

24 Out Risbygate Street, Bury St Edmunds
BSE 392

Archaeological Monitoring Report

SCCAS Report No. 2012/125

Client: Design And Build (architect on behalf of client)

Author: Rob Brooks

October/2012

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24 Out Risbygate Street, Bury St Edmunds BSE 392

Archaeological Monitoring Report

SCCAS Report No. 2012/125

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Report Date: October/2012

HER Information

Site Code: BSE 392
Site Name: 24 Out Risbygate Street
Report Number 2012/125
Planning Application No: SE/12/0286
Date of Fieldwork: 19th to 26th June, 2012
Grid Reference: TL 8451 6444
Oasis Reference: suffolkc1-132865
Curatorial Officer: Dr Abby Antrobus
Project Officer: Rob Brooks
Client/Funding Body: House owner
Client Reference: N/A

Digital report submitted to Archaeological Data Service:

<http://ads.ahds.ac.uk/catalogue/library/greylit>

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Any opinions expressed in this report about the need for further archaeological work are those of the Field Projects Team alone. Ultimately the need for further work will be determined by the Local Planning Authority and its Archaeological Advisors when a planning application is registered. Suffolk County Council's archaeological contracting services cannot accept responsibility for inconvenience caused to the clients should the Planning Authority take a different view to that expressed in the report.

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Date: 25/10/2012

Signed:

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

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Summary












Excavation of two footing trenches, a soak-away trench and a soak-away pit at 24 Out Risbygate Street, Bury St Edmunds, revealed five child skeletons within individual grave cuts. The skeletons were in relatively good condition and are thought to be part of the cemetery of St Peter's Hospital, which was used from the 12th to the 17th century. No other features or finds were recorded. None of the skeletons were old enough to be sexed and four of them had no clear skeletal evidence for disease, or cause of death. However, the final individual had suffered symptoms of Klippel-Feil syndrome and may also have had its heart removed post-mortem, either for medical reasons or possibly as part of a superstitious practice.

Drawing Conventions

Plans

- Limit of Excavation 
- Features 
- Break of Slope 
- Features - Conjectured 
- Natural Features 
- Sondages/Machine Strip 
- Intrusion/Truncation 
- Illustrated Section  S.14
- Cut Number 
- Archaeological Features 

Sections

- Limit of Excavation 
- Cut 
- Modern Cut 
- Cut - Conjectured 
- Deposit Horizon 
- Deposit Horizon - Conjectured 
- Intrusion/Truncation 
- Top of Natural 
- Top Surface 
- Break in Section 
- Cut Number 
- Deposit Number 0007
- Ordnance Datum $\frac{18.45\text{m OD}}{\times}$

1. Introduction

Two footing trenches, as well as a soak-away trench and an associated soak-away pit, were excavated to the rear of 24 Out Risbygate Street, Bury St Edmunds, in Suffolk (Figs. 1 and 3). This involved the excavation of two footing trenches, from which ran a pipe trench that led to the soak-away pit. An archaeological monitoring was required for the project in order to record any archaeological features and recover any finds that could otherwise be uncovered or destroyed by the groundworks, particularly in relation to the medieval site of St Peter's Hospital, which is located close to the site and from the cemetery of which skeletons were also excavated at the adjoining property of 25 Out Risbygate Street. The work was carried out under the supervision of Dr Abby Antrobus, (of the Suffolk County Council Archaeological Service Conservation Team). The client funded the work, which was carried out between the 19th and 26th June, 2012.

2. Geology and topography

The site's geology has no superficial deposits recorded, but bedrock material consisting of Nodular Chalk, Seaford Chalk, Newhaven Chalk Formation and Culver Chalk Formations, is listed (BGS, 2012). On site the geology presented itself as mid-dark orange silty-sand with high gravel content, which was found within natural undulations in the chalk that occasionally rose to the surface.

The site was relatively level and ground levels on site were recorded at between 36.81m above the ordnance datum by the footing trenches and 37.16m by the soak-away hole. To the south-west of the site the ground levels continue to rise.

3. Archaeology and historical background

Rob Brooks and Andrew Tester

A documentary search indicated that the site of a former car sales centre, 60m west of the 24 Out Risbygate Street, which formed part of the medieval hospital of St Peter's, established in the 12th century (Taylor and Drury, 2011). The hospital was associated with the Benedictine Abbey that was at the centre of the medieval town. Despite the dissolution of the monasteries and associated hospitals in the 16th century, the site was

allowed to continue in use as a hospital at least into the middle of the 17th century and graves have been found on the site of St Peter's House and at 25 Out Risbygate Street, where twelve skeletons were recorded (BSE 218, Fig. 1, Anderson, 2003). A recent evaluation and subsequent excavation at the former car sales centre (on behalf of St Peter's House Care Home), revealed evidence of medieval and post-medieval remains, notably structural features, pits and various floor surfaces, which may have been part of the medieval hospital (BSE 367, Tester, forthcoming). The 1886 Ordnance Survey map of the area shows that the site was still clearly recognised as part of the St Peter's Hospital site at the time, as it lists St. Peter's Pits, St. Peter's Barn and St. Peter's Cottage (Fig. 2).

The site is located west of the main medieval core of the town (BSE 241), which was presumably deliberately chosen because of its role as a leper hospital. However, archaeological deposits in the area are still common, with a monitoring 30m south-west of the site revealing remains thought to relate to St Peter's Hospital, including human bone. The site of a medieval cross is located 200m to the east (BSE 094) and immediately east of this is the position of the Plague Stone, which is probably the base for another medieval cross (BSE 093). Other late medieval, post-medieval or undated remains in the area are listed in Table 1.

HER Reference and distance from site	Description
BSE 096 240m to east	'John Franze's Spittle Houses' marked on Thomas Warren's 1747 map of Bury, with frontage along Risbygate Street. Part of an earlier leper hospital.
BSE 097 350m to south-east	Kings Road small four storey smock mill with two storey base. Post-medieval.
BSE 171 45m to north	Chalk quarry pit. Post-medieval.
BSE 184 330m to south-east	Large ventilation shaft – possibly for galleried chalk mines. Uncertain date.
BSE 188 180m to east	Large ventilation shaft – possibly for galleried chalk mines. Uncertain date.
BSE 273 155m to north-west	Gibraltar Barracks. Post-medieval.
BSE 287 375m to south-east	Area of chalk pits. Undated.
BSE 370 200m to north-west	Evaluation within the college grounds revealed some undisturbed soil layers and one medieval/late medieval buckle.

