern in character, has not been described.

Forms

The fired and structural clay is divided into three broad function categories: oven structure, industrial and building structure/wall. Sub-categories of each by phase and fabric are quantified in Tables 3 and 4. Fired clay is not easily datable unless of distinctive form. It is most common prehistoric and Roman sites.

A non-diagnostic group of material forming 14% of the total could not be classified, so was subdivided into: fragments with shaped surface or moulding (utilised); those with none (unidentified). Nearly all were fired or baked to some extent and probably derive from burnt features, such as ovens or hearths. Many unidentifiable fragments from sieved samples associated with carbonized plant remains probably represent hearth or oven scrapings.

Oven and hearths

Oven and hearth fragments dominated the assemblage. Most probably represent domestic structures. Oven wall fragments supported on a wattle framework were most common and other less diagnostic structural elements may include perforated oven plate and hearth.

Hearth

Hearth material was only positively identified where directly associated with excavated hearths. The lack of diagnostic features in hearths means hearth fragments are indistinguishable from pieces with only flat surfaces. However much of the unidentified fired clay probably derived from hearths, with smaller numbers from oven lining or floors.

Oven Wall

Oven wall was represented by well fired fragments with fairly even, flat or slightly undulating exterior surfaces on one side and interwoven wattle impressions on the other. Sandy and calcareous fabrics were used, though fabric F accounts for 57%. Fragments range up to 60 mm thick, with 25-50 mm most common, though some

wattles were barely covered by the clay. Many fragments had remnants of a thick white limewash over the exterior surface.

The wattle impressions reflected both horizontal rods and vertical sails around which the rods were woven. Where possible, wattle diameters were measured to determine both the size of poles and the type of structures. Many impressions had vertical linear markings, perhaps the result of stripping bark (Wendy Smith pers. comm.), a characteristic of much of the oven wall from the south-east area of the NH excavation. Horizontal rods generally measured 6 - 30 mm and vertical sails 16-34 mm diameter.

In most cases distinctive pattern in the wattle sizes could not be determined (Appendix 1). Two groups from contexts NH4688 and NH4660 with more than 50 measurable wattles show distinct curves, the larger group producing a smoother curve. Both are similar in range, producing a normal curve with the main peak at 16 mm for the rods. This resembles patterns for Iron Age oven wall (Poole 2000). The sails overlap with the upper range of the rods and some sails may have been recorded as rods where insufficient impressions survived. However, in the context NH4660 group, wattles above 20 mm that could not be classified as rods or sails were noted. Normally by default in recording these are recorded as rods, but in NH4660 all rods were observably rods and a small number genuinely fall into the larger sizes, in this case up to 28 mm diameter.

This walling has been designated as oven wall on the basis of wattle sizes and the consistent quality of the firing. The identification of the group from building NH8521 was considered wall daub (see below).

Oven furniture

Few pieces could be positively identified as oven furniture. One appears to be a curving plate or cover 30 mm thick. Two others have flat undulating surfaces; one 26 mm thick had a flat straight edge and another 20 mm thick was perforated. A fragment with a wedge-shaped cross-section may have been a prop/support. These came from Saxon, Anglo-Norman and medieval deposits.

A small rectangular brick from early Iron Age posthole (NH6207) measures 60 x 68 x 30 mm and has flat even upper surface and sides and rougher base. This was over-fired or refired to a purplish red colour.

Industrial

A range of material representing industrial activity, probably bronze working, comprises furnace wall or lining, mould fragments and possible crucible. The largest groups come from late Saxon and Anglo-Norman phases, indicating more intensive activity than in the Iron Age and Roman periods.

Furnace wall or lining

Most furnace lining came from late Saxon and Anglo-Norman contexts, with a single fragment from an early Iron Age context and a few each in early, middle and late Roman deposits. This material possibly relates to copper-working rather than ironworking (pers. comm. Lynne Keys). Fragments have an undulating, vitrified or vesicular surface, usually dark grey or black, sometimes with a green tinge. The underlying vesicular cinder layer is usually dark grey, sometimes with a maroon tinge, rarely overlying an intermediate band of purple fired clay, then grading into an oxidised orange clay core. Thickness generally ranges from 10-22 mm. One 30 mm thick fragment has a *c*. 25 mm diameter perforation providing access for a bellows tuyère.

