



KDK ARCHAEOLOGY LTD

## Archaeological Observation and Recording Report

Church of St Mary Magdalene  
Church Lane  
Barkway  
Hertfordshire



### Quality Check

<i>Author</i>	Laura Dodd MSc MCifA	<i>Version</i>	693/BSMC/2.1	<i>Date</i>	07.09.2022
<i>Editor</i>	Karin Kaye MA MCifA	<i>Version</i>	693/BSMC/2.1	<i>Date</i>	29.09.2022
<i>Revision</i>	Laura Dodd MSc MCifA	<i>Version</i>	693/BSMC/2.2	<i>Date</i>	10.10.2022

© KDK Archaeology Ltd 2022 No part of this document is to be copied in any way without prior written consent.

Every effort has been made to provide as complete and as accurate a report as possible. However, KDK Archaeology Ltd cannot accept any liability in respect of, or resulting from, errors, inaccuracies, or omissions contained in this document.

© Ordnance Survey maps reproduced with the sanction of the Controller of Her Majesty's Stationery Office.  
KDK Archaeology Licence No. 100053538

Unit 3 Leighton Road Leighton Buzzard Bedfordshire LU7 1LA  
Tel: 01525 385443  
Email: [office@kdkarchaeology.co.uk](mailto:office@kdkarchaeology.co.uk)  
Website: [www.kdkarchaeology.co.uk](http://www.kdkarchaeology.co.uk)





**CONTENTS**

Summary ..... 1

1. Introduction ..... 1

2. Aims & Methods ..... 5

3. Archaeological & Historical Background ..... 6

4. Results..... 7

5. Conclusions..... 31

6. Acknowledgements..... 33

7. Archive..... 34

8. References..... 35

**Appendices:**

1. List of Photographs ..... 37

2. Excavation Summary Tables ..... 42

3. Osteology Report ..... 46

4. Skeletal catalogue ..... 64

5. OASIS and Site Data..... 88

6. Hertfordshire Historic Environment Record Sheet ..... 89

**Figures:**

1. General location ..... 2

2. Site location..... 3

3. Drainage works..... 4

4. Representative site stratigraphy ..... 24

5. Plan of excavation ..... 25

6. Soakaway 2..... 26

7. Soakaway 4..... 27

8. Soakaway 6 upper burials..... 28

9. Soakaway 6 lower burials ..... 29

10. Soakaway 6 service ..... 30

**Plates:**

1. Soakaway 2 service run, looking north northwest ..... 9

2. Soakaway 2 service run..... 9

3. SK28 ..... 9

4. SK49 ..... 9

5. Tomb in soakaway 2 service ..... 10

6. Soakaway 3 service run..... 10

7. Soakaway 3 service run..... 10

8. Soakaway 4 fully excavated ..... 10

9. Soakaway 4 stratigraphy..... 10

10. Soakaway 4 service ..... 11

11. SK1-3 ..... 11

12. SK4 ..... 11

13. SK5-6 ..... 12

14. Large ferrous object-possibly slag, found within the grave of SK7 ..... 12

15. SK7 ..... 12

16. SK8-10..... 12

17. SK11 ..... 12

18. SK12 ..... 13

19. Soakaway 5..... 13



20. Soakaway 5 stratigraphy.....	13
21. Soakaway 6 fully excavated.....	13
22. Soakaway 6 stratigraphy.....	13
23. Soakaway 6 service .....	14
24. SK13-15.....	14
25. Preserved wood and copper studs from the coffin of SK15 .....	14
26. Preserved wood and copper studs from the coffin of SK16 .....	14
27. Coffin handles found with SK16 .....	14
28. SK16 .....	15
29. SK17 .....	15
30. SK18-22.....	15
31. Handles from the coffin containing SK22 .....	16
32. SK24 with SK23 top right .....	16
33. SK25 .....	16
34. SK26 .....	17
35. SK27 .....	17
36. SK29-31.....	17
37. SK32 .....	18
38. SK33 .....	18
39. SK34 .....	18
40. SK35 .....	19
41. SK36 .....	19
42. SK37-39.....	19
43. SK40 .....	20
44. SK41 .....	20
45. SK42 .....	20
46. SK43 .....	21
47. SK44 .....	21
48. SK45 .....	21
49. SK46 .....	22
50. SK47 .....	22
51. SK48 .....	22
52. Example of metal objects found within graves .....	23
53. Partially exposed church foundation .....	23
54. Soakaway 2 Catch Basin.....	23
55. Soakaway 3 Catch Basin.....	23
56. Soakaway 6a Catch Basin.....	23
57. SK26. Caries, AMTL, periodontal disease and an abscess.....	55
58. SK1. Caries, AMTL, periodontal disease, calculus and an abscess.....	55
59. SK22. Caries, AMTL, and an abscess.....	56
60. SK2. Caries, AMTL, periodontal disease and calculus .....	56
61. SK2. Periodontal disease and calculus .....	56
62. SK45. Linear enamel hypoplasia on the canines, I2s and I1s.....	57
63. SK46. Linear enamel hypoplasia on the right canines and I2s and both I1s .....	57
64. SK1 Pipe smoking facet.....	58
65. SK7 Coalescent pitting and joint contour remodelling on the cervical vertebra .....	60
66. SK40. Coalescent pitting and joint contour remodelling on the cervical vertebra.....	60
67. SK11. Eburnation on the articular facet of C2 .....	61
68. SK11. Schmorl's Nodes .....	61
69. SK11. Possible endocranial lesion on the right parietal bone.....	62



