

JOHN MOORE HERITAGE SERVICES

**ARCHAEOLOGICAL RECORDING FOR  
THE EXTENSION TO  
ST MARY'S CHURCH, PRINCES RISBOROUGH,  
BUCKINGHAMSHIRE  
SU 8059 0350**

*On behalf of  
The Parochial Church Council*

**May 2008**

**REPORT FOR** Parochial Church Council  
St Mary's Church  
Princes Risborough  
Buckinghamshire

**PREPARED BY** Clare Roberts

**FIELDWORK** 16 July 2007 - 07 March 2008

**FIELDWORK BY** Dave Gilbert, Helen Noakes & Clare Roberts

**REPORT ISSUED** 27 May 2008

**ENQUIRES TO** John Moore Heritage Services  
Hillview  
Woodperry Road  
Beckley  
Oxford  
OX3 9UZ

*Tel.* 01865 358300  
*Email:* [info@jmheritageservices.co.uk](mailto:info@jmheritageservices.co.uk)

**Site Code** PRSMC 07  
**JMHS Project No:** 1721  
**Archive Location** The archive will be deposited with Buckinghamshire  
Museum Service under Accession Number 2004.61

**CONTENTS**

	<b>Page</b>
<b><i>SUMMARY</i></b>	<b>1</b>
<b>1 INTRODUCTION</b>	<b>1</b>
1.1 Site Location	1
1.2 Planning Background	1
1.3 Archaeological Background	1
<b>2 AIMS OF THE INVESTIGATION</b>	<b>3</b>
<b>3 STRATEGY</b>	<b>4</b>
<b>4 RESULTS</b>	<b>4</b>
4.1 Footprint strip for new extension	4
4.2 The Service Trenches within the Footprint for the New extension	7
4.3 The Pile Position excavation	9
4.4 The Service Trenches	10
4.5 Reliability of Techniques and Results	10
<b>5 FINDS</b>	<b>11</b>
5.1 General	11
5.2 Articulated human remains	11
<b>6 DISCUSSION</b>	<b>19</b>
<b>7 BIBLIOGRAPHY</b>	<b>20</b>
<b>8 APPENDIX Analysis of human remains, Summary Table</b>	<b>22</b>
 <b>FIGURES</b>	
<b>Figure 1</b> Site Location	2
<b>Figure 2</b> Footprint of new extension	5
<b>Figure 3</b> Plan of Service Trenches within New Extension	8

### **Summary**

*John Moore Heritage Services concluded an archaeological investigation at St Mary's Church in March 2008. This had involved the inspection, excavation and recording of the site strip for the footprint of the new building and the associated service trenches.*

*Twenty inhumations and graves were located at a depth of between 0.7m and 1.39m in the extension footings, associated services and one pile position; later excavation of the service trenches around the completed building located three more inhumations at around 0.7m. The sample represents a typical parish church cemetery population of the post-medieval period.*

## **1 INTRODUCTION**

### **1.1 Site location (Figure 1)**

The site is located immediately to the north of St Mary's Church within the churchyard. The church is situated on Church Street, Princes Risborough, which is to the west of Market Square (NGR SU 8059 0350). The underlying geology is Chalk Marl, which forms part of the Lower Chalk series. Outcrops of Totternhoe Stone occur to the west and east of the site.

### **1.2 Planning Background**

Wycombe District Council granted planning permission for the construction of a two storey octagonal extension to the north elevation of the church, along with associated services. A condition was attached to the permission for a programme of archaeological work. A faculty for the work was also granted by the Diocese of Oxford. Buckinghamshire County Archaeological Service (BCAS) prepared a *Brief* for the work recommending a watching brief of all groundworks. The condition was attached due to the possibility of archaeological deposits being damaged or destroyed as a result of the development.

### **1.3 Archaeological Background**

The name 'Risborough' is believed to be derived from the Saxon word *hrisebeorgan* which means 'Hill(s) covered with brushwood' (Ekwall 1960). Before the Norman Conquest the village of Risborough seems likely to have been centred on the church, and the nearby earthworks of the 'Mount' were thought by early historians to be the site of a Saxon burgh. At the time of the Domesday Book, Princes Risborough was assessed at 30 hides, of which 20 were contained in the demesne of the king. A royal palace is mentioned in the *Register of Edward the Black Prince* between 1346 and 1365, and was greatly favoured by Edward the Black Prince, son of Edward III, who became custodian to the manor in 1343 (Macfarlane and Kingham, 1997). The royal residence has been identified with the 'Mount', a scheduled manorial moated site near the western side of the churchyard (Sheahan, 1971; CAS 0389). The site and adjoining lands were granted to the Hampdens during Elizabeth's reign with a "decayed mansion, long in a neglected condition, that was taken down and it is believed that no vestige now remains of the Palace of the Black Prince" (CAS 389).

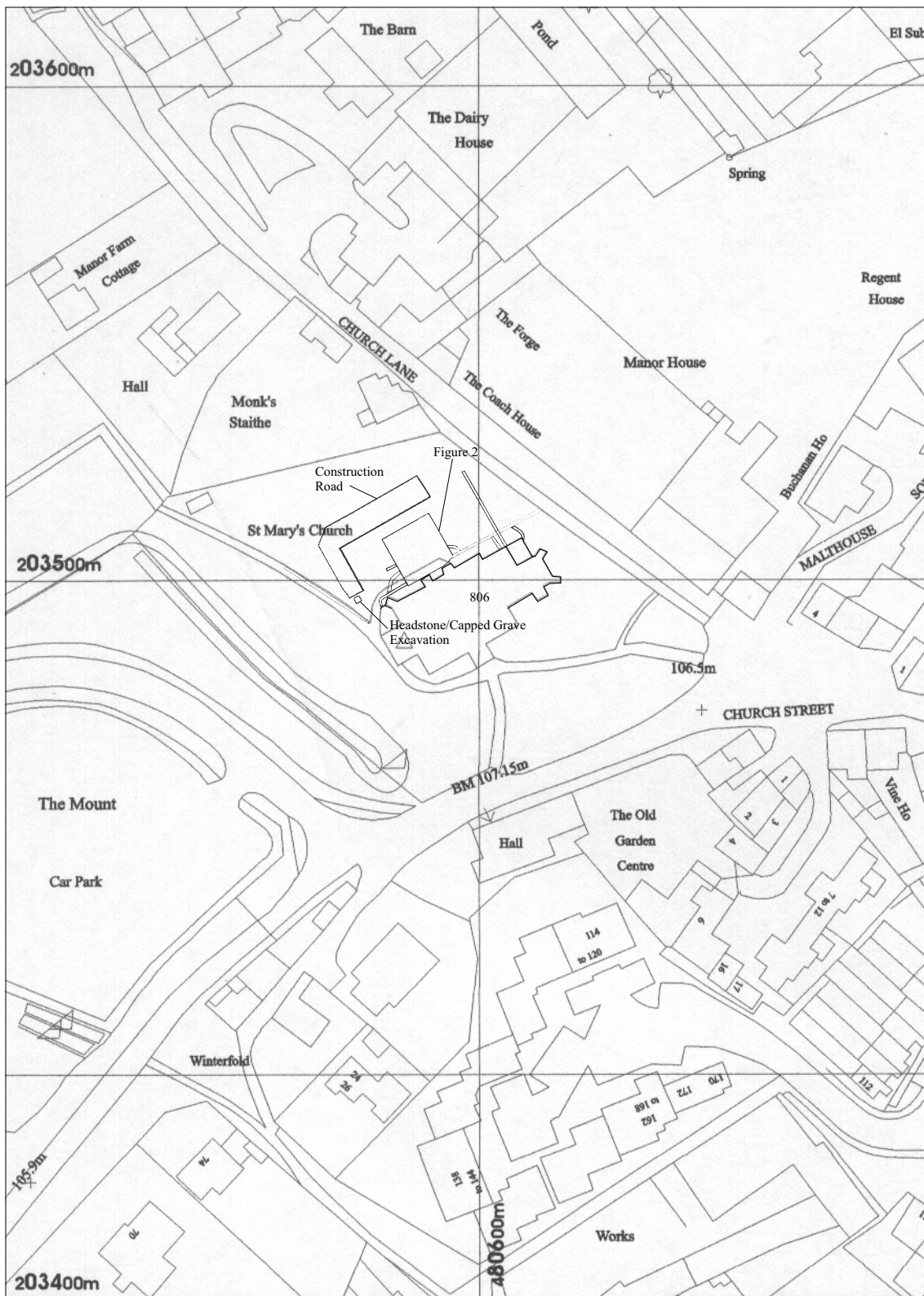


Figure 1. Site and investigation locations

Excavations at the Mount in the 1950's failed to produce any evidence for the presence of a Saxon burgh, but traces of a substantial 14<sup>th</sup> century building were uncovered. These were thought to be those referred to in the *Registry of Edward the Black Prince* (Pavry and Knocker 1955). The building lay within an enclosure, with a second, outer, enclosure extending into the grounds of the nearby manor house. This predominantly 17<sup>th</sup> and 18<sup>th</sup> century building stands on the site of an earlier house, and is probably the successor to the Mount.