Mould

A few fragments found in Anglo-Norman pit are probably of two piece moulds possibly for a thin sheet ovoid metal object with a curving edge. Another fragment was for a decorative object/fitting.

Crucible

Two roughly formed vessels, possible crucible fragments, were found in late Saxon contexts. The rims are flattened or rounded and the 16-20 mm thick wals are curved. One had an external diameter of 50 mm. Neither preserved residue or vitrification, but one was associated with furnace lining and one with oven wall, suggesting they broke before use, or had some other function.

Wall/Structural

A few pieces may relate to building structure, although little constructional detail survives for any period. A few formless mortar fragments were found in late Saxon, Anglo-Norman and medieval contexts. Mortar/plaster characterised by a very flat smooth surface, occasionally with evidence of whitewash, is interpreted as wall render. One piece had a c. 28 mm circular perforation, probably for the attachment of

a fixture or fitting. The painted Roman wall plaster has been reported separately (see *Section 6*).

Examples of wall daub or render in fabrics C, E and F, usually 30-40 mm thick was identified from Roman, Saxon and medieval contexts. Some was thick render having flat surfaces both sides. A fragment of Roman daub with a combed surface was probably the impression of a combed tile rather than keying on the daub surface. The few, small fired clay fragments associated with burnt building NH8522 were indistinctive, with two surfaces at right angles, possibly the top or base of a wall panel. Surprisingly little wall daub was present, and this material may have been cleared and dumped elsewhere. The daub referred to in the site record appears to refer to painted plaster with wattle or lath impressions. The absence of large blocks of burnt wall structure of the type recently found at the villa near Abbotts Ann (Poole 2008) suggests the building may have used other materials for much of the walling. The plaster from the burnt building has been reported separately and was not seen by the author. However, one fragment of fired clay in fabric C from NH8522 was 22 mm thick and had two interwoven lath impressions, both over 22 mm wide by c. 6-7 mm thick, suggesting it derived from a ceiling or thin internal partition walls.

The medieval wall daub contained a very high density of coarse straw or hay added as a strengthening agent, typical of daub found in standing buildings (Graham 2004), but had no withy or lath impressions. Similar daub was found at in medieval levels at Southampton French Quarter (Poole in prep.).

The concrete or cement is all modern, mostly contamination in earlier features from the air raid shelter located on the Discovery Centre site.

Discussion

Other dateable materials indicate that there was considerable residual Roman material within the Saxon and later deposits, so it has not been assumed that the fired clay dates from the deposits from which it was recovered, though rapid burial is generally essential for survive as identifiable fragments. Fired clay normally relies on associated material for dating and, although in certain periods diagnostic fired clay does occur, none was found in the current assemblage. It is also apparent that the use of structural clay decreased in the archaeological record in the post-Roman period, reflecting changes in construction technology and use of ovens, kilns, malting ovens and

structures. Clay continued to be used as building daub, though traditional daub is composed mainly of earth and has a relatively low clay content of 5%-10% comprising predominantly silt and sand and an organic component (Graham 2004). Moreover, daub only survives when accidentally burnt in house fires.

The classification of most fired clay with wattle impressions as oven wall was based on the consistency and degree of firing, fabric and size of wattles without evidence of larger timbers. The group centred on NH8521 was interpreted as wall daub representing material cleared and dumped from building NH8522. However, in comparing it with wall daub from Roman houses or buildings (Poole 2008, Poole forthcoming) certain differences were noted:

- the absence of evidence for larger size timbers used in timber-framed buildings with both roundwood and cut timbers in excess of 50-90 mm wide
- the pattern of wattle sizes shows that a smaller size of wattle dominated the Winchester material, which is more comparable with that thought to derive from oven structure
- the wall daub from buildings is usually considerably thicker, up to 90-100 mm.

Material designated as oven wall accounts for 70% of the assemblage and its correct identification is therefore significant in analysing the fired clay in relation to the site.

In spite of the presence of two Saxon ovens and several hearths of various periods, few features produced any fired clay. Where associated with hearths or ovens it was recovered from sieved samples and comprised small amorphous fragments.