## Summary

Between June and July 2022 KDK Archaeology Ltd undertook a programme of Observation and Recording during the installation of new soakaways and associated drains at the Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire. Four soakaways and associated drainage trenches were excavated around the churchyard and a total of 49 articulated and partially articulated skeletons were uncovered. The concentration of individuals within the soakaways shows that the cemetery is heavily populated, particularly to the southwest. Individuals of all ages were encountered; however, the articulated and partially articulated remains of children were largely absent to the north of the church.

### 1 Introduction

1.1 Between June and July 2022 KDK Archaeology Ltd undertook a programme of Observation and Recording at the Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire. The project was commissioned by the Rector and the PCC as a specification for Archaeological Observation, Investigation and Recording on drainage works within the grounds of the Church.

#### 1.2 *Planning Background*

The work was undertaken to fulfil a condition of Faculty awarded by the Diocese of St Albans in February 2021. The Faculty reference number is 1056.

#### 1.3 *The Site*

##### *Location & Description*

St Mary's Church is located to the west of the High Street in the village and civil parish of Barkway. It is centred on National Grid Reference TL3828 3561 (Fig. 1). The church is bounded to the south by Church Lane, to the north open field and to the east and west by private residences (Fig. 2).

St Mary's is a Grade I listed building of knapped flint walls with stone dressings, dating to the 13<sup>th</sup> century with 15<sup>th</sup> century north and south aisles. It was extensively restored in the 19<sup>th</sup> century. It is described in Section 3.

##### *Geology & Topography*

The bedrock geology is Lewes Nodular Chalk formation, formed approximately 84-94million years ago in the Cretaceous period where the local environment was dominated by warm chalk seas. Overlying this are superficial deposits of Lowestoft formation Diamicton formed up to 2 million years ago in the Quaternary Period.

The churchyard is situated at a height of 131m above Ordnance Datum, well above the adjacent road surface to the south.

##### *Development*

The development consisted of the installation of four soakaways with associated services and improvements to existing drainage channels around the church (Fig. 3).