The church of St. Mary (CAS990) is mostly of 13<sup>th</sup> and 14<sup>th</sup> century date, and may be Norman in origin. Before the first quarter of the 13<sup>th</sup> century, the church had consisted of a chancel and an aisleless nave of the same width as present, but shorter in length. About 1220 the north and south aisles were added and around 1300 both aisles were lengthened. (VCH 1969). The Chancel was rebuilt c.1290 and the west tower was probably added in the 15<sup>th</sup> century. Further alterations were made during the 14<sup>th</sup> and 15<sup>th</sup> centuries. Then, in the nineteenth and early twentieth centuries, the church was heavily restored and partly rebuilt. Firstly from 1867 to 1868 by Arthur Bloomfield (RCHME 1912), a church guide noted that the flagstone floor was replaced in the 19<sup>th</sup> century (Kidd, 1997). The tower was then completely rebuilt by J. Oldrid Scott in 1907-08; incorporating the old, refaced, tower within the structure (VCH 1969).

The town was granted a weekly market in 1523 by Henry VIII, as well as two annual fairs. A market cross was set up in what is now called Market Square, where Church End or Church Street join High Street and Duke Street. It is probable that at that date, the cross was set up at the edge of the village, with High Street and Duke Street developing after the grant of the market (*ibid.*).

An archaeological field evaluation was undertaken in 2004, in advance of the construction of the extension. This revealed eight undated inhumations in an area of 7.5m<sup>2</sup> at a depth of between 0.77m and 1.05m below present ground level (Moore, J. 2004). Although the highest recorded burial was at a depth of 0.77m, other burials, in particular infants were considered may lie at a higher level. A ground probing radar survey of the north-east part of the graveyard was carried out, although ground conditions limited effective penetration to approximately 1m deep; the survey identified 15 possible unmarked graves (Arrow Geophysics 2006). While these showed clearly on the sections, other areas of general disturbance were probably intercutting graves.

## **2 AIMS OF THE INVESTIGATION**

The aims of the investigation as laid out in the Written Scheme of Investigation were as follows:

- To identify and record any significant archaeological remains revealed by the groundworks and, where possible, to relate them to the church's historic fabric
- To study the orientation of the burials in order to see if there has been any change over time. The burials located within the 2004 evaluation trench were not parallel to the church

### 3 STRATEGY

At least one archaeologist was present on site during the course of all excavations that would potentially disturb or destroy archaeological remains. This involved the observation of all ground reduction, and the excavation of trenches for the new services. Hand excavation was carried out by the archaeologists in the service trenches below 600mm depth. Within the footprint of the extension excavation below 600mm was carried out mechanically under very close archaeological supervision with machining ceasing at the slightest hint of burials or grave cuts with hand excavation then following.

Ground reduction for the area of the new extension was originally to have been *c.* 300mm but was more extensive. This area was *c.* 11m in length, 10.3m wide, and up to *c.* 0.90m deep on the south side and *c.* 1m deep on the north side (See Figure 2). The topsoil was also removed from around the edge of the footprint in preparation for the laying of a hardcore construction road. After recording, the piling mat and hardcore track was then laid on the areas. Service trenches totalling about 31.5m in length, 0.6m wide; running predominately in an east-west direction were then excavated in the same area (see Figure 3), these were deeper, at between 1m and 1.4m below ground level. A further investigation measuring 2.7m x 1.7m, was required near the south-western corner of the footprint trench due to a pile failure, also to a depth of around 1.4m (see Figure 2). Finally more services were excavated running from the western side of the new extension towards the recently demolished boiler room on the south western end of the church; as well as on the eastern side of the new extension towards the north eastern end of the church, and towards Church Lane to the north east. These measured a total of around 75m long, 0.6m wide, and between 0.6 and 1.1m deep.

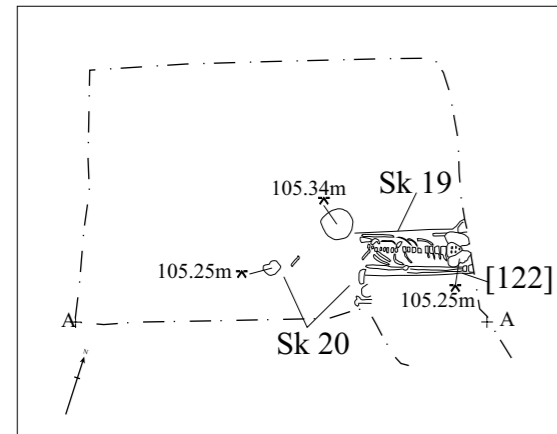
Site procedures for the investigation and recording of potential archaeological deposits and features were defined in the *Written Scheme of Investigation*. The work was carried out in accordance with the standards specified by the Institute of Field Archaeologists (1994) and the requirements of the BCAS's Brief.

### 4 RESULTS

All deposits and features were assigned individual context numbers. Context numbers in [ ] indicate features i.e. pit cuts; while numbers in ( ) show feature fills or deposits of material.

#### 4.1 Footprint strip for new extension (Figure 2)

Overlying the general graveyard soil was a layer of topsoil: loose mid-grey slightly clayey silt with grass (100), this was 0.2m thick over the area. The general graveyard soil (121) was moderately compact pale grey clayey silt with occasional to moderate amounts of chalk flecks and occasional small flint nodules and fragments. It also contained occasional lenses of very pale fine grey clay. Some grave cuts were visible within this material. However other graves were filled with similar material and were only recognisable due to the presence of inhumations. The grave cuts were visible at a depth of 0.82m below existing ground level (mgs). Many disarticulated human remains were present throughout the graveyard soil.