Table 1. HER references as shown on Figure 1

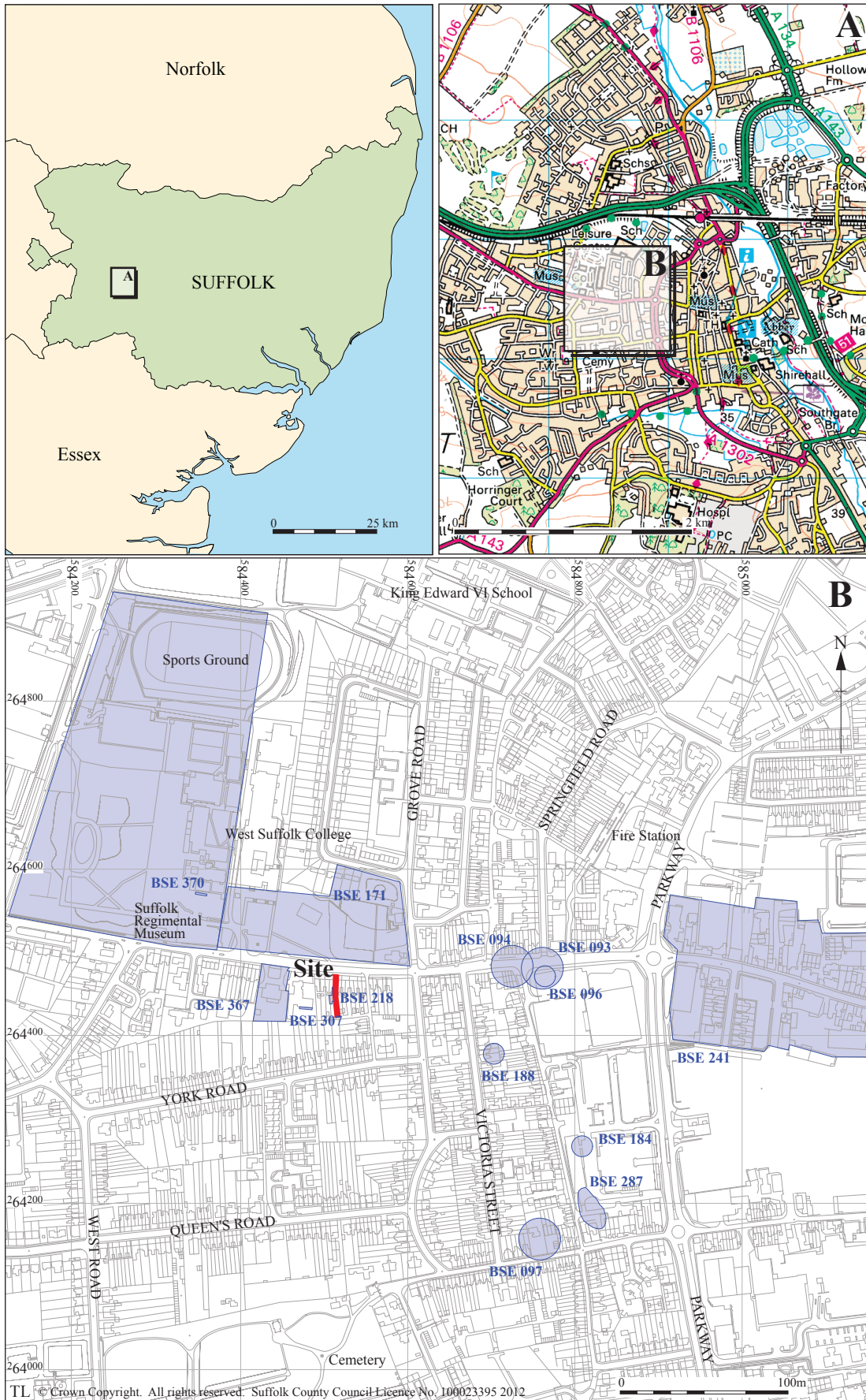


Figure 1. Site location with HER entries as mentioned in the text (blue)

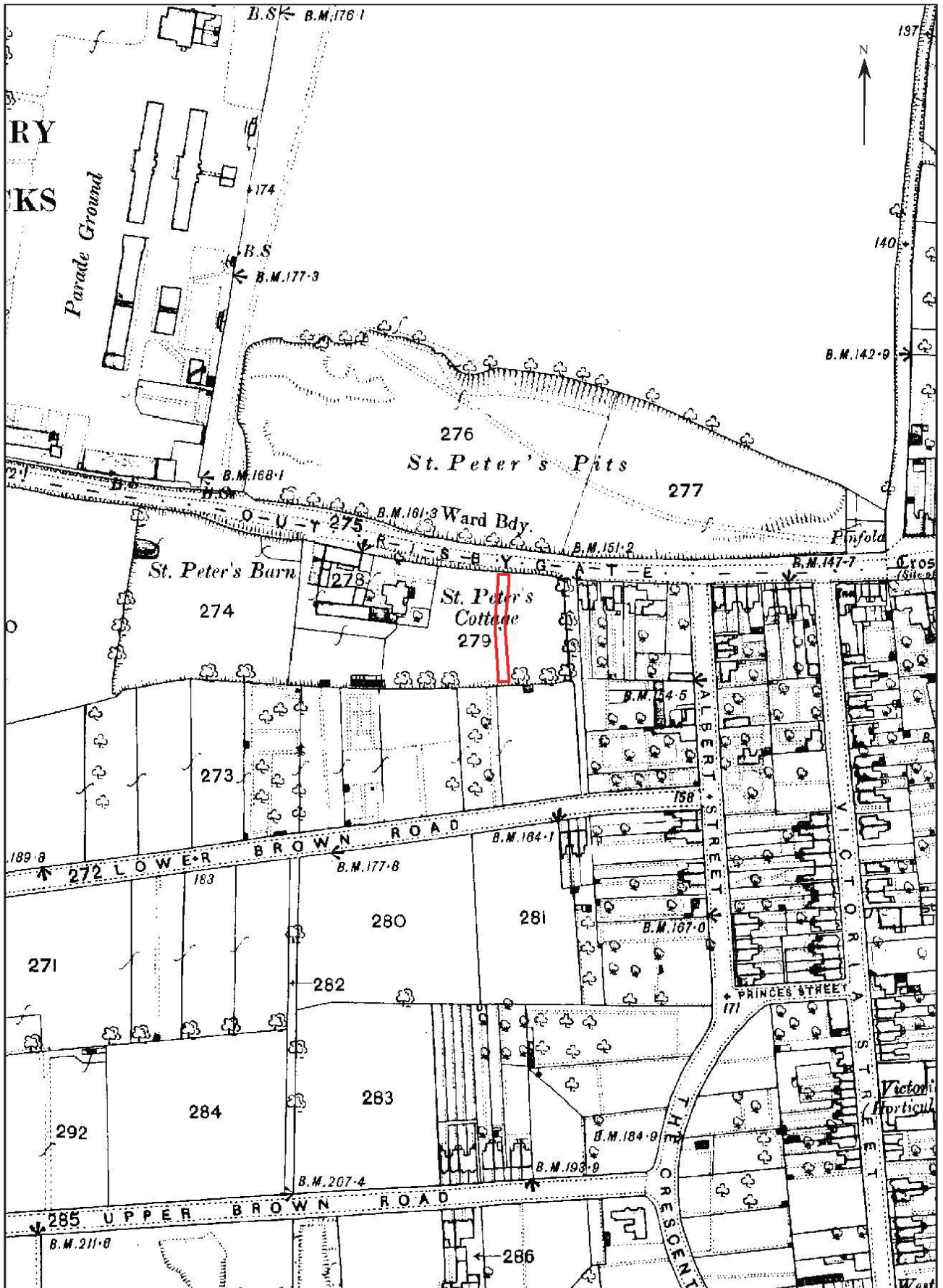
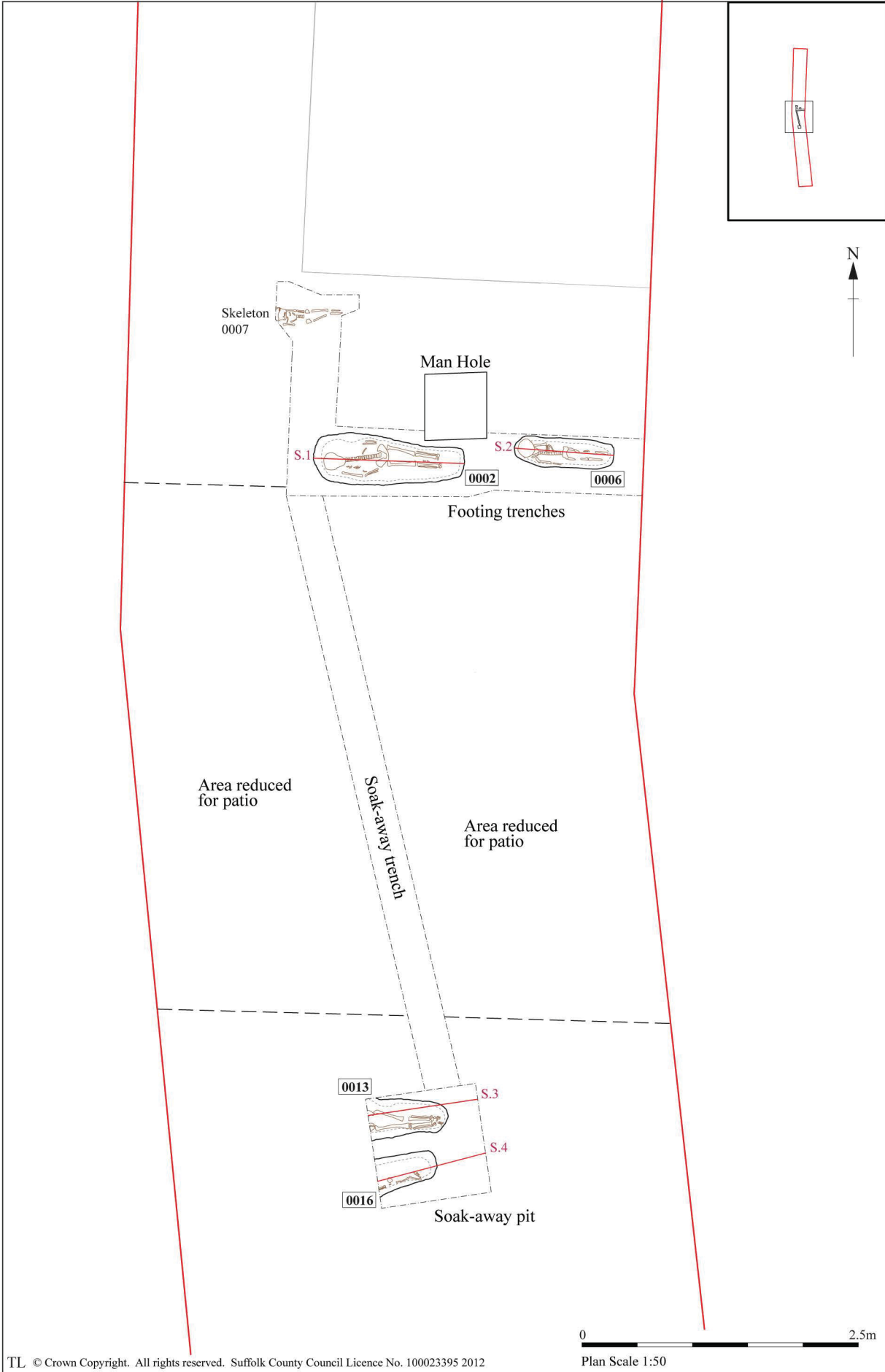