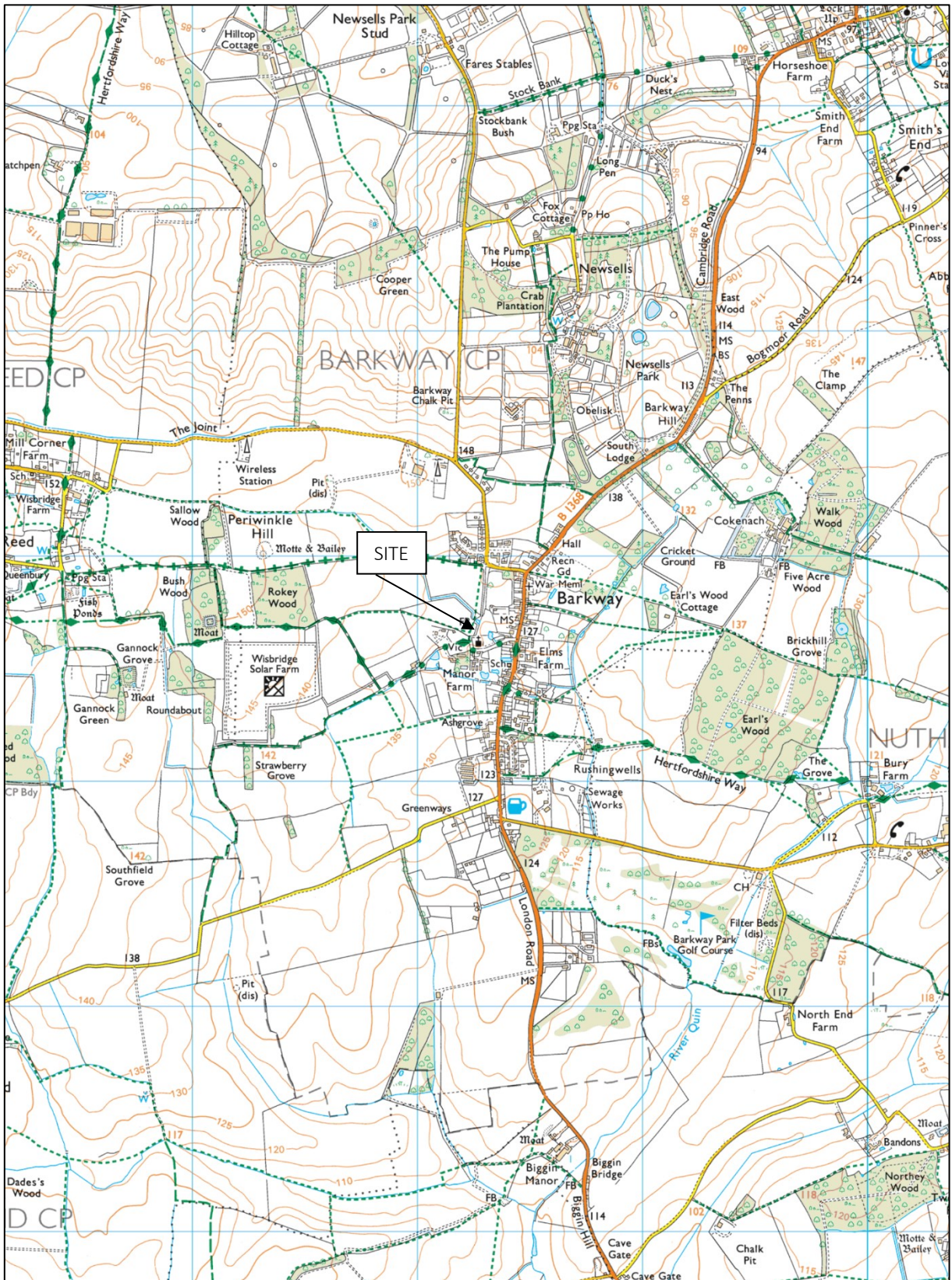


Figure 1: General location (scale 1:25,000)