Plan overlaid by Sk 15-18. Locate on points A-A

 Coffin wood

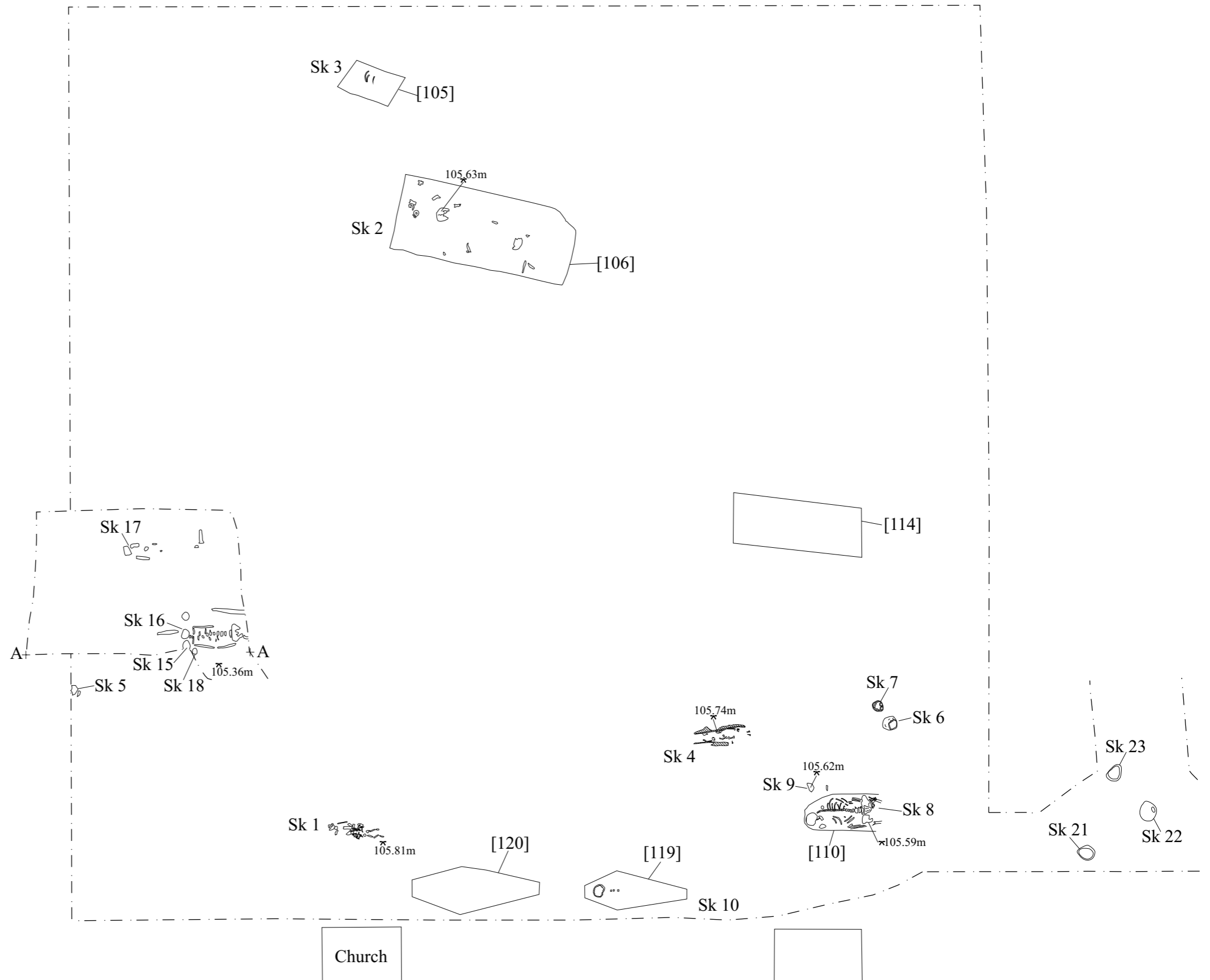


Figure 2. Footprint of new extension



A total of twelve graves were observed within the area of the building footprint. Within these graves, ten inhumations were wholly or partly visible. They are described below in detail progressing from south to north (See figure 2). The graves were either orientated parallel to the church or due east-west (magnetically)

Grave [120] was found when the outline of the coffin was observed, orientated southwest-northeast. It was 1.5m long by 0.6m at its widest, tapering to around 0.2m at the head and foot end. No inhumation was visible at this depth. The grave was backfilled with material so similar to the subsoil (121) that no record of it or the main grave cut could be made.

Grave [119] was also found as a coffin outline, orientated southwest-northeast. It was 1.2m long, 0.5m wide at its widest; tapering to 0.13m at the head, 0.1m at the feet. The body (SK10) was lying supine, the skull was the main element visible at this level, and only this was lifted as the rest lay below the level of excavation. A copper alloy upholstery tack was noted from around the head area, it was not retained.

Grave (SK1) was recognised by the presence of an inhumation, no clear grave cut or coffin outline was visible. It was a neonate skeleton, lying southwest-northeast and supine. It was around 0.8m long. It lay at a depth of 0.82m below ground level, and at the time it was found to be overlying some adult bones, possibly disturbing them, although this was not investigated further as it was below the depth of excavation. Some corroded iron artefacts were recovered, mainly coffin attachments (See 5.1 for more details) Later, when the service trenches were excavated through this area, a complete adult inhumation (SK13) was observed directly underlying SK1 (See 4.2 for more details) and is probably associated.

Grave [110] was partially observed as a feint cut. The observed dimensions were 1m by 0.45m, although the entire length of the burial was not exposed due to it lying below the depth of excavation. The skeleton (SK8) was supine, lying in southwest-north-easterly direction; its legs below the femur were left *in situ*. The pelvis was recorded as being 0.95m below ground level. An iron coffin nail was recovered from the cut (See 5.1 for more details). The grave was backfilled by (109), a dark grey brown silty clay. It is possibly associated with SK9 which lay next to SK8 to the north.

Grave (SK9) was found while excavating Grave [110] (SK8). The skull, found at 1.02m below ground level, had been disturbed and damaged; the rest of the skeleton was left *in situ* as it lay mainly below the level of excavation. The skeleton was lying supine, on the same alignment as SK8; unusually, its hands had been placed under the pelvis. It was lying close to SK8, and is possibly sharing a grave plot.

Grave (SK4) was found as a coffin outline, 0.92m below ground level. It was in relatively good condition. The skeleton was of a neonate, lying on its side with head facing to the west. It was found 0.92m below existing ground level. The burial was aligned southwest-northeast. The grave was backfilled by (108) a light blue-grey silty clay. It was seen to be overlaying an earlier adult burial, and was probably associated. However this was not investigated further as it was below the level of excavation. Some corroded iron coffin nails and copper alloy studs were recovered, mainly coffin upholstery attachments (See 5.1 for more details)

Grave (SK5) was recognised as the presence of an inhumation, no cut being visible. However in this case, due to the depth of excavation being reached, it was not established whether it was a complete burial, or charnel remains of just a skull. It was also at quite a shallow depth, 0.69m below existing ground level. The skull was facing to the northeast.

Graves (SK6) and (SK7) were both recognised as inhumations, no cut or coffin outline visible. They are both lying supine, facing northeast and are thought to have shared a grave. In both cases, the skull was the main element visible at this level; the rest was left *in situ* as it was below the limit of excavation. A small copper alloy button was recovered associated with (SK6) (See 5.1 for more details)

Grave cut [114] was seen as a rectangular cut, orientated east-west. It was 1.5m long by 0.55m wide. No inhumation was visible at this depth, and it was not investigated further as the limit of excavation had been reached. The grave had been backfilled with (115) a quite compacted light blue-grey silty clay.

Grave cut [106] was seen as a rectangular cut, orientated east-west. It was 2.1m long by 0.9m wide. A skull (SK2) was present at 1.01m depth below ground level; however it was with very disturbed skeletal remains, this could be due to a later burial into the same plot damaging this earlier burial. Corroded iron artefacts were recovered, mainly coffin attachments (See 5.1). The cut was not investigated further as the limit of excavation had been reached. The grave cut was backfilled by light blue-grey silty clay with chalk fragments.

Finally grave [105] was seen as a small roughly square cut, 0.4m by 0.44m in size. It was orientated east-west. The complete inhumation (SK3) was not visible at this level, only the ribs were recorded. It was not investigated further as the limit of excavation had been reached. It was backfilled by (104), a loosely compacted light grey silty clay.

#### **4.2 The Service Trenches within the Footprint for new Extension (Figures 1 & 3)**

These service trenches were excavated after the rubble piling mat had been laid over the area of the new extension. They were between 1m and 1.4m deep, and revealed four more graves, all of which contained inhumations. They are described below in detail progressing from south to north (See Fig. 3).

Grave (SK13) was recognised as the presence of an inhumation. It was orientated southwest-northeast. It was not complete, having possibly been cut by (SK14) to the west. The burial was laying supine, the pelvis at a depth of 1.39m below ground level. This burial was found to be positioned directly underneath (SK1) and is likely to be associated. It was not investigated fully as it was below the level of excavation.

Grave (SK14) was recognised as the presence of an inhumation. It was orientated southwest-northeast. The upper half had been severely truncated by a grave cut to the west, although no cut or inhumation was visible at this level. The lower half of its legs ran into the trench edge. The burial was left *in situ* as it was below the limit of excavation at 1.39m below ground level.