Figure 2. 1886 Ordnance Survey map with approximate site position (red)

4. Methodology

Excavation of the foundation trenches for the extension, the soak-away trench and soak-away pit was carried out by hand and the work was monitored constantly (Fig. 3). After the initial topsoil layer was removed, excavation was carried out by the monitoring archaeologist. When the trenching had been excavated, soil profiles were cleaned and recorded on *pro forma* trench record sheets, including descriptions and measurements. The graves were then cleaned and 100% excavated. The graves and skeletons were recorded using a single continuous numbering system (Appendix 1), on *pro forma* context sheets. Grave plans were drawn at a scale of 1:10, with profiles drawn at 1:20. Colour digital photographs (300 x 300 dpi resolution) were taken of the features, as well as of soil profiles. The overall site layout was hand planned at 1:50 using known OS points, whilst levels were obtained using a GPS (working within tolerances of <0.05m) and a dumpy level.

Site data has been input onto the MS Access database and recorded using the County HER code BSE 392. An OASIS form has been completed for the project (reference no. suffolkc1-132865) which is included as Appendix 2, and a digital copy of the report submitted for inclusion on the Archaeology Data Service database (<http://ads.ahds.ac.uk/catalogue/library/greylit>). The site archive is kept in the main store of Suffolk County Council Archaeological Service at Bury St Edmunds under HER code BSE 392.



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0 2.5m
Plan Scale 1:50

Figure 3. Site plan

5. Results

5.1 Descriptions

Within the foundation trenches and soak-away hole five skeletons were excavated, four of which were within individual cut graves, with skeleton 0007's grave cut not being clearly visible due to the confines of the trenching (Fig. 3). A fairly uniform soil profile was present across the site, with 0.1-0.3m of topsoil overlying 0.3-0.35m of orangish-brown, stony, chalky garden soil/subsoil. This was recorded above the individual grave fills and above the geology into which the graves were cut. A limited level of detail regarding the individual skeletons will be included here in Table 2 with photographic plates below, as a thorough report on the skeletons is present in Section 6. All of the skeletons had been laid supine, on an east-west alignment with skulls at the west end. No finds were present in any of the grave fills.

Identifiers and location	Cut description	Fill description	Skeleton layout and other notes
Skeleton 0001 Cut 0002 Fill 0003 South-west corner of footing trenches	The cut was located in the south-west corner of the foundation trenching (Pl. 1). It was sub-rectangular in plan, measuring 1.4m long east-west x 0.48m wide and deep, with 45° concave sides and a straight base, which sloped slightly down to the west.	Mid orangish-brown silty-clay and sand with common small stones. Deposit appears to be largely naturally-derived. No finds.	The skeleton was laid supine, with its skull to the west end of the cut.
Skeleton 0004 Cut 0006 Fill 0005 South-east corner of footing trenches	The cut was located approximately 0.5m east of grave 0002. The grave was sub-rectangular in plan, measuring 0.91m long east-west x 0.26m x 0.07m deep. Profile is shallow, with a gradual-sharp break of slope, slightly concave sides, leading to a flat/slightly concave base.	Mid greyish-orange-brown silty-sand. Moderate-frequent levels of small flints. Only fill of grave. Deposit appears to be largely naturally-derived. No finds.	The skeleton was laid supine, with its skull to the west end of the cut.
Skeleton 0007 Cut 0009 Fill 0008 North-west corner of footing trenches	Heavily disturbed grave cut that extends beyond the edges of the trenching. Presumed to be sub-rectangular, aligned E-W, as would correlate with other grave cuts. Flat/slightly concave base. >0.65m long east-west.	Mid brownish-grey clayey-sandy-silt. Frequent small flints. Only fill of grave. Quite disturbed by existing footings and pipe trenches. Mixture of disturbed grave fill and topsoil. Impossible to differentiate fill from overlying topsoil. No finds.	The skeleton was laid supine, with its skull to the west end of the cut.
Skeleton 0011 Cut 0013 Fill 0012	Sub-rectangular shape in plan, aligned west-east, though west end extends beyond limits of excavation. 30-80° concave sides. Base - flat to irregular. North of grave 0016. >0.72m long east-west x >0.37m x 0.11m deep.	Mid orangish-brown sandy-silt. Common small stones and chalk nodules. Deposit appears to be largely naturally-derived. No finds.	The skeleton was laid supine. Only the lower half of the skeleton was uncovered.
Skeleton 0014 Cut 0016 Fill 0015	Sub-rectangular shape in plan, aligned west-east, though west end extends beyond limits of excavation. 20-45° concave sides. Flat/slightly irregular base. South of grave 0013.	Mid orangish-brown sandy-silt. Common small stones and chalk nodules. Deposit appears to be largely naturally-derived. No finds.	The skeleton was laid supine. Only the lower half of the skeleton was uncovered.

Table 2. Context descriptions

5.2 Plates



Plate 1. Left – Skeleton 0001, within grave 0002

Skull to west, feet to east, 0.2m, 0.4m and 0.5m scales

Plate 2. Below – Skeleton 0004, within grave 0006

Skull to west, feet to east, 0.2m and 0.5m scales





Plate 3. Above – Skeleton 0007,
within grave 0009
Skull to west, feet to east, 0.5m
scale

Plate 4. Right – Skeleton 0011,
within grave 0013
Aligned east-west, with feet to
east, 0.2m and 0.5m scales





Plate 5. Skeleton 0014, within grave 0016
Aligned east-west, with feet to east (towards base of photo), 0.2m and 0.3m scales