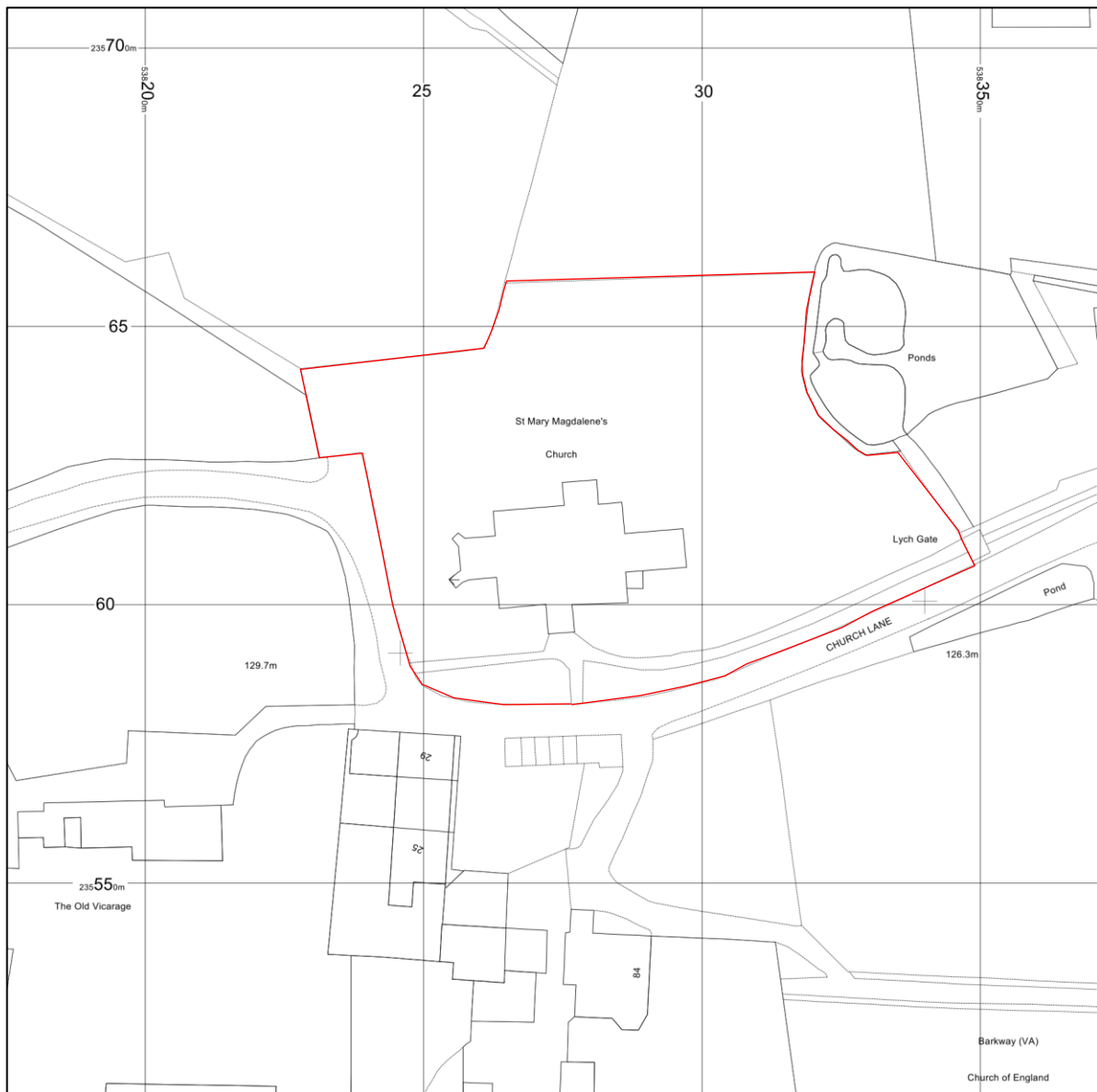


Figure 2: Site plan (scale 1:1,250)