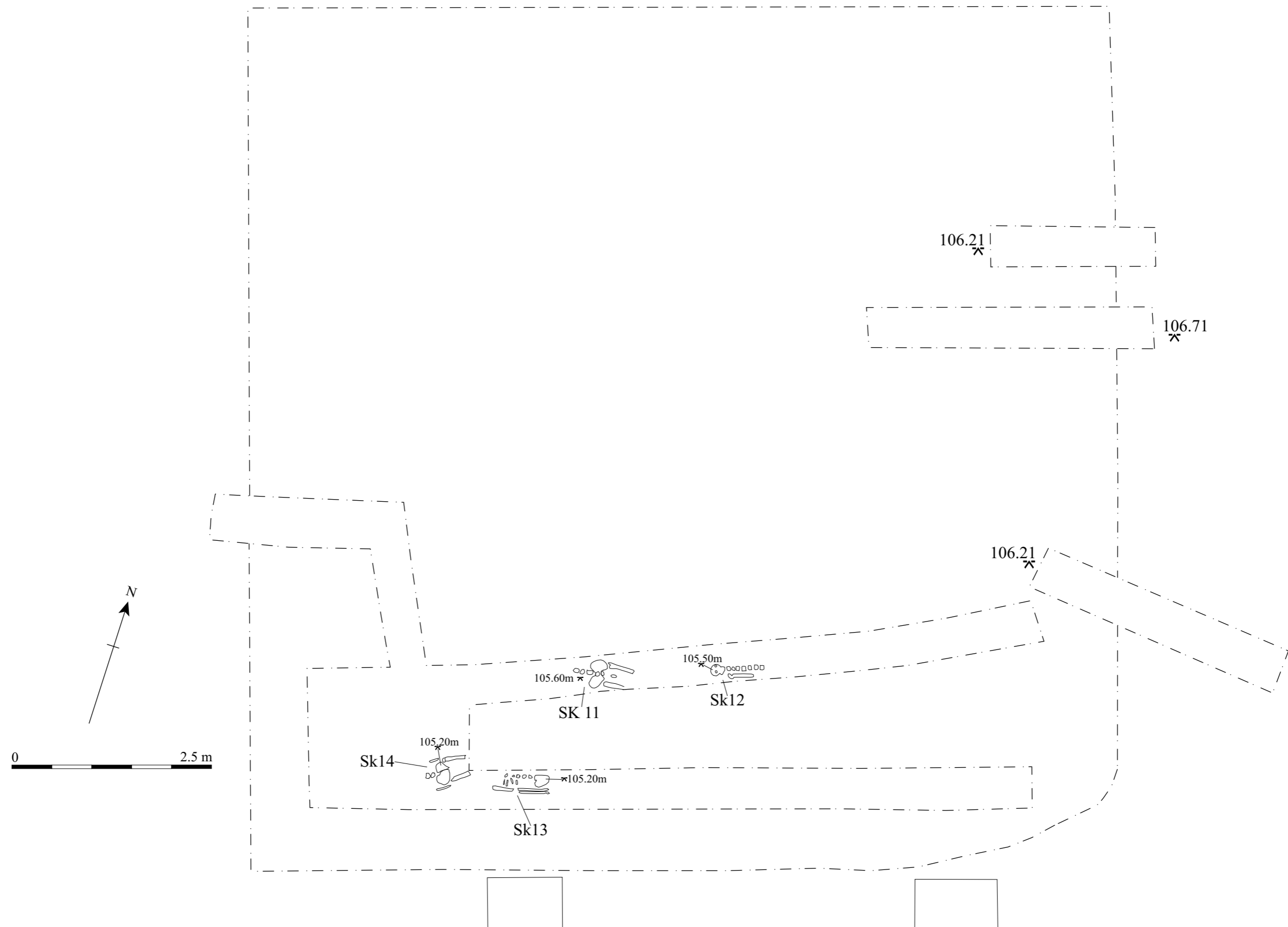


Figure 3. Service trenches within new extension

Grave (SK11) was recognised as the presence of an inhumation. It was orientated southwest-northeast. The upper half was partially under the trench edge. The legs below the femurs were not visible. The skeleton was 0.99m below existing ground level. The remains of a belt, in the form of an iron buckle, was observed around the waist. However it was so corroded it did not survive excavation, and was not retained. A small copper alloy stud was also recovered, probably part of coffin upholstery attachments (See 5.1 for more details). It is highly likely that this burial was originally observed during the evaluation phase, recorded as GR2/SK2. It was not fully exposed during the evaluation as it was below the level of excavation at 0.9m below ground level (Moore 2004).

Grave (SK12) was also recognised as an inhumation, no cut or coffin outline visible. It was orientated southwest-northeast. It was poorly preserved, only the skull, vertebrae and right arm visible. It was 1.09m below ground level, and therefore left *in situ* as it was below the limit of excavation.

### **4.3 The Pile Position Excavation (Figure 2)**

One pile failed a test and the area around was excavated to investigate the failure.. The area concerned (2.7m by 1.7m), located near the south-western corner of the extension's footprint, was opened up and excavated by hand to a depth of 1.4m below ground level. Six graves with inhumations were uncovered. They are described below progressing from south to north.

Grave (SK18) was recognised as a possible inhumation, orientated southwest-northeast. Apart from the skull, the rest of the body lay under the limit of excavation and was not investigated. It's likely to be quite disturbed however, as it lay very close to (SK15) and (SK16).

Grave (SK15) was recognised as a supine inhumation, orientated southwest-northeast. Even though it was recorded as being later than (SK16) situated close by to the north, little survived of this burial apart from the skull. It was noted that it had a deformity to the right hand side orbit. Due to it's proximity to (SK16), (SK18) and (SK19) below, they may all be associated but, at this depth and in a long used cemetery such as this, intercutting and adjacent though not associated burials are expected. The burial was found 1.1m below ground level.

Grave (SK16) was recognised as a supine inhumation, orientated southwest-northeast. It was complete apart from the left tibia and lower legs and feet, which ran into the trench edge. It was noted to have a kink in the spine. It was found 1.25m below existing ground level. It is possibly associated with (SK19) which was found directly below.

Grave (SK17) was recognised as a possible inhumation, although in very poor condition. The fragments were orientated southwest-northeast, however very little survived, just part of the pelvis and right femur. It is likely to be charnel remains or heavily disturbed. The remains were found 1.17m below ground level.

Grave (SK20) was recognised as a possible inhumation, although in poor condition. The fragments were orientated approximately southwest-northeast, and roughly in the

right positions, but heavily disturbed. It had probably been damaged by the later burials above, (SK15) and (SK16). It was found 1.38m below existing ground level.

Grave [122] was seen as a rectangular cut, orientated southwest-northeast. It contained a complete supine inhumation (SK19) although the legs ran into the trench edge and were not investigated further. It is possibly part of the same grave plot as (SK16) found directly above, and probably associated. It was found 1.39m below ground level. Several corroded iron artefacts were recovered, including a possible coffin name plate (See 5.1 for more details)

#### **4.4 The Service Trenches (Figures 1 and 2)**

These were excavated on both the east and western side of the new extension. They were excavated by machine on the whole, with one trench (situated running southeast-northwest from the new extension towards Church Lane) having to be hand excavated as it exceeded the 0.6m limit. It was excavated to a maximum depth of 1.1m at the north-eastern end. Three graves with inhumations were recorded in this trench. The rest of the service trenches recovered a fair amount of unstratified human bone.

The inhumations were all situated quite close to one another, close to the north-eastern side of the new extension. All were 0.7m below existing ground level. See Figure 2.

Grave (SK21) located the furthest to the west, was recognised as a possible inhumation, although no cut was visible, and it was in poor condition. The fragments observed were orientated approximately southwest-northeast, and roughly in the right positions, lying supine, though possibly disturbed. The skull was the only part lifted as the rest lay below the limit of excavation and was not fully investigated

Grave (SK22) was an inhumation in good condition, it was recognised as lying supine, and orientated slightly more south-south west to north-north east. It was complete apart from the lower legs and feet, which ran into the trench edge. Only the skull was lifted as the rest lay below the limit of excavation and was not fully investigated. Another skull was found lying just to the north-west of (SK22), it was heavily damaged and disturbed, possibly part of an earlier burial truncated by this one.

Grave (SK23) was recognised as an inhumation, no cut was visible. Only the skull was observed, which was orientated approximately southwest-northeast. Due to the depth of excavation being reached, it was not established whether it was a complete burial, or charnel remains of just a skull.