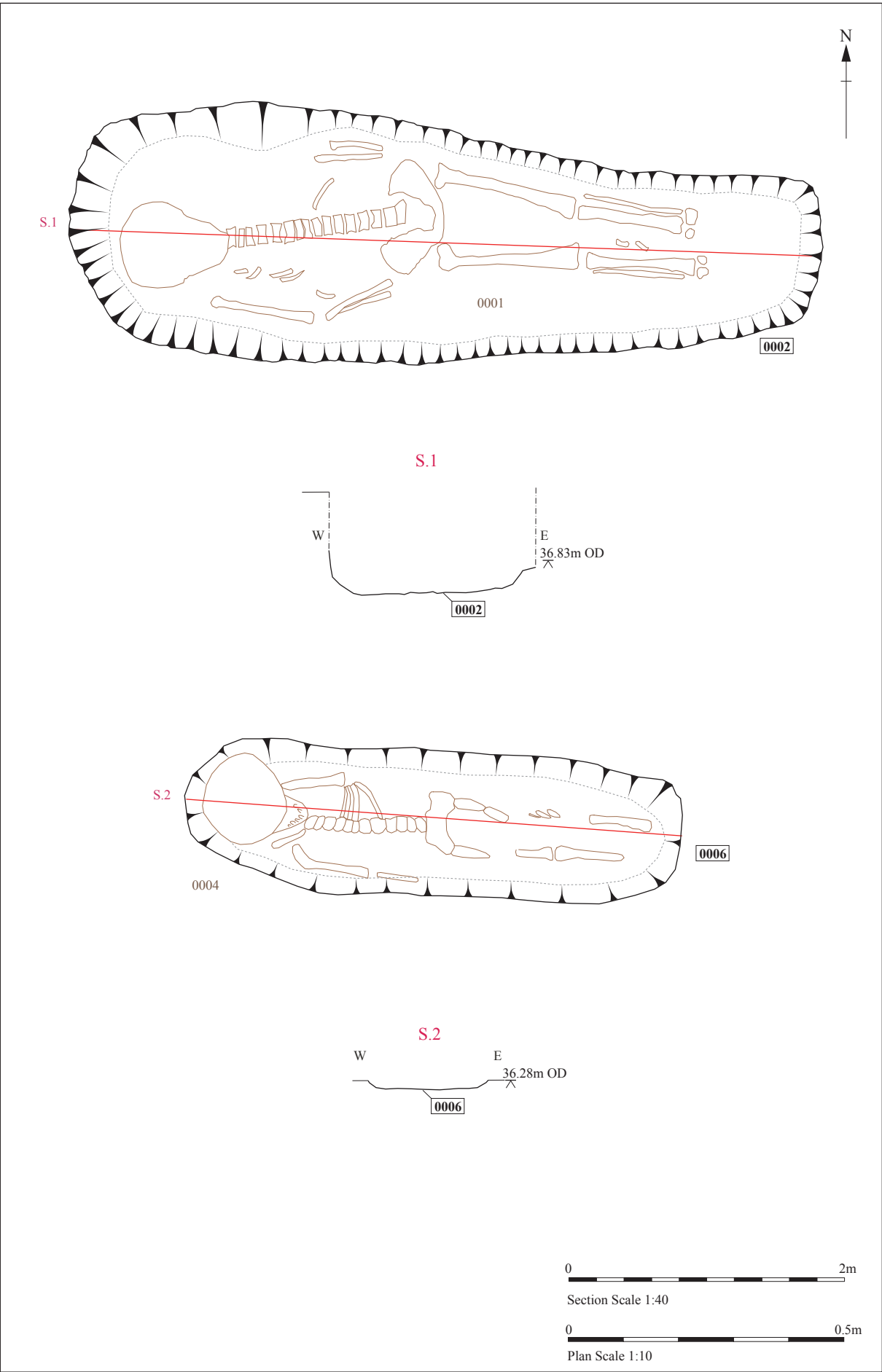


Figure 4. Detailed plans and sections of graves 0002 and 0006

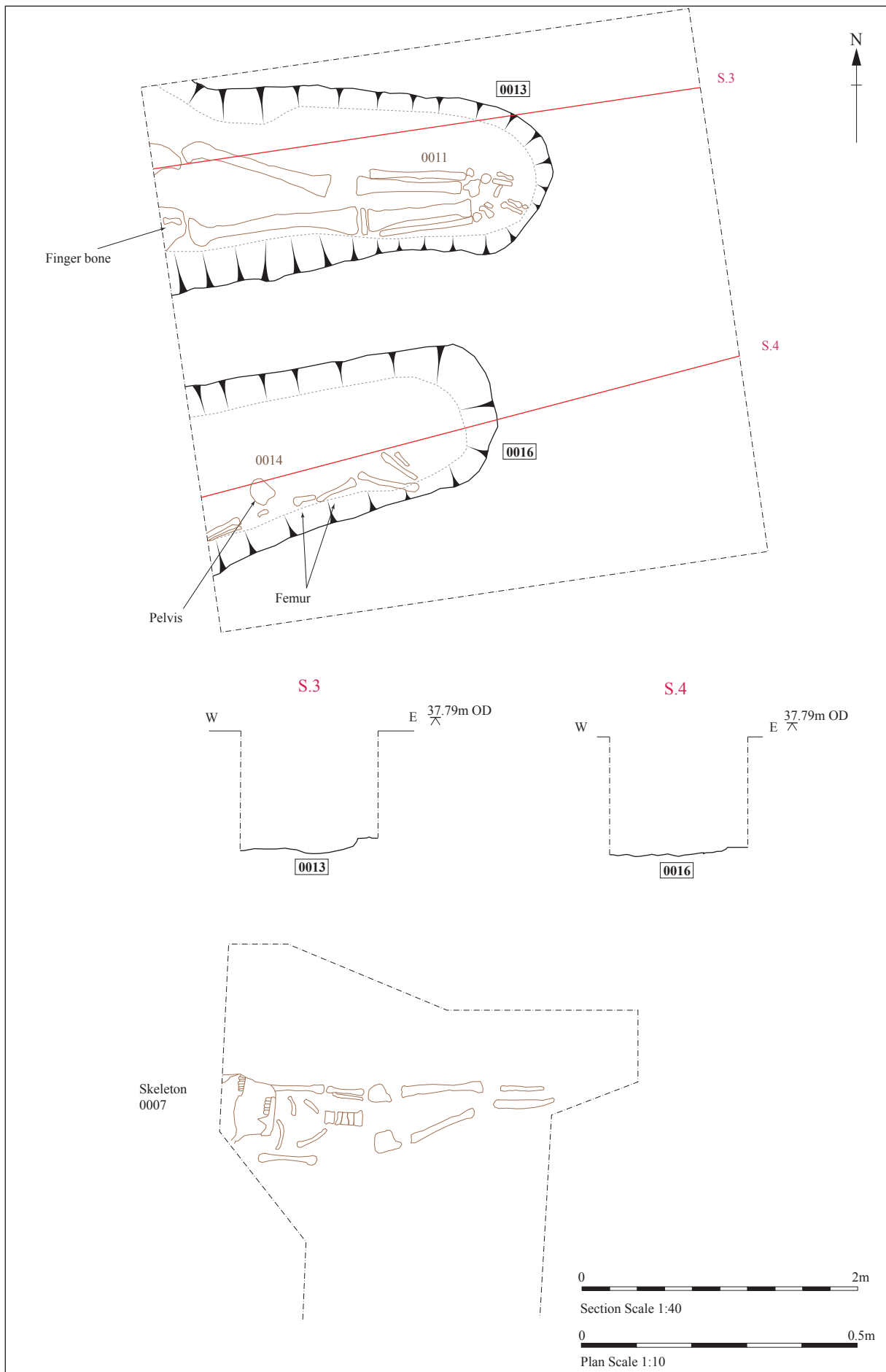


Figure 5. Detailed plans and sections of graves 0013 and 0016 and plan of skeleton 0007

6. Human skeletal remains

Sue Anderson

6.1 Introduction

Five articulated skeletons of probable medieval date were recorded. A catalogue is included as Appendix 3.

6.2 Methodology

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell (1981) and the Workshop of European Anthropologists (WEA 1980), with the exception of adult tooth wear scoring which follows Bouts and Pot (1989). Stature was estimated according to the regression formulae of Trotter and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978).

6.3 Results

Number of individuals

The minimum number of individuals from the articulated remains was five, each discrete burial containing the bones of only one individual. No additional 'extra bone' or disarticulated material was present.

Condition

The skeletons were in fair to good condition, although all had areas which were heavily fragmented. Three were incomplete.

Demographic analysis

Table 3 shows the age determinations for the five skeletons. Sexing was not possible due to the young age of the individuals.

Grave	Sk. No.	Dental age	Long bone age
0002	0001	c.10 years	c.8 years
0006	0004	c.2 years	c.18-24m
0009	0007	c.3-4 years	c.24m
0013	0011	-	c.8-9 years
0016	0014	-	c.12m

Table 3. Age of articulated skeletons

All five were children aged between 1–11 years, but there are discrepancies between the age suggested by their long bone diaphyseal lengths and their dental age. All three children with both sets of data were smaller than they should have been based on their teeth. The age suggested by the long bones of Sk. 0014 is likely to be fairly close to the dental age, although the individual may have been a few months older.

Metrical and morphological analysis

Bones were measured where possible and the results are included at the end of the catalogue. Tables of systematically-scored non-metric traits can also be found there. It was not possible to calculate any living statures as the individuals were all juvenile. No cranial indices could be calculated as all three surviving skulls were crushed.

Non-metric traits could only be partially scored in this group owing to the fragmented condition of the skulls and the young age of some of the individuals. No unusual traits were recorded.

Dental analysis

Three of the children had near-complete dentitions (Appendix 3).