Iron Age

The only significant pieces of fired clay from this period were a heavily fired small brick and a small vitrified fragment of furnace lining from postholes of structure NH8502. These may indicate industrial activity, perhaps bronze-working, in the vicinity. The brick is unusual and its deposition in a posthole may reflect similar motivation to deliberate placing of pottery sherds, frequently refired, in the postholes of early Iron Age structures (Brown 2000).

Roman

The nature of Roman fired clay was consistent through all phases. Most from phases 2.1 and 2.2 was non-diagnostic, probably derived from ovens or hearths. A few fragments of wall daub occurred in the area of structure CC7003 and CC7006 and burnt building NH8522. A little furnace lining associated with CC1556 occurred in phase 2.3. Only in the later Roman period (phases 2.3 and 2.4) did oven wall appear and dominate the assemblage. The majority is in sandy fabric F, with lesser quantities in fabric A and calcareous groups C and E.

Most Roman oven wall was in fabric F, apart from one large deposit in fabric C associated with structure CC7003. During recording it was noted that much of the oven wall in fabric F, though from several contexts, had very similar characteristics: consistency of firing, wattles commonly stripped of bark and with diameters commonly larger than average and external thick white lime plaster wash. This almost certainly derives from a single building, centred on structure NH8521. Groups of the same type were found in late Saxon deposits in the area of plots BW 2 and BW 3, which overlie NH8521, suggesting the later deposits were residual.

A similar pattern appears with oven structure in fabric A, which concentrated in the Roman period in the area of structure NH8516, suggesting that the similar oven debris in fabric A found in features on property SE2 was residual Roman. The limited spatial distribution of fabric A suggests it all derived from a single structure.

The Saxon-Medieval assemblage

A comparison of Roman and post-Roman fabrics and forms produces a number of broad distinctions. Pieces indicative of industrial activity, including furnace structure, moulds and crucible are more prevalent in the post-Roman group. Most of the structural material related to buildings was also found in these later periods. The calcareous fabrics, particularly C, are more common compared to the Roman period, especially those used for oven wall.

Fired clay is sparse in late Saxon phase 4.1, with small amounts of furnace and wall daub. In phase 4.2 increasing quantities of industrial material appear, including furnace lining and wall and crucible, together with oven structure and some wall daub. Metalworking moulds were the only new form found in the Anglo-Norman phase. The association of furnace debris with oven wall at some properties suggests these are from related structures. The exterior surfaces of furnace walls would not be

vitrified and could not be separated from structures used for lower temperature activities. This pattern continues into the Anglo-Norman and high medieval periods, though quantities noticeably decrease in the later phase. The similarity of assemblages from late Saxon to Anglo-Norman on many properties may indicate that much of the Anglo-Norman and medieval fired clay was residual Saxon. The general decline in quantities of fired clay through the medieval period certainly reflects changes in materials used for ovens, hearths or similar structures, with brick, tile and stone increasingly used, as well as a decrease in construction at surface or sub-surface levels. The fired clay from the individual properties is summarised below.

Property BE1: Virtually all fired clay occurred in late Saxon (phase 4) contexts, concentrated in pit groups CC7056 and CC7058. Diagnostic elements were oven structure and wall in fabric C and E and furnace lining

Property BE2: Most fired clay from phases 4.2, 5 and 6 was indeterminate, apart from a little wall daub and render in 4.2 and perforated furnace wall/lining in phase 5. *Property BE3:* The only diagnostic material was furnace and crucible fragments from phase 4 pit CC1063. Non-diagnostic material occurred in phases 4-6.

Property BE4: Furnace lining occurred in phases 4.1, 4.2 and 6. A group of mould fragments was discarded in pit CC2043 during phase 5. Many small indeterminate fragments recovered by sieving were associated with hearth CC2125. Some fragments of oven wall were scattered through phases 4, 5 and 6. Wall daub and render was also present, the largest concentration in phase 6 in pit CC2457.

Property BE5: Fragments of oven wall, furnace and crucible were found in phase 4.2 in pits (CC6028, CC3184) and a posthole (CC6030). Most from later phases was indeterminate or intrusive, apart from some wall render with whitewash from phase 6 deposits, some associated with cellar CC7044.

Property BW1: A few insignificant fragments on non-diagnostic fired clay occurred in phases 4.2 and 5.