#### **4.5 Reliability of Techniques and Results**

The reliability of results is considered to be good. The archaeological investigation work took place during dry and bright weather. Although mechanical excavation was employed in the majority of the area the carefulness and slowness employed allowed for recognition of inhumations and grave cuts where they existed.

## 5 FINDS

### 5.1 General

Unstratified finds included a number of iron coffin handles and nails, and 1m<sup>3</sup> of unstratified human bone; mainly recovered from the graveyard soil (121) and from some of the grave backfills. This was temporarily removed from site to be boxed up for later reburial on the site. The table below shows the stratified metal artefacts recovered from some of the burials. The articulated human remains were cleaned and a report on the remains follows (5.2).

Table 1. Iron and copper alloy artefacts from burials

Skeleton Number	Details	Condition
SK1	2 iron coffin nails, 2 bent plates-brackets or hinges, 1 coffin handle	Heavily corroded
SK2	1 iron coffin nail with remains of wood adhering. 1 circular headed stud	Heavily corroded
SK4	13 iron coffin nails. 2 small copper alloy studs	Corroded
SK6	Circular copper alloy button, 2cm diameter	Corroded
SK8	1 iron coffin nail	Corroded
SK11	1 small copper alloy stud still adhering to wood.	Slight corrosion
SK19	5 iron coffin nails. 1 small plate fragment with small possible phalange fragment adhering. 1 large roughly rhomboid shaped plate, possibly a name plate for coffin?	Corroded

### 5.2 Articulated Human Remains *by Linzi Harvey*

#### 5.2.1 Nature of sample

Twenty-three probable graves were identified during the excavation. Four skeletons (SK9, SK12, SK13 and SK14) were left *in situ* on site and have not been analysed and discussed here. The contents of the remaining nineteen grave cuts or grave areas are examined in this report.

The remains of 17 individuals and a minimum of 25 disarticulated skeletons were recovered. The majority of inhumations were aligned southwest-northeast, in a supine position, with their heads towards the southwest. Five grave-cuts (SK2, SK3, SK11, SK22 and SK23) were aligned due east-west. Approximately one cubic metre of disarticulated human bone was also recovered during excavation, which has not been assessed in this report.

The nature of excavation (trenching and ground reduction along a predetermined course) means that partial remains were recovered where whole remains may have been present. The excavated remains are likely to date from the seventeenth or eighteenth centuries and have been analysed in comparison to post-medieval (c. 1550AD – c. 1850AD) British populations described in Roberts & Cox (2003).

### 5.2.2 Methods

Skeletal remains were examined macroscopically and data recorded onto paper record forms following both IFA and English Heritage standards and guidelines (Brickley & McKinley 2004, Mays & Brickley *et al* 2004 respectively).

### 5.2.3 Preservation and completeness

An assessment was made of the state of preservation of the inhumed remains: from 'good' (1) to 'poor' (3).

- 1) 'Good' Bone surface is in good condition with no erosion, fine surface detail such as coarse woven bone deposition, if present, would clearly be visible to the naked eye.
- 2) 'Moderate' Bone surface is in moderate condition, with some post-mortem erosion on long bone shafts, but the margins of the articular surfaces and some prominences eroded.
- 3) 'Poor' Bone surface is in poor condition with extensive post-mortem erosion, resulting in pitted cortical surfaces and long bones with articular surfaces absent or severely eroded.

A skeletal inventory, estimation of completeness and full fragment count of each inhumation was undertaken. Disarticulated material or bone that appeared charnel in nature was briefly examined, although no attempts was made to formally age or sex the material for inclusion in the main body of the report.

### 5.2.4 Age at death

Age at death estimation was based on a number of commonly used aging techniques. The adult sample was aged using epiphyseal fusion data (Schwartz 1995), cranial suture closure (Meindl & Lovejoy 1985), maxillary suture closure (Mann *et al* 1987), age-related changes of the pubic symphysis and the auricular surfaces of the ilium (Buikstra & Ubelaker 1994, Schwartz 1995) and dental attrition (Brothwell 1981) where appropriate. The age of the sub-adult and neonatal sample was determined using epiphyseal fusion data, dental development (Moorress *et al* 1963ab) and length of long bones (Scheuer *et al* 1980) where appropriate.

For descriptive purposes, the skeletons were assessed and then assigned to the following broad age categories:

<i>Description</i>	<i>Age range</i>
Neonate	< 1 year and <i>in utero</i>
Infant	< 3 years
Juvenile	< 18 years
Young adult	18-25 years
Middle adult A	26-35 years
Middle adult B	36-45 years
Older adult	>46 years

**Table 2: Age codes**

### **5.2.5 Sex Estimation**

Estimation of sex was only considered appropriate for the adult sample and was based on macroscopic observation of key skeletal landmarks in the cranium/mandible and pelvis. Where present, a number of predetermined sexually diagnostic features were marked on a five point scale as follows: 1 = male, 2 = possible male, 3 = intermediate, 4 = probable female and 5 = female.

### **5.2.6 Stature**

The lengths of the long bones were used to provide an estimate of stature for the adult skeletons. This was calculated using formulae created by Trotter (1970).

### **5.2.7 Metrical Data**

Where preservation and completeness allowed, measurements were taken of a number of cranial, dental and post-cranial features, using landmarks identified in Brothwell (1981) and Bass (2005).

### **5.2.8 Non-metric traits**

Non-metric traits were not recorded in this sample due to the incompleteness of individuals and the fragmentary state of the skulls.

### **5.2.9 Palaeopathology**

Pathological changes were recorded using guidelines set out by the British Association of Biological Anthropologists and Osteologists (Roberts & Connell 2004). Basic pathological information was obtained from Roberts & Manchester (1995) and Roberts & Cox (2003) with additional references as required.

### **5.2.10 Dental pathology**

The recording of dental pathology, where dental remains were present, covered five pathological changes; calculus deposits and periodontal disease, carious lesions, hypoplastic defects and periapical lesions. Each observation was recorded by tooth or tooth position as appropriate and scored for severity according to established schemes such as Brothwell 1981.

## **Results**

### **5.2.11 Completeness and preservation**

The majority of individuals recovered were less than 50% complete and nearly all of these were less than 25% complete. Two neonatal skeletons, **SK1** and **SK4**, were the most complete skeletons in the assemblage and were 70 – 80% complete. The bone preservation of skeletal elements present was moderate, with some cortical erosion of the bones but most fine surface detail still visible. However, many skeletal elements were highly fragmentary.

The disarticulated and charnel material recovered was notably poorer in condition, as is often the case in post-medieval cemetery sites, where the disturbance and truncation of earlier burials for subsequent inhumations was very common (Roberts & Cox



2003: 289). Several bones displayed chop marks and fragmentation consistent with post-depositional disturbance.

### 5.2.12 Minimum number of individuals

Seventeen skeletons were assessed to represent individual inhumations, after examination of the human remains and the site records. In two cases however, it was not possible to identify a single inhumation and it is likely these grave contexts represent disarticulated or charnel material (see **Table 3**, below). Within the disarticulated material recovered and the additional material recovered along with individual inhumations, a minimum number of 25 individuals was identified, at least nine of which were sub-adults.

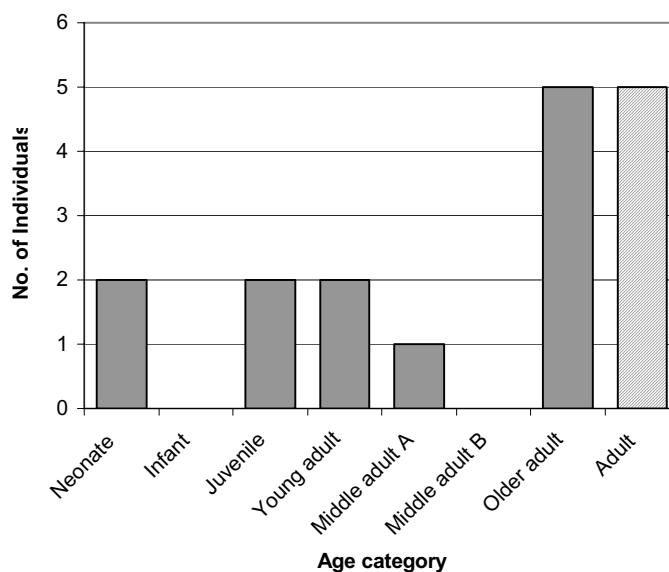
	Skeleton numbers
Single inhumations	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 15, 16, 19, 20, 21, 22, 23
Probable disarticulated / charnel material	17, 18
Burials not lifted	9, 12, 13, 14

**Table 3: Nature of Sample**

Fragments of animal bone were recovered along with the human bone in five cases and included fragments of sheep, pig and cow or horse. Animal bone is a common find on late-medieval and post-medieval cemetery sites.