Twenty-two teeth were present in Sk. 0001, of which ten were deciduous and twelve were fully erupted permanent teeth. Sixteen unerupted permanent teeth were also present. A large carious lesion had affected the interstitial areas of the upper right first and second deciduous molars, which had resulted in periodontal disease affecting the

alveolar bone in the same area, leaving the unerupted premolar exposed. Periodontal disease had affected the same area on the left maxilla.

Sk. 0004 had thirteen deciduous teeth and sixteen unerupted permanent teeth. No dental pathology was noted.

Eighteen deciduous teeth and twenty-four unerupted permanent teeth were present with Sk. 0007. No significant pathology was observed, but the upper left second deciduous molar had been chipped in life.

6.4 Pathology

Congenital and developmental anomalies

Unilateral occipitalisation of the atlas was observed in Sk. 0001. Synostosis affected the left articular facet and part of the arch (Pls. 6-7). The anterior portion was lost, but the right half was present and not fused. The posterior arch was bifid. The inferior articular facet of the left side was damaged post-mortem and the axis and C3–5 were missing. The appearance of the facet suggests that the axis may also have been fused to the atlas. The left side had encroached on the foramen magnum and there was rough new bone growth around the posterior margin. In addition, there was a deformity of the left side of the basi-occipital (basilar invagination) resulting in an indented appearance to the base of the skull on the left side.

In addition, it was noted that the individual had open arches of the first to third sacral segments (the rest were missing), a condition known as spina bifida occulta. This is normally asymptomatic in life.

The combination of these anomalies, including the possibility of further fusion of the cervical vertebrae (C1–C2 at least), suggests that the individual may have suffered from Klippel-Feil syndrome. The syndrome involves congenital malformation of the cervical spine, features of which include shortening of the neck and some limitation of neck movement (Cotta, 1978, 184). Occipitalisation of the atlas may be associated with headaches, neurological disorders, or reduced supply of blood to the brain due to compression of the vertebral artery (Kassim *et al.*, 2010), which may cause dizziness,

seizures or mental deterioration (Benson *et al.*, 2010). Some of these symptoms may not have affected this individual as they are more likely to develop in older patients. Other associated soft tissue conditions include renal disease, congenital heart disease and deafness, which can occur in up to a third of people with this condition. The syndrome is also associated with short stature, and this individual appears to have been short for his/her age (see below).

Metabolic disorders and indicators of physical stress

Porotic cribra orbitalia was present in both orbits (eye sockets) of Sk. 0007. This condition is thought to be associated with iron deficiency anaemia.

Evidence for some retardation of growth was seen in three of the skeletons for which both dental and long bone evidence was available. As noted above, the estimated age from tooth eruption in all three cases suggested that the children were older than their long bone growth suggested. The difference was most notable in the oldest of the three, Sk. 0001, and this may be due to the syndrome which this child appears to have suffered from (see above). However, the long bone lengths of Sk. 0007 suggest an age c.1–2 years younger than the teeth, which appears to suggest quite severe retardation for such a young child. The discrepancy in the youngest child, Sk. 0004, may not be significant but could amount to a few months. Whether the other two individuals in the group were also stunted is impossible to say. However it is interesting to note that Sk. 0011, aged c.8–9 years from the long bones, had slightly longer femora than those of the c.10–11-year-old Sk. 0001.

Infections and inflammatory response

Periosteal new bone growth was present medially on the distal halves of both tibiae of Sk. 0011. It was more pronounced on the left than the right. New bone formation of this type in young children may occur as a result of normal bone growth, but there is a possibility that it may have been caused by an inflammatory response. Periostitis is a common condition of the tibiae and can be related to soft tissue diseases such as infections of the shins, as well as other conditions not local to the bones themselves.

Trauma

A series of unhealed cuts was observed in the spine of Sk. 0001. The exposed bone was stained the same colour as the rest of the skeleton and it seems likely that the cuts occurred at or soon after death. The cuts are fine and sharp, and are likely to have been made by a knife or fine blade rather than any tools which might have been used in grave-digging. There is no evidence for disturbance of the grave following burial. The position of the cuts suggests that they are likely to have been made from the front of the spine, through the chest cavity, but no cuts were observed on any of the surviving rib fragments. The sternum was not present.

The cuts were present on the sixth, and ninth to eleventh thoracic vertebrae. The sixth was affected at the front of the body, with a diagonal cut running through approximately 80% of the upper surface and the left side of the bone (Pl. 8). The ninth and tenth vertebrae had parallel cuts in the left side (T9) and completely through the body (T10), the latter also having removed a small part of the anterior-superior border of the T11 (Pls. 9–11).

Also of note is the fact that, despite the good preservation of the skeleton and the presence of most bones apart from some fingers and toes, the second to fifth cervical vertebrae were missing, along with the left side of the C6. As noted above, it seems likely that the axis (C2) was fused to the atlas (C1) in life.

6.5 Summary and discussion

Five skeletons of children under the age of 12 years were recovered from the site. Previous excavations and chance finds nearby have suggested that a substantial cemetery exists to the east of St Peter's Hospital (Anderson, 2003). Both children and adults have been found.

The four youngest skeletons provided little information other than their ages at death and some evidence for minor bone diseases which may be related to physical stress. It is likely that they suffered from soft tissues diseases which killed them without leaving any evidence in their skeletons.

Sk. 0001 provided the most evidence for pathological changes to the skeleton, as well as a puzzle relating to unhealed cut marks and missing bones. The positions of the cut marks in the thoracic spine correspond with the upper and lower extent of the heart in life. The presence of a large stone within the right rib cage (Pl. 12) may be further evidence for the opening up of the chest cavity, as it seems unlikely that such a large stone could have ended up in this position unless it had been deliberately placed in the body.

Removal of the heart for burial elsewhere was not uncommon in the medieval period, although it would normally be associated with the nobility or church hierarchy (Mafart *et al.*, 2004, 67). More likely in this case, perhaps, is the removal of the heart during dissection for anatomical or medical purposes. This might have been done in an attempt to learn more about the individual, if he showed outward symptoms related to Klippel-Feil syndrome. Although there are no clear cut marks on the surviving fragments of neck, it is possible that these vertebrae had not simply decayed but had also been removed prior to burial. However, if medical intervention were the reason for the cut marks, an autopsy seems more likely than anatomical dissection, which would have been carried out at the universities of the period, not the hospitals.

Another, more gruesome, possibility which might account for the removal of the heart and possible severing of the neck is the superstitious belief in revenants. The relevant practice seems to have been more usual after burial, with the corpse being disinterred, the heart removed, the head severed and the body burnt or dismembered (Bartlett, 2000, 614–5). In the Bury case the body was not treated in such a disrespectful manner, but perhaps the procedure was carried out before burial with the aim of preventing this individual, who may have had mental problems in life, from rising from the dead and disturbing the living.

6.6 Recommendations

It is recommended that a radiocarbon date should be obtained for sk. 0001 in order to place these findings in context.

6.7 Plates



Plate 6. Base of the occipital of Sk. 0001, with loose right atlas fragment *in situ*

The left side of the atlas is fused to the skull and the inferior facet surface is lost. There is roughened new bone growth at the posterior rim of the foramen magnum.



Plate 7. Base of skull 0001

Showing fused atlas (arrowed) under the basi-occipital and basal invagination (shown by the higher part of the foramen magnum border to the left (right side of the picture)).



Plate 8. T6 vertebra of Sk. 0001
Showing cut mark across the body (arrowed).



Plate 9. Left side of T9-11 vertebrae of Sk. 0001
Showing diagonal cut marks (arrowed).



Plate 10. Cut across the body of Sk. 0001 T10.



Plate 11. Shallow cut across body of Sk. 0001 T9.



Plate 12. Sk. 0001 *in situ*
Showing large stone within rib cage (arrowed).

7. Conclusions and recommendations for further work

Monitoring of the groundworks has revealed a further extension of the St Peter's hospital cemetery, indicated by the presence of five child skeletons within individual grave cuts, following typical Christian burial traditions in terms of layout and in the absence of grave goods. The skeletons have not been securely dated, but presumably fall within the hospital's use between the 12th and 17th centuries. The concentration of children in this area would tend to indicate that it was used particularly for the burial of younger people, whilst the skeletons recorded at the adjoining property to the west were all adult burials.