Property BW2: Excluding residual Roman fired clay, little material derived from the use of this property. A moderate quantity of oven wall structure in fabrics C and E may be contemporary with the late Saxon phases (4.1 and 4.2) in which it was found. A fragment with plain surface came from hearth NH4216.

Property BW3: Most structural clay was found in phase 5 with a small amount from phase 6. Recognisable forms included wall daub, render and a substantial dump of

oven wall in layer NH3098. The oven debris may derive from one of the oven or hearth bases on this property.

Property BW4: A moderate density of fired clay - oven wall, a little furnace lining and wall daub - was found in late Saxon and Anglo-Norman phases

Property BW5: A low density scatter of small mainly indeterminate fragments was found in phase 4 and 5 contexts. One fragment with part of a wattle found in a tip of cinders in pit NH9610 probably derives from an oven. A few pieces of wall render were concentrated in pit NH2149 and well NH2495.

Property BW6: No fired or structural clay.

Property SE1: Furnace lining, fuel ash slag and oven wall and possible oven plate predominantly occurred in phase 5, though a small quantity was found in phases 4.1-4.2.

Property SE2: A moderate scatter of fired clay, mainly furnace lining, was found in phase 4.2, a few further pieces of furnace in phase 5. A wedge-shaped fragment may have been a support or prop, but it is unclear whether it belonged with the Roman oven debris or the Saxon furnace. The large concentration of oven debris in fabric A was probably residual Roman.

Property SE3: Furnace lining dominates the assemblage in the late Saxon and Anglo-Norman period. One piece of furnace wall had a tuyère perforation A hearth tile or large block of hearth floor occurred in phase 5. The fragments of fabric A oven were residual Roman.

Catalogue of illustrated fired clay (Fig. 1)

- 1. Context CC2237: fired clay: fragment of metalworking mould
- 2. Context CC2115: fired clay: fragment of metalworking mould
- 3. Context CC1085: fired clay: fragment of vitrified furnace wall with perforation for tuyère.

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Winchester Fired Clay: Appendix 1

Wattles: quantification and size

The tables and charts below illustrate the wattle size distribution of the main groups of oven wall. Two charts are combined totals: one taking all the south-eastern oven group (marked ***) in the area of NH8521 and BW2 which are thought to derive from a single structure. The second combines all the small groups from Late Saxon and Anglo-Norman contexts, the intention being to compare Roman and post-Roman assemblages. All individual groups thought to derive from the Roman SE group are marked ***.

| Context | 4710 | (RB ***) |
|---------|--------------|-----------|
| | Property BW2 | Phase 4.1 |
| Diams | Rods | Sails |
| 10 mm | 1 | |
| 11 mm | 0 | |
| 12 mm | 1 | |
| 13 mm | 2 | |
| 14 mm | 0 | |
| 15 mm | 2 | |
| 16 mm | 0 | |
| 17 mm | 2 | |
| 18 mm | 1 | |
| 19 mm | 0 | |
| 20 mm | 4 | |
| 21 mm | 2 | |
| 22 mm | 1 | |
| 23 mm | 1 | |
| 24 mm | 1 | |
| 25 mm | 0 | |
| 26 mm | 0 | |
| 27 mm | 1 | |
| 28 mm | | 1 |
| Total | 19 | 1 |



| Context | NH4660 | (RB***) |
|---------------|--------------|-----------|
| | Property BW2 | Phase 4.1 |
| Diams | Rods | Sails |
| UnMeasured | 30 | |
| | | |
| Split/squared | 5 | |
| 6 mm | 1 | |
| 7 mm | 0 | |
| 8 mm | 1 | |
| 9 mm | 3 | |
| 10 mm | 3 | |
| 11 mm | 7 | |
| 12 mm | 12 | |
| 13 mm | 16 | |
| 14 mm | 16 | |
| 15 mm | 18 | |
| 16 mm | 21 | |
| 17 mm | 15 | |
| 18 mm | 14 | 1 |
| 19 mm | 13 | 0 |
| 20 mm | 15 | 2 |
| 21 mm | 10 | 0 |
| 22 mm | 4 | 2 |
| 23 mm | 4 | 1 |
| 24 mm | 2 | 0 |
| 25 mm | 2 | 3 |
| 26 mm | 2 | 1 |
| 27 mm | 3 | 0 |
| 28 mm | 1 | 2 |
| 29 mm | | 0 |
| 30 mm | | 2 |
| 31 mm | | 0 |
| 32 mm | | 0 |
| 33 mm | | 1 |
| Total | 183 | 15 |