### 5.2.13 Age at death

The age of death for all 17 individuals could be at least broadly estimated (see Figure 4). It was possible to attribute an adult age estimation, i.e. over 18 years of age at death, to five individuals (**SK3**, **SK7**, **SK20**, **SK21** and **SK23**) although it was not possible to identify more accurate age categories for these individuals.



**Figure 4: Age Distribution**

Nearly half of the 12 individuals who could be accurately aged were in the 'older adult' category; these were **SK2**, **SK10**, **SK15**, **SK16** and **SK22**. A single individual, **SK8** was assessed as a 'middle adult A' and no adults were found to definitely belong to the 'middle adult B' category. The sub-adult sample was fairly evenly spread out, with two individuals belonging to the 'young adult' category (**SK11**, **SK19**), two in the 'juvenile' category (**SK5**, **SK6**) and two individuals in the 'neonate' category (**SK1**, and **SK4**). No 'infants' were identified in the sample. It is likely that **SK1** represents a stillbirth or death very soon after a premature birth, whilst **SK4** probably represents a two-month-old individual. Infant mortality in both the late-medieval and post-medieval periods was very high, with deaths usually attributed to infection or associated with poor diet.

Mortality curves typically follow a characteristic U-shaped curve, the high arms of the curve resulting from a higher probability of death in infancy and old age. In the St Mary's Church assemblage, adult mortality appears to peak in the 'older adult' category, but there is no corresponding peak in the neonate or infant categories. It is possible that adult remains were preferentially collected on site due to their greater visibility (Ed – not the case), or that some infant remains had completely degraded in the ground. Due to the method of excavation (trenching and ground reduction in predetermined discreet locations), no spatial patterning of inhumations and age could be identified.

#### 5.2.14 Sex estimation

The biological sex of eight adult individuals could be estimated. Those assessed as definitely male were **SK2**, **SK8** and **SK22**. Those assessed as probable female were **SK7**, **SK10**, **SK15** and **SK16**. **SK5** was assessed as definitely female. These results are displayed graphically below in Figure 5. Although females and probable females (n=5) slightly outnumber males (n=3) in this sample, it is unlikely to be significant given the size of the assemblage. Due to the method of excavation no spatial patterning of inhumations and sex could be identified.

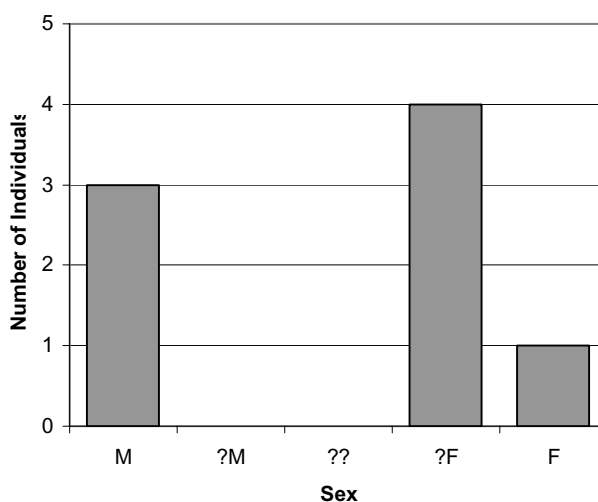
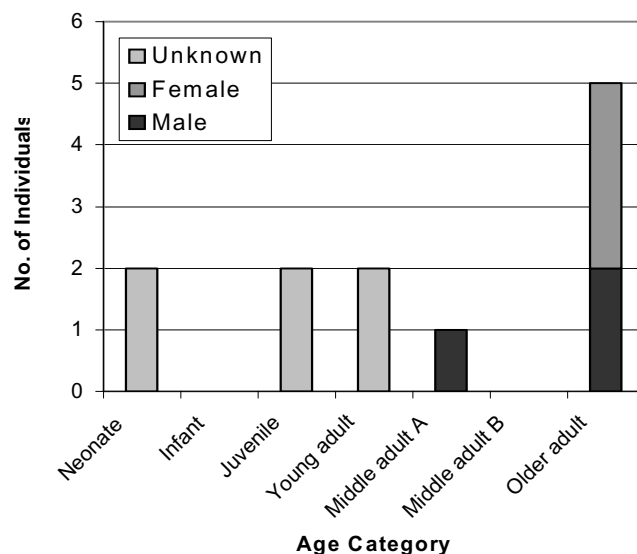


Figure 5: Sex Distribution

Further dissection of the distribution of the age and sex of the individuals of the St Mary's assemblage does not appear to highlight any unusual patterns (Figure 6). In

the adult sample as a whole, the number of individuals who could be reliably sexed and aged (n=6) was found to be evenly distributed between male and female.



**Figure 6: Age and Sex Distribution**

### 5.2.15 Stature

Stature could only be reliably estimated in three individuals. **SK8**, the only male suitable for stature estimation, was the tallest of these three, at around 167cm. The two probable females, **SK15** and **SK16**, were 165cm and 162cm respectively. These measurements appear to fall just outside the range of heights observed in post-medieval Britons, with the range for males being 168 – 174cm and for females, 156 – 164 (Roberts & Cox 2003: 308). It is interesting to note that **SK8** falls beneath the lowest end of the male range, whilst **SK15** and **SK16** fall towards the higher end or higher than the female range. Although stature is genetically determined, it is likely that nutrition (or malnutrition) in childhood plays an important role in attainment of full stature. It is possible that this indicates a socio-economic difference between **SK8** and **SK15/SK16**.

Skeleton	Sex	Stature
<b>SK 8</b>	Male	167cm (5'6")
<b>SK 15</b>	?Female	165cm (5'5")
<b>SK 16</b>	?Female	162cm (5'4")

**Table 4: Stature estimation**

### 5.2.16 Metrical data

Metrical data, including long bone lengths and dental metrics (where appropriate) for all articulated individuals, were collected and have been stored within the paper archive.

### 5.2.17 Palaeopathology

Very few pathological conditions and no examples of trauma (broken bones etc.) were observed in this assemblage. This is likely to be a result of the incomplete nature of the sample, with the partial excavation of individuals. In total, three older adults displayed pathological conditions. This is unsurprising, since many pathological conditions are cumulative in nature and require time to express themselves skeletally.

**SK2** had considerable osteophytic growth and distal joint surface eburnation on several thoracic vertebrae. **SK16** was similarly affected, with osteophytic lipping around vertebral joint surfaces, porosity of those surfaces and evidence of fusion between separate vertebrae. These pathological changes are degenerative in nature and are often associated with osteoarthritis, a condition common in older adults in antiquity (Roberts & Manchester 1995). Osteoarthritis can be caused by many factors, including advancing age and occupation, as well as genetic predisposition or obesity. Since both individuals affected are in the 'older adult' category, it is likely that advancing age was an important factor in their condition.

Skull fragments from **SK15** were found to be thick and swollen in appearance. It is likely **SK15** was suffering from Paget's disease. Paget's disease causes a malfunction in the normal process of bone remodelling and may 'indirectly indicate infection' (Roberts & Cox 2003: 32). It is usually associated with older individuals and has a crude prevalence rate of around 1.76% in the post-medieval period (*ibid.* 355). The crude prevalence rate in this assemblage is higher, at around 7.69%, although with the small size of the assemblage, this is unlikely to be significant.

### 5.2.18 Dental pathology

Parts of the dentition survived in seven individuals and all of them exhibited some kind of dental pathology. These pathologies included calculus deposits, dental caries (cavities) and periapical abscesses. Notable periodontal disease was observed in one edentulous (toothless) adult, **SK2**. Due to his lack of teeth however, he has not been included in the overall dental health assessment.