Whilst four of the skeletons showed no major evidence of bone pathology, probably dying as a result of soft tissue-related diseases, the presence of symptoms associated with Klippel-Feil syndrome in skeleton 0001 is of particular note. This is not only because of its rarity, but also because it may explain the cut marks upon the thoracic spine and the possible replacement of the heart with a large stone. One explanation for this may be that it is evidence of a medical procedure such as an autopsy. Another possibility is that it is an example of the medieval funerary practice of removing the heart and re-interring it elsewhere in an appropriate place of worship, a rite which was sometimes undertaken during the medieval period for high status individuals, both religious and secular. As the child may have received long-term care in this religious community, this may explain the treatment. A further possibility is that the individual's heart was removed as part of a superstitious belief that this would prevent the person returning from the dead as a revenant to disturb the living.

As a final stage of work, it is recommended that a carbon-14 date be ascertained for this skeleton. This would date the remains as medieval or post-medieval, which may well help to clarify the reason for the unusual treatment it appears to have been put through. These works will be presented within a final short addendum to this report and no further work will be required following this.

The groundworks have also shown that the extent of the cemetery continues and that the graves remain well preserved within the area. As a result of this the nature of further developments in the area may need to be considered carefully in order to reduce the risk to any other heritage assets.

8. Archive deposition

Paper and photographic archive: SCCAS Bury St Edmunds

Digital archive: SCCAS R:\Environmental Protection\Conservation\Archaeology\
Archive\Bury St Edmunds\BSE 392 24 Out Risbygate Monitoring

Digital photographic archive: SCCAS R:\Environmental Protection\Conservation\
Archaeology\Catalogues\Photos\HQA-HQZ\HQJ 73-99 and HQK 1-10

Finds and environmental archive: SCCAS Bury St Edmunds.

9. Acknowledgements

The fieldwork was carried out by Rob Brooks and John Sims and directed by Rob Brooks. Project management was undertaken by Andrew Tester, who also provided advice during the production of the report.

Post-excavation management was provided by Richenda Goffin. Finds processing was undertaken by Jonathan Van Jennians. The specialist finds report was produced by Sue Anderson.

The report illustrations were created by Beata Wieczorek-Olesky and the report was edited by Richenda Goffin.

11. Bibliography

- Anderson, S., 2003, *25 Out Risbygate, Bury St Edmunds, BSE218, A Report on the Archaeological Monitoring*, 2003. SCCAS Report No. 2003/88.
- Bartlett, R., 2000, *England under the Norman and Angevin Kings 1075–1225*, Oxford.
- Bass, W., 1971, *Human Osteology*, Missouri Archaeol. Soc.
- Benson, M., Fixsen, J., Macnicol, M and Parsch, K. (eds.), 2010, *Children's Orthopaedics and Fractures*, Springer.
- Bouts, W. and Pot, Tj., 1989, 'Computerized recording and analysis of excavated human dental remains', in Roberts, C.A., Lee, F. and Bintliff, J. (eds), *Burial Archaeology: current research, methods and developments*, BAR Brit. Ser. 211.
- BGS, 2012, Information obtained from <http://www.bgs.ac.uk/products/digitalmaps/> and reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved.
- Brothwell, D., 1981, *Digging up Bones*, London, BM(NH)/OUP.
- Cotta, H., 1978, *Orthopaedics, a brief textbook*, Stuttgart: Georg Thiem Verlag.
- Krogman, W., 1978, *The Human Skeleton in Forensic Medicine*, Illinois: C.C. Thomas.
- Mafart, B., Pelletier, J.-P. and Fixot, M., 2004, 'Post-mortem ablation of the heart: a medieval funerary practice. A case observed at the cemetery of Ganagobie Priory in the French Department of Alpes de Haute Provence', *Int. J. Osteoarchaeol.* 14, 67–73.
- Ortner, D. and Putschar, W., 1981, *Identification of Pathological Conditions in Human Skeletal Remains*, Washington: Smithsonian Institute.
- Taylor, G., and Drury, D., 2011, *Archaeological Desk-Based Assessment of Land Adjacent to 29 Out Risbygate, Bury St Edmunds*, Report No. 114/10, Heckington: Archaeological Project Services
- Tester, A., forthcoming, *Excavation report for Land Adjoining St Peter's House, Bury St Edmunds, BSE 367*, Bury St Edmunds: SCCAS
- Trotter, M., 1970, 'Estimation of stature from intact long limb bones', in Stewart, T.D. (ed.), *Personal Identification in Mass Disasters*, Washington: Smithsonian Institute.
- Waldron, T., 2009, *Palaeopathology, Cambridge Manuals in Archaeology*, Cambridge: Cambridge university Press.
- WEA, 1980, 'Recommendations for age and sex diagnoses of skeletons', *J. Human Evolution* 9, 517-49.
- Wells, C., 1974, 'Osteochondritis dissecans in ancient British material', *Medical History* 18, 365–9.

Appendix 1. Context list

Context No	Feature No	Grid Sq.	Feature Type	Description	Length	Width	Depth	Small Finds	Cuts	Cut by	Over	Under	Finds	Sample	Group No	Phase	Spotdate
0001	0002		Skeleton Other	Adolescent/child skeleton within clear grave cut 0002. Aligned E-W, with head at west end. Supine burial. Skull damaged by excavation of trenches. Partial remains of hands survived. Some feet bones were found roughly in-situ, with more between the lower legs. No sample taken due to disturbance levels and lack of definitive dating evidence. Total length - 1.1m. Femur length - 0.28m. Skull level - 36.23m. Pelvis level - 36.15m. Lower leg level (feet not present) - 36.20m. Typical Christian burial from St Peter's cemetery.							0002	0003	No	No			
0002	0002		Grave Cut	Linear cut in plan, aligned E-W. 45-80° concave sides, with curving break of slope to base. Flat base. Grave cut for skeleton 0001. Cut into dark orange gravelly-silty-sand and coarse cream sandy-chalk.	1.4	0.48	0.24					0001	No	No			
0003	0002		Grave Fill	Mid orangish-brown silty-clay and sand mix. Friable compaction. Common small sub-angular stones. Clear horizon clarity with natural geology. Only fill of grave cut, excluding skeleton 0001. Grave back fill. Largely naturally derived.			0.24				0001		No	No			
0004	0006		Skeleton Other	Small child skeleton, aligned E-W in Christian style, i.e. supine with head to west. Appears to have been laid flat on back. Left arm possibly laid over the body, with right arm straight. No sample taken due to disturbance levels and lack of definitive dating evidence. Total length - 0.8m. Femur length - 0.18m. Skull level - 36.23m. Pelvis level - 36.17m. Lower leg level (feet not present) - 36.24m. Typical Christian burial from St Peter's cemetery.							0006	0005	No	No			
0005	0006		Grave Fill	Mid greyish-orange-brown silty-sand. Friable compaction, with moderate-frequent small angular, sub-angular and rounded flints. Only fill of grave 0006, around skeleton 0004. The horizon with the natural geology was clear. Back fill of grave. Largely naturally-derived.	0.91	0.26	0.07				0004		No	No			
0006	0006		Grave Cut	Sub-rectangular in plan, following a traditional grave shape. Profile is shallow, with a gradual-sharp break of slope, slightly concave sides, leading to a flat/slightly concave base. Contained skeleton 0004 and fill 0005. Aligned E-W, supine, with head to west. Cut of a child's grave.	0.91	0.26	0.07					0004	No	No			
0007	0009		Skeleton Other	Child skeleton buried next to SW corner of house. Largely contained in trenching. No feet or hands. Right lower arm missing. Tibia and fibula for right(?) leg only. Skeleton obviously somewhat disturbed during house construction and installation of foul drain. Skull quite heavily damaged prior to these works and extends beyond trenching. No sample taken due to disturbance levels and lack of definitive dating evidence. Total length - >0.62m. Femur length - 0.15m. Skull level - 36.35m. Pelvis level - 36.24m. Lower leg level (feet not present) - 36.26m. Typical Christian burial from St Peter's cemetery.							0009	0008	No	No			