| Context | 4688 | (RB ***) | |
|---------------|--------------------|----------|--------------|
| | Gp NH8521Phase 2.4 | | |
| Diams | Rods | Sails | Sails: pairs |
| UnMeasured | 12 | 1 | |
| | | L>28; | |
| Split/squared | D c18mm | ¬>35 mm | С |
| | | | |
| Split/squared | 1 | 2 | |
| 10 mm | 3 | | |
| 11 mm | 0 | | |
| 12 mm | 1 | | |
| 13 mm | 3 | | |
| 14 mm | 5 | | |
| 15 mm | 10 | | |
| 16 mm | 6 | | |
| 17 mm | 7 | 1 | С |
| 18 mm | 4 | . (|) |
| 19 mm | 3 | (|) |
| 20 mm | 3 | (|) |
| 21 mm | 3 | 1 | |
| 22 mm | 2 | 1 | А |
| 23 mm | 2 | (|) |
| 24 mm | 3 | (|) |
| 25 mm | 0 | (|) |
| 26 mm | 0 | 1 | A |
| 27 mm | 1 | (|) |
| 28 mm | | 2 | B |
| 29 mm | | 1 | В |
| 30 mm | | (|) |
| 31 mm | | (|) |
| 32 mm | | (|) |
| 33 mm | | (|) |
| 34 mm | | 1 | |
| Total | 58 | 10 |) |

Three pairs of sails were noted in this group, indicated in the table by the letters in the third column.

Code for split poles **D**: *split pole* **L**: *Squared pole*

¬: straight cut/split surface

>: Angled split surfaces





| Context | 4694 | (RB ***) |
|------------|------------|-----------|
| | Gp NH 8521 | Phase 2.4 |
| Diams | Rods | Sails |
| Unmeasured | 2 | |
| 10 mm | 2 | |
| 11 mm | 0 | |
| 12 mm | 1 | |
| 13 mm | 0 | |
| 14 mm | 0 | |
| 15 mm | 1 | |
| 16 mm | 4 | |
| 17 mm | 1 | |
| 18 mm | 0 | |
| 19 mm | 3 | |
| 20 mm | 2 | |
| 21 mm | 0 | |
| 22 mm | 1 | |
| 23 mm | 0 | |
| 24 mm | 2 | 2 |
| 25 mm | 1 | |
| 26 mm | 2 | |
| Tota | 20 | 2 |



| Context | 4696 | (RB ***) |
|---------------|-----------|-----------|
| | Gp NH8521 | Phase 2.4 |
| Diams | Rods | Sails |
| | | |
| Split/squared | | 1 |
| 12 mm | 1 | |
| 13 mm | 1 | |
| 14 mm | 0 | |
| 15 mm | 1 | |
| 16 mm | 0 | |
| 17 mm | 0 | |
| 18 mm | 0 | |
| 19 mm | 0 | |
| 20 mm | 1 | |
| 21 mm | 0 | |
| 22 mm | 2 | |
| 23 mm | 0 | |
| 24 mm | 1 | |
| Total | 7 | 1 |



| Context | 4717 | (RB ***) |
|------------|--------------|-----------|
| | Property BW2 | Phase 4.1 |
| Diams | Rods | Sails |
| UnMeasured | 4 | |
| 14 mm | 1 | |
| 15 mm | 0 | |
| 16 mm | 1 | |
| 17 mm | 1 | |
| 18 mm | 0 | |
| 19 mm | 0 | |
| 20 mm | 0 | |
| 21 mm | 1 | |
| 22 mm | 0 | |
| 23 mm | 0 | 1 |
| 24 mm | 0 | |
| 25 mm | 1 | |
| 26 mm | 1 | |
| 27 mm | 3 | |
| 28 mm | 0 | 1 |
| 29 mm | 0 | |
| 30 mm | 1 | |
| 31 mm | 1 | |
| Total | 11 | 2 |