*Calculus* was the most frequently observed condition, with an overall prevalence rate of 71.4%, suggesting nearly three quarters of individuals examined had one or more teeth exhibiting calculus deposits. Calculus is a calcified plaque deposit and is most often associated with poor dental hygiene. *Dental caries* had an overall prevalence rate of 57.1%, suggesting that over half of the individuals examined had one or more carious teeth. Caries are often associated with a sugary or carbohydrate based diet, in addition to poor dental hygiene. *Dental abscesses* had an overall prevalence rate of 42.9%, suggesting that just less than half of the individuals examined had one or more periapical abscesses. Abscesses are usually the result of a bacterial infection, which infects teeth as a result of dental caries.

The rates of dental disease for the St Mary's assemblage appear to fall within prevalence rate ranges outlined in Roberts & Cox (2003: 258-262) for the late-medieval period, but are slightly higher than prevalence rates outlined for the post-medieval period. It is possible that the trends described for the post-medieval period are 'an artefact of the generally higher socio-economic groups examined for [this]

period' (*ibid.* 325). This may in turn suggest that the group assessed here is of low socio-economic status or may date to the earlier part of the post-medieval period.

### 5.2.19 Discussion

The skeletal material presented here is largely incomplete, due to the limited excavation area and a limited depth of excavation. In many cases, only the skull, upper vertebrae and a few disparate post-cranial elements were recovered from an inhumation, presumably as the skull is often found slightly higher in level than other skeletal elements. It was impossible to glean much demographic data from the very incomplete individuals in this assemblage.

The majority of grave locations identified on-site were aligned southwest-northeast, parallel with St Mary's Church, whilst a few were aligned due east-west. These alignments are in keeping with Christian funerary rites, which often vary according to the original alignment of the church itself. It is possible that the due east-west burials represent a later phase of inhumation at the church, but this would be impossible to confirm without radiocarbon dating several individuals, which, given the piecemeal nature of the assemblage, is not recommended.

The lack of deliberate grave goods is also in keeping with Christian tradition, whilst the presence of copper alloy staining on occasional skull and pelvis fragments implies that a number of individuals were probably shroud wrapped prior to inhumation. The presence of ferrous nails suggests the use of coffins, which is confirmed by wooden coffin remnants recorded on-site for **SK10** and **SK4**.

Although it was possible to attribute an age to 17 individuals and sex to eight individuals, the lack of post-cranial material meant only three individuals could be assessed for stature. Whilst a few skeletal pathologies were observed, the lack of trauma in the assemblage may be a result of the lack of complete post-crania examined. Probable vertebral osteoarthritis is present on two older adults in the sample (**SK2** and **SK16**) and one individual (**SK15**) was suffering from Paget's disease. Dental conditions appear to be well represented and the prevalence rates for calculus, caries and abscesses appear to be slightly higher than expected in a post-medieval setting. This may reflect poor dental hygiene and lack of access to dental treatment, suggesting that this population may have been socio-economically poor. It does not appear that any of the burials were particularly high status, i.e. buried intramurally (within stone coffins) a method often favoured by the elite in the post-medieval period to protect their 'earthly remains' from truncation by later burials.

Men, women and children are present in this sample, and a variety of ages are represented. Although a typical mortality profile was not seen during this assessment, it seems likely that the limited excavation areas are responsible for this. As far as it is possible to tell, this sample represents a typical parish church cemetery population of the post-medieval period.

## 6 DISCUSSION

The excavation established that inhumations survive on site in good condition where they have not been disturbed by later burials. The uppermost burial (SK5) was seen at 0.69m below existing ground level, or 105.95m OD.

Burials were found on three slightly different alignments, westsouthwest - eastnortheast, or parallel with the nave of the church; nearer west – east parallel with the chancel, and southwest – northeast. The marked more east-west ones within the graveyard north of the church date from the later 18<sup>th</sup> century (1757-67) through to late 19<sup>th</sup> century (1884/5) with two burials examined and readable south of the church of 1876 and 1888. The westsouthwest – eastnortheast marked burials are early to middle 20<sup>th</sup> century south of the church and nineteenth century (1825-1893) northwest of the chancel. The third alignment is late 19<sup>th</sup> century west of the cancel and early to middle 20<sup>th</sup> century southwest of the chancel and late 18<sup>th</sup> to late nineteenth century south and southwest of the tower.

Although there does not appear to be too much correlation between date and orientation some trends are visible in different parts of the churchyard. This is presumably down to different sextons with differing views and also to aligning and fitting in new graves based on extant earlier graves. The majority of the more east-west orientated burials are later 18<sup>th</sup> to 19<sup>th</sup> century in the north of the churchyard and the burials on this orientation that were found are likely to date to the 17<sup>th</sup> to early 19<sup>th</sup> century. The southwest-northeast burial (SK14) may well be late 19<sup>th</sup> to early 20<sup>th</sup> century while the others are more likely to be later 19<sup>th</sup> century although one extant grave on this orientation is dated to 1825. It seems likely that none of the burials recovered are earlier than post-medieval. As noted by Linzi Harvey (see 5.2 above), the assemblage is small and therefore does not reveal confident results.

(SK1) and (SK13) were superimposed: (SK1), a neonate probably stillborn, being buried directly above (SK13) who may have died in birth although this skeleton was not analysed as it remained in the ground. (SK19) and (SK16) may have been buried in the same family plot. (SK16) directly overlay (SK19); also possibly associated with these burials were (SK15) and (SK18) which, although quite disturbed, lay close by on the same level as (SK16); this perhaps indicating a later size increase of a family burial plot. However at this depth and in a long used cemetery such as this, intercutting and adjacent, though not associated burials are expected.

(SK6) (juvenile) and (SK7) (over 18 years) could be part of the same burial plot, lying closely next to each other, as could (SK8) and (SK9). However they are probably unrelated individuals buried close together in a crowded graveyard.

Graves [105], [106] and [114] had all been backfilled with distinctive light blueish grey silty clay; this is probably as a result of deeper grave cuts being cut into the previously undisturbed Chalk Marl and are probably later than the others found.. These, along with GR6 and GR7 uncovered in the evaluation phase (Moore 2004) may all be contemporary due to their relative spacing and the similarity in grave fill material.

Any Medieval burials present are either buried at a lower level, or have been truncated away over time. The church renovations in the nineteenth and early twentieth

centuries may well have heavily disturbed the areas closer to the church. The large amount of unstratified bone in the top and subsoil's shows the expected intensive use of the graveyard with graves being dug through earlier internments. This has led to a build up of ground level within the cemetery of up to 0.7m.

## 7 BIBLIOGRAPHY

Arrow Geophysics. 2006. *Ground Penetrating Radar Survey at St Mary's Church, Princes Risborough*. Unpublished Client Report

Bass, WJ. 2005. *Human Osteology: A Laboratory and Field Manual*. Columbia, Missouri Archaeological Society, 5<sup>th</sup> ed.

Brickley, M & McKinley, JL (eds.) 2004. *Guidelines to the Standards for Recording Human Remains*. BABA0/IFA 8-12.

Brothwell, D. 1981. *Digging Up Bones*. London, British Museum.

Buikstra, J & Ubelaker, D (eds.) 1994. *Standards for data collection from human skeletal remains*. Arkansas Archaeological Survey Research Series, No. 44.

Ekwall, E. 1960. *The Concise English Dictionary of English Place-names*. Fourth edition, Oxford University Press

Institute of Field Archaeologists, 1994. *Standard and Guidance for Archaeological Field Evaluations*

Macfarlane, S. and Kingham, C. 1997. *Princes Risborough Past*

Mays, S & Brickley, M *et al.* 2004. *Human Bones from Archaeological Sites: Guidelines for Producing Assessment Documents and Analytical Reports*. English Heritage.

Meindl, RS & Lovejoy, CO. 1985. Ectocranial suture closure: a revised method for the determination of skeletal age at death based on the lateral anterior sutures. *American Journal of Physical Anthropology* 68: 57-66.