Context No	Feature No	Grid Sq.	Feature Type	Description	Length	Width	Depth	Small Finds	Cuts	Cut by	Over	Under	Finds	Sample	Group No	Phase	Spotdate	
0008	0009		Grave Fill	Mid brownish-grey clayey-sandy-silt. Friable-firm compaction. Frequent small rounded-angular flints. Clear horizon clarity with natural geology. Only fill of grave cut. Quite disturbed by house footings and pipe trenches. Mixture of disturbed grave fill and topsoil. Impossible to differentiate fill from overlying topsoil.	>0.65	?	?				0007		No	No				
0009	0009		Grave Cut	Presumed to be a rectangular shape with rounded ends, aligned E-W, as would match skeleton 0007's layout and correlate with other on-site grave cuts. Profile not visible in confines of trench and the southern side was truncated. Flat/slightly concave base. Heavily disturbed grave cut that also extends beyond the edges of the trenching.	>0.65							0007		No	No			
0010			Unstratified Finds	Unstratified finds from site.										No	No			
0011	0013		Skeleton Other	Supine burial. Head (not excavated) to west, feet to east. Within grave [0013]. Only partially excavated due to position in soak-away trench. Feet clustered together, so hard to differentiate between left and right. Hands resting on, and have fallen through, the pelvis. No sample taken due to low quantity of sealed material. Total length - 0.65m (halfway along down pelvis to end of feet). Femur length - 0.28m. Pelvis level - 36.4m. Lower leg level (feet not present) - 36.38m. Typical Christian burial from St Peter's cemetery.							0013	0012	No	No				
0012	0013		Grave Fill	Mid orangish-brown sandy-silt of friable compaction. Common small stone and chalk nodule inclusions. Clear horizon clarity with chalk geology. Only fill of grave. Grave fill of [0013]. Skeleton 0011.			0.11				0011		No	No				
0013	0013		Grave Cut	Rectangular shape in plan, with rounded ends, aligned W-E. Variable profile - 30-80° concave sides, with curving break of slope to base. Base - flat to irregular. North of grave [0016]. Grave cut for skele 0011.	>0.72	>0.37	0.11					0011		No	No			
0014	0016		Skeleton Other	Child/toddler skeleton. Supine burial. Head to west (although this was not uncovered), feet to east. Radius & ulna, down to feet uncovered. Lots of bone missing. Right femur broken. Right radius, ulna and a metacarpal or phalange laid by side. Left arm not present at all. Left leg very disturbed. Pelvis disturbed/damaged. No sample taken due to low quantity of sealed material. Total length - >0.4m (radius/ulna to end of feet). Femur length - 0.14m. Pelvis level - 36.33m. Lower leg level (feet not present) - 36.33m. Typical Christian burial from St Peter's cemetery.							0016	0015	No	No				
0015	0016		Grave Fill	Mid orangish-brown sandy-silt of a friable compaction. Common small variable stones and small chalk nodules. Clear horizon clarity with geology. Only fill of grave. Grave fill.			0.08				0014		No	No				

Context No	Feature No	Grid Sq.	Feature Type	Description	Length	Width	Depth	Small Finds	Cuts	Cut by	Over	Under	Finds	Sample	Group No	Phase	Spotdate
0016	0016		Grave Cut	Rectangular shaped grave cut in plan, with rounded ends. Aligned W-E. 20-45° concave sides, with curving break of slope to base. Flat/slightly irregular base. South of grave [0013]. Grave cut for skeleton 0014.	>0.55	0.36	0.08					0014	No	No			

Appendix 2. OASIS form

OASIS ID: suffolkc1-132865

Project details

Project name	BSE 392 24 Out Risbygate Street monitoring, Bury St Edmunds
Short description of the project	Excavation of two footing trenches, a soak-away trench and a soak-away pit at 24 Out Risbygate Street, Bury St Edmunds, revealed 5 child skeletons within individual grave cuts. The skeletons were in relatively good condition and are thought to be part of the cemetery of St Peter's Hospital, which operated from the 12th to the 17th century. No other features or finds were recorded. None of the skeletons were old enough to be sexed and four of them had no clear skeletal evidence for disease, or cause of death. However, the final individual had suffered symptoms of Klippel-Feil syndrome and may also have had its heart removed post-mortem, either for medical reasons or possibly as part of a superstitious practice.
Project dates	Start: 19-06-2012 End: 26-06-2012
Previous/future work	No / Not known
Any associated project reference codes	BSE 392 - HER event no.
Any associated project reference codes	BSE 392 - Sitecode
Any associated project reference codes	SE/12/0286 - Planning Application No.
Any associated project reference codes	2012/125 - Contracting Unit No.
Type of project	Recording project
Current Land use	Other 5 - Garden
Monument type	GRAVE Medieval
Monument type	GRAVE Post Medieval
Significant Finds	HUMAN REMAINS Medieval
Significant Finds	HUMAN REMAINS Post Medieval
Investigation type	""Watching Brief""
Prompt	Direction from Local Planning Authority - PPS

Project location

Country England

Site location	SUFFOLK ST EDMUNDSBURY BURY ST EDMUNDS BSE 392 24 Out Risbygate Street monitoring
Postcode	IP33 3RJ
Study area	30.00 Square metres
Site coordinates	TL 8451 6444 52 0 52 14 48 N 000 42 11 E Point
Height OD / Depth	Min: 36.43m Max: 36.46m

Project creators

Name of Organisation	Suffolk County Council Archaeological Service
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Dr Abby Antrobus
Project director/manager	Andrew Tester
Project supervisor	Rob Brooks
Type of sponsor/funding body	Private Owner

Project archives

Physical Archive recipient	Suffolk County Council Archaeological Service
Physical Archive ID	BSE 392
Physical Contents	"Human Bones"
Digital Archive recipient	Suffolk County Council Archaeological Service
Digital Archive ID	BSE 392
Digital Contents	"Human Bones","other"
Digital Media available	"Database","Images raster / digital photography","Spreadsheets","Survey","Text"
Paper Archive recipient	Suffolk County Council Archaeological Service
Paper Archive ID	BSE 392
Paper Contents	"Human Bones","other"
Paper Media available	"Context sheet","Correspondence","Plan","Report","Section"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	24 Out Risbygate Street, Bury St Edmunds, BSE 392, Archaeological Monitoring Report
Author(s)/Editor (s)	Brooks, R.

Other bibliographic details	SCCAS Report No. 2012/125
Date	2012
Issuer or publisher	SCCAS
Place of issue or publication	Bury St Edmunds
Description	A4, comb bound, white card covers, in colour, with three appendices (also available as a pdf)
Entered by	Rob Brooks (rob.brooks@suffolk.gov.uk)
Entered on	23 October 2012

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Wednesday 9 May 2012
Cite only: <http://www.oasis.ac.uk/form/print.cfm?ID=136164> for this page

Appendix 3. Human skeletal remains catalogue

Notes

Methods of age and sex determination are generalised to give an idea of the bones used. Sexing based on the pelvis used more traits than entries might suggest. "DF" stands for discriminant function, a statistical method of determining sex, where +2.0 is very male, -2.0 very female (WEA, 1980).

Teeth are recorded in the form illustrated below:

Maxilla	R.	8	7	6	5	4	3	2	1	1	2	3	4	5	X	7	U	L.
Mandible		O	7	6	5	4	-	-	-	/	/	3	4	5	6	7	C	
			A												C			

Code	Meaning
1 2 3 etc.	Tooth present in jaw.
X	Tooth lost ante-mortem.
/	Tooth lost post-mortem.
U, u	Tooth unerupted.
O, o	Tooth in process of erupting.
C	Tooth congenitally absent.
- - -	Jaw missing.
A	Abscess present (above/below tooth number).
C	Caries present (above/below tooth number).

Lower case letters a-e and u/o are used for deciduous teeth. Attrition patterns are coded according to the scores suggested by Bouts and Pot (1989, modified version of Brothwell's original tooth wear chart).

A few abbreviations have been used in the catalogue for commonly occurring pathological conditions and anatomical regions. These are as follows:

OA	osteoarthritis	MT	metatarsal
OP	osteophytosis, osteophytes	MC	metacarpal
C	cervical)	L.	left
T	thoracic) vertebrae	R.	right

L lumbar)

Any other abbreviations should be self-explanatory, since they are simply shortened forms of bone names or anatomical areas (prox = proximal, lat = lateral etc.).

Tables of measurements for the skull and major long bones are included after the catalogue of disarticulated remains. Tables of non-metric trait scores are also provided.

Sk. 0001 Child, c.10 years.