| Context | 4671 (RB ***) | 4412 (RB ***) |
|------------|-------------------------|-------------------------|
| | Property BW2 | Gp NH8500 |
| | Phase 4.1 | Phase 2.4 |
| Diams | Rods | Rods |
| Unmeasured | 1 | 1 sail |
| 11 mm | 2 | |
| 12 mm | 2 | |
| 13 mm | 0 | |
| 14 mm | 1 | |
| 15 mm | 1 | 1 |
| 16 mm | 0 | 1 |
| 17 mm | 1 | 0 |
| 18 mm | 1 | 0 |
| 19 mm | 1 | 1 |
| 20 mm | 0 | 0 |
| 21 mm | 0 | 1 |
| 22 mm | 1 | |
| 23 mm | | |
| 24 mm | | |
| 25 mm | | |
| 26 mm | | |
| 27 mm | | |
| 28 mm | | 1 |
| 29 mm | | |
| 30 mm | 1 | |
| Total | 11 | 5 |



| Context | Combined NH SE group of RB*** oven wall | |
|---------|--|-------|
| | Phase 2, 4, 5 | |
| Diams | Rods | Sails |
| 6 mm | 1 | 0 |
| 7 mm | 0 | 0 |
| 8 mm | 1 | 0 |
| 9 mm | 3 | 0 |
| 10 mm | 8 | 0 |
| 11 mm | 10 | 0 |
| 12 mm | 17 | 0 |
| 13 mm | 20 | 0 |
| 14 mm | 23 | 0 |
| 15 mm | 32 | 0 |
| 16 mm | 33 | 0 |
| 17 mm | 25 | 1 |
| 18 mm | 19 | 1 |
| 19 mm | 21 | 0 |
| 20 mm | 21 | 2 |
| 21 mm | 15 | 1 |
| 22 mm | 10 | 3 |
| 23 mm | 6 | 2 |
| 24 mm | 8 | 2 |
| 25 mm | 4 | 3 |
| 26 mm | 5 | 2 |
| 27 mm | 7 | 0 |
| 28 mm | 2 | 5 |
| 29 mm | 0 | 1 |
| 30 mm | 2 | 2 |
| 31 mm | 1 | 0 |
| 32 mm | 0 | 0 |
| 33 mm | 0 | 1 |
| 34 mm | 0 | 1 |
| 35 mm | 0 | 0 |
| Total | 294 | 27 |



| Context 3098 | Property BW5 | Phase 5 |
|--------------|--------------|---------|
| Diams | Rods | Sails |
| Unmeasured | 7 | 1 |
| 11 mm | 1 | |
| 12 mm | 5 | |
| 13 mm | 3 | |
| 14 mm | 2 | |
| 15 mm | 2 | |
| 16 mm | 3 | |
| 17 mm | 2 | |
| 18 mm | 3 | |
| 19 mm | 1 | |
| 20 mm | 1 | |
| 21 mm | 1 | |
| 22 mm | 2 | |
| 23 mm | 1 | |
| 24 mm | | 1 |
| 25 mm | | |
| 26 mm | 1 | |
| Tot | al 28 | 1 |



| Context | combined | LSAX-AN |
|------------|----------|---------|
| Diams | Rods | Sails |
| Unmeasured | | 8 |
| 8 mm | | 2 |
| 9 mm | | 0 |
| 10 mm | | 2 |
| 11 mm | | 1 |
| 12 mm | | 2 |
| 13 mm | | 5 |
| 14 mm | | 2 |
| 15 mm | | 3 |
| 16 mm | | 5 |
| 17 mm | | 5 |
| 18 mm | | 3 |
| 19 mm | | 2 |
| 20 mm | | 4 |
| 21 mm | | 2 |
| 22 mm | | 0 |
| 23 mm | | 4 1 |
| 24 mm | | 3 0 |
| 25 mm | | 4 2 |
| 26 mm | | 0 0 |
| 27 mm | | 2 1 |
| 28 mm | | 1 |
| Total | 5 | 2 4 |





WINCHESTER A CITY IN THE MAKING

Archaeological excavations between 2002 – 2007

on the sites of Northgate House, Staple Gardens and the former Winchester Library, Jewry St

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