Moore, J. 2004. *An Archaeological Field Evaluation at St Mary's Church, Princes Risborough, Buckinghamshire*. John Moore Heritage Services, Unpublished Client Report

Moorees, CFA, Fanning, EA and Hunt, EE. 1963a. Age Variation of formation and resorption of three deciduous teeth in children. *American Journal of Physical Anthropology* 21: 205-213.

Moorees, CFA, Fanning, EA and Hunt, EE. 1963a. Age Variation of Formation Stages for ten permanent teeth. *Journal of Dental Research* 42: 1490-1502.

Pavry, F. H. and Knocker, G. M. 1958. *The Mount, Princes Risborough, Buckinghamshire*. Records of Buckinghamshire, 16

- Roberts, CA & Connell, B. 2004. Palaeopathology. In Brickley M & McKinley J.L (eds.) *Guidelines to the Standards for Recording Human Remains*, BABAO/IFA 8-12.
- Roberts, CA & Cox, M. 2003. *Health and Disease in Britain: From Prehistory to the Present Day*. Stroud: Sutton Publishing.
- Roberts, CA & Manchester, K. 1995. *The Archaeology of Disease*. New York, Alan Sutton Publishing Limited, 2<sup>nd</sup> ed.
- Royal Commission on Historic Monuments (England) (RCHME). 1912. Buckinghamshire (South)
- Scheuer, L & Black, S. 2000. *Developmental Juvenile Osteology*. Academic Press, London.
- Schwartz, JH. 1995. *Skeleton Keys: an Introduction to Human Skeletal Morphology, Development and Analysis*. Oxford, Oxford University Press.
- Sheahan, J. J. 1971. *History and Topography of Buckinghamshire*. London
- Victoria County History (VCH). 1969. *A History of Buckinghamshire*. Vol II, W Page (ed) reprinted from the 1908 edition



## 8 Appendix

### Analysis of the human remains By Linzi Harvey MSc

#### Summary Table

<i>Skeleton no.</i>	<i>Pres.</i>	<i>Completeness</i>	<i>Alig.</i>	<i>Age</i>	<i>Sex</i>	<i>Stature</i>	<i>Pathology and trauma</i>	<i>Notes</i>
SK1	3	c. 80% Skull, scapula, clavicle, ribs, long bones, parts of left and right pelvis and single metacarpal or metatarsal	SW-NE	c.34 weeks	-	-	None observed.	Includes disarticulated material, representing at least 1 adult. Includes 1 fragment animal bone (sheep).
SK2	3	<25% Skull, excluding right temporal and parietal regions and mandible; 2 vertebrae; few rib and left and right humerus fragments.	EW	46 – 60 years	♂	-	Considerable osteophytic growth on thoracic vertebrae no. 12, considerable osteophytic growth on lumbar vertebrae 4/5 with eburnation on distal joint surfaces.	Green staining towards frontal region of skull. Includes disarticulated material, representing at least 1 sub-adult. Includes 2 fragments animal bone (sheep/pig).
SK3	2/3	<10% Few rib fragments and four hand bones.	EW	Adult	-	-	-	Includes disarticulated material representing at least 1 other adult and 1 sub-adult. Includes 1 ferrous nail.
SK4	2	c. 70% 1 fragment frontal bone; all long bones represented; vertebral arch fragments; 1 distal phalange	SW-NE	45 weeks	-	-	None observed.	Includes 3 ferrous objects, probably nails. Includes 1 fragment animal bone.
SK5	3	<25% Frontal and facial parts of skull, including parts of maxilla.	SW-NE	12-18 years	♀	-	Slight calculus deposits on upper right M2, M1 and PM2 and upper left M1.	
SK6	2	<25% Fragmentary skull and upper five cervical vertebrae.	SW-NE	6-12 years	-	-	Caries (cavities) on lower deciduous molars and small abscess on left side of mandible.	Includes disarticulated material, representing at least 1 adult and 1 sub-adult.

<b><i>Skeleton no.</i></b>	<b><i>Pres.</i></b>	<b><i>Completeness</i></b>	<b><i>Alig.</i></b>	<b><i>Age</i></b>	<b><i>Sex</i></b>	<b><i>Stature</i></b>	<b><i>Pathology and trauma</i></b>	<b><i>Notes</i></b>
SK7	3	<25% Frontal, parietal, temporal and occipital skull fragments.	SW-NE	Middle adult A or B	? ♀	-	-	Includes disarticulated material, representing at least 1 adult and 1 sub-adult.
SK8	2/3	c. 40% Fragmentary skull, near complete vertebral column, sacrum, pelvis; left humerus, left & right ulna/radius; right clavicle; six metacarpals; 3 middle phalanges; 3 proximal phalanges.	SW-NE	22-39 years	♂	167cm (c. 5'6")	Slight calculus deposits on upper right M1, M2 and on lower right I1, I2 and left I2. Caries (cavities) upper right M3, C; lower right PM2, M1, M2 and left M2 and M3.	Green staining on left and right temporal regions. Includes disarticulated material, representing at least 1 adult. Includes 2 ferrous nails. Includes 1 fragment animal bone (sheep).
SK10	3	<25% Fragmentary skull and partial mandible, small fragment 1 <sup>st</sup> cervical vertebrae.	SW-NE	46 years+	? ♀	-	No upper teeth, all lower teeth excluding right I2,C and left I1 lost antemortem. Caries, calculus and abscesses visible on or around remaining teeth.	
Sk11	3	<25% Mandible; left and right pelvis fragments; left and right femur fragments; sacral vertebrae 1 and 2.	E-W	17 – 25 years	-	-	Slight calculus deposits on lower left M1 and M2.	Includes disarticulated material, representing at least 2 adults. Includes 2 animal bone fragments (cow or horse).
SK15	3	<25% Occipital, parietal and temporal skull; right tibia.	SW-NE	48 – 56 years	? ♀	165cm (c.5'5")	Skull has thickened/swollen appearance, possibly Paget's Disease.	
SK16	2/3	c.40% Fragmentary skull and mandible, vertebra/rib fragments; sacrum fragment; parts of left & right pelvis; left & right clavicles, humeri and scapulae fragments. Right ulna/radius.	SW-NE	46 years+	? ♀	162cm (c.5'4")	Vertebrae with osteophytic lipping, porosity and fusion between separate vertebrae.	Green staining on chin and left pelvis. Includes disarticulated material, representing at least 1 adult. Includes 2 small ferrous objects.
SK17	3	Disarticulated remains, probably chanel material. At least 1 juvenile and two adults represented.	-	-	-	-	-	

<b><i>Skeleton no.</i></b>	<b><i>Pres.</i></b>	<b><i>Completeness</i></b>	<b><i>Alig.</i></b>	<b><i>Age</i></b>	<b><i>Sex</i></b>	<b><i>Stature</i></b>	<b><i>Pathology and trauma</i></b>	<b><i>Notes</i></b>
SK18	3	Probably disarticulated or charnel material; 14 fragments of skull may be from 1 individual but uncertain.	-	-	-	-	Ostoma on cranium fragment, diameter 12mm.	
SK19	2	c. 40% Complete left humerus, radius, ulna; incomplete right humerus and ulna. Sacrum, lumbar and thoracic vertebrae; left & right pelvis; left clavicle and right scapula fragments.	SW-NE	16-18 years	-	-	-	Includes disarticulated material, representing at least 1 adult and 1 sub-adult.
SK20	2/3	<25% 14 skull fragments, left clavicle, radius and femur fragments.	-	Adult	-	-		Includes disarticulated remains, probably charnel material. At least 1 juvenile and 2 adults represented.
SK21	2/3	<25% 20 skull fragments.	NW-SE	Adult	-	-	-	Includes disarticulated remains, probably charnel material. At least 1 juvenile and 1 adult represented.
SK22	2	<25% Fragmentary skull, including mandible; upper five cervical vertebrae.	EW	45 – 52 years	♂	-	Severe wear of anterior teeth, with periodontal disease, calculus deposits and cavities on a number of teeth.	Includes disarticulated material, representing at least 1 adult.
SK23	3	<25% Skull fragments.	EW	Adult	-	-	-	Green staining on two skull fragments. Includes disarticulated material, representing at least 1 sub-adult. Includes 2 ferrous nails.