Description: Near-complete skeleton missing mainly bones of the hands and feet.
Condition: Good, some areas smashed, particularly the skull and left shoulder area.
Determination of age: Diaphyseal lengths (c.8-9 years), tooth calcification and eruption (c.10 years).
Determination of sex: -

Teeth:

				C	C														
U	U	6	e	d	c	2	1	1	2	c	U	U	6	U	U				
U	U	6	e	d	c	2	1	1	2	c	d	e	6	U	U				

Attrition scores:

-	-	1	4	5	2+	2-	1	1	1	2+	-	-	1	-	-				
-	-	2-	5+	4+	3+	2-	2-	2-	2-	3-	4+	5	2-	-	-				

Dental pathology: Caries in deciduous molars, large lesions, interstitial. Slight calculus.
 Pitting/new bone formation around upper canines and deciduous molars, probable periodontal disease.

Pathology:

Congenital anomaly: Spina bifida occulta of S1-3 (rest missing). Ankylosis of L side of atlas to occipital, bifid arch. Also frag of another atlas (possibly from a younger child).

Trauma: Straight knife-like cuts were noted on three thoracic vertebrae, all unhealed. These appear to have been made in antiquity, as staining is uniform across the edges of the cuts. A cut across the T6 body was made from the top surface to the left side. The left side of the body of the T9 was affected, with a shallow cut running diagonally from superior-posterior to inferior-anterior. The body of T10 had been removed with a single cut of similar angle to that on the T9, and a small portion of the front of the T11 had also been removed.

Notes: 3 frags of animal bone.

Sk. 0004 Child, c.2 years.

Description: Most bones present, but skull, lower arms, hands and feet all incomplete.
Condition: Fair but fragmented, especially skull, torso, femora. Some surface erosion, especially of femora.
Determination of age: Diaphyseal lengths (c.18-24m), tooth calcification and eruption (c.2 years).
Determination of sex: -

Teeth:

-	-	U	-	-	-	-	a	a	b	-	-	e	U	-	-				
-	-	U	e	d	c	b	/	a	b	c	d	e	U	U	-				

Attrition scores:

-	-	-	-	-	-	-	2+	2+	1	-	-	1	-	-	-				
-	-	-	2-	2-	2	2-	-	2+	2-	2-	2-	2-	-	-	-				

Dental pathology: None.

Sk. 0007 Child, c.3–4 years.

Description: Most of skeleton represented apart from left shoulder, lower right arm, hands and feet.

Condition: Fair, but skull very smashed and incomplete.

Determination of age: Diaphyseal lengths (c.24m), tooth calcification and eruption (c.3–4 years).

Determination of sex: -

Teeth:

-	-	U	e	d	c	b	a		a	b	c	d	e	U	-	-
-	-	U	e	d	/	b	/		a	b	c	d	e	U	-	-

Attrition scores: - - - 2- 2- 2- 2- 2+ 2+ 2- 2- 2- 2- - - -

- - - 2- 2 - 2- - 2+ 2- 2 2- 2- - - -

Dental pathology: None.

Pathology:

Cribra orbitalia: Porotic lesions in both orbits.

Sk. 0011 Child, c.10–11 years.

Description: Lower half of skeleton from L4 and mid-radius down.

Condition: Good.

Determination of age: Diaphyseal lengths (c.8-9 years). Larger than 0001, so probably closer to c.10-11 years.

Determination of sex: -

Pathology:

Infection: Periosteal new bone on distal; halves of medial surfaces of both tibiae, L>R.

Sk. 0014 Child, c.10–11 years.

Description: Lower R arm and hand, R innominate, R femur, frags of L femur, tibiae and fibula, three metatarsals.

Condition: Fair but fragmented.

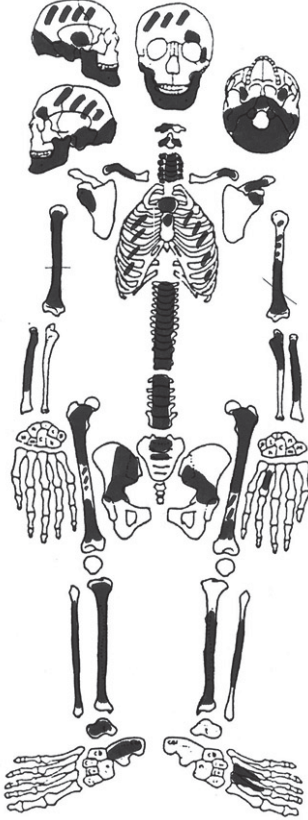
Determination of age: Diaphyseal lengths (c.12m).

Determination of sex: -

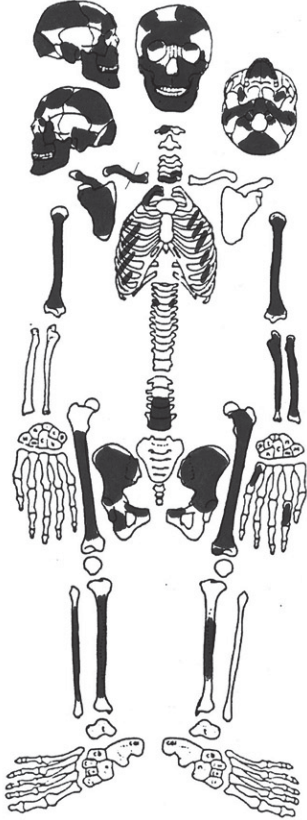
Skeleton diagrams



0001



0004



0007



0011



0014

Post-cranial measurements

		Sk.	0001	0004	0007	0011	0014
Femur							
Diaphyseal length	FeL1	R	254			260	c.120
		L	255		151	262	
Min subtrochanteric A-P diameter	FeD1	R	16	13		16	9
		L	16	12	12	17	
Max subtrochanteric M-L diameter	FeD2	R	19	15		23	10
		L	21	14	15	23	
Minimum shaft diameter (A-P)	FeD3	R	16		11	17	
		L	16		12	16	
Maximum shaft diameter (M-L)	FeD4	R	16		11	16	
		L	17		11	17	
Meric Index 100(FeD1/FeD2)		R					
		L					
Tibia							
Diaphyseal Length	TiL1	R	203	112		207	
		L	203			205	
A-P diameter at nutrient foramen	TiD1	R	20	12	12	19	10
		L	19	12		19	
M-L diameter at nutrient foramen	TiD2	R	15	11	11	17	9
		L	15	10		17	
Cnemic Index 100(TiD2/TiD1)		R					
		L					
Fibula							
Diaphyseal Length	FiL1	R					
		L	196				
Humerus							
Diaphyseal Length	HuL1	R	185	116	118		
		L			118		
Radius							
Diaphyseal Length	RaL1	R	139				
		L	135		89		
Ulna							
Diaphyseal Length	UIL1	R	152				82
		L	150		97		
Calcaneus							
Diaphyseal Length	CaL1	R	46				
		L	46				
Clavicle							
Diaphyseal Length	CIL1	R					
		L					

Measurements in mm.

Cranial non-metric traits

	Sk.	0001	0004	0007
Highest nuchal line	R	0	0	0
	L	0	0	0
Ossicle at lambda/Inca		-	-	
Lambdoid wormian bones	R	-	-	+
	L	-	-	+
Parietal foramen	R	-	-	-
	L	-	-	-
Bregmatic bone		0	-	-
Metopism		0	-	0
Coronal wormian bones	R	0	-	-
	L	0	-	-
Epipteric bone	R	-	-	-
	L	-	-	-
Fronto-temporal articulation	R	-	-	-
	L	-	-	-
Parietal notch bone	R	-	-	-
	L	-	-	-
Asterionic ossicle	R	-	-	-
	L	-	-	-
Auditory torus	R	0	-	-
	L	-	-	-
Huschke's foramen	R	0	-	-
	L	-	-	-
Post-condylar canal	R	0	-	-
	L	+	-	-
Double condylar facet	R	-	-	-
	L	-	-	-
Precondylar tubercle	R	0	-	-
	L	0	-	-
Double hypoglossal canal	R	+	-	-
	L	+	-	-
Foramen ovale incomplete	R	-	-	-
	L	-	-	-
Extra palatine foramen	R	+	-	-
	L	+	-	-
Palatine torus	R	+	-	-
	L	+	-	-
Maxillary torus	R	0	-	-

	L	0	-	-
Zygoma-facial foramen	R	1	-	1
	L	-	-	2
Supra-orbital foramen complete	R	-	-	0
	L	-	-	-
Extra infra-orbital foramen	R	0	-	-
	L	0	-	-
Sagittal wormian		0	-	-
Squame parietal ossicle	R	-	-	-
	L	0	-	-
Multiple mental foramen	R	0	0	0
	L	0	0	0
Mandibular torus	R	0	-	-
	L	0	-	-

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