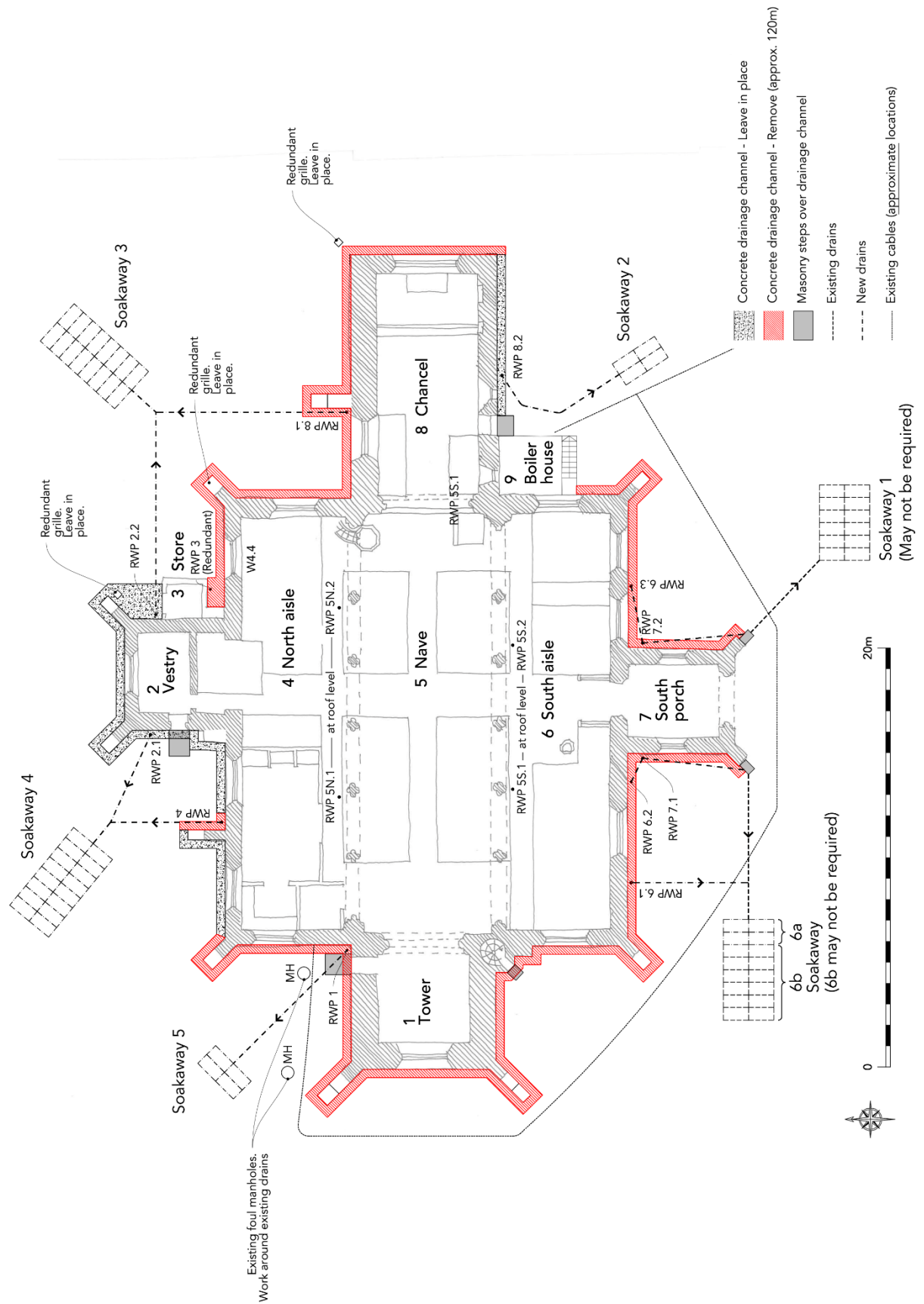


Figure 3: Drainage works (scale as shown)





---

## 2 Aims & Methods

### 2.1 Aims

The aims of this project as defined in the approved Method Statement (Kaye 2022) were:

- To establish the date, nature and extent of activity or occupation within the development area
- To establish the relationship of any remains found to the surrounding contemporary landscape

### 2.2 Methods

The methods used were as follows:

- The archaeological monitoring of all groundworks
- The analysis of the results of the archaeological work with provisions for subsequent production of a report(s) and/or publication(s) of these results and an archive

### 2.3 Standards

The work conformed to the following requirements:

- The Method Statement
- The relevant sections of the Chartered Institute for Archaeologists' *Standard & Guidance for an Archaeological Watching Brief* (ClfA 2020a)
- The Chartered Institute for Archaeologists' *Code of Conduct* (ClfA 2021)
- Current English Heritage guidelines (EH 2008, HE 2015)
- The Association of Local Government Archaeological Officers East of England Region *Standards for Field Archaeology in the East of England* (ALGAO 2003)
- Investigation or removal of human remains was undertaken in accordance with current guidelines (McKinley & Roberts 1993, Brickley & McKinley 2004).



### 3 Archaeological & Historical Background

Barkway is listed in the Domesday Survey of 1086 as having four landholdings and a total population of 48 households; as such it fell within the largest 20% of settlements at the time (<https://opendomesday.org/place/TL3835/barkway/>). A priest is recorded amongst the inhabitants, but no evidence of a Saxon church survives.

During the medieval and post medieval period, Barkway served as a major stopping point on the coaching route between London and Cambridge. The village was granted a market in 1270, making it an important trading point until the introduction of the rail travel in the 1800s after which the village saw a gradual decline. With the wealth of the village waning many of its inhabitants moved away to neighbouring settlements, such as Royston ([www.barkway-village.org.uk/barkways-history](http://www.barkway-village.org.uk/barkways-history)).

The present church is a Grade I listed structure, the chancel of which dates to the 13<sup>th</sup> century. The chancel arch was widened c.1400 and nave was widened and aisles added in the early 15<sup>th</sup> century. The north arcade is thought to have been rebuilt at a later date (RCHME 1910). The nave was re-roofed in the 15<sup>th</sup> century when the clerestory was added, and a west tower was built at much the same time. This was, however, completely rebuilt in 1861 (*ibid*).

The listed building description is as follows (NHLE Ref: 1102624):

Parish church. C13 origins. C15 nave rebuilt with aisles. 1861 restored, tower rebuilt, porch and vestry added by B. Ferrey at expense of the Hon. Mrs. V. Harcourt. Knapped flint with stone dressings. Tiled steep chancel roof, slate on shallower nave and porch roofs. Large 6 bay nave with broad N and S aisles, narrower and shorter chancel, W tower, S porch, N vestry/organ bay.

Chancel: round arched 3 light E window with C19 geometrical tracery. Quoins, coped gable parapet with ridge cross and kneelers. To S a C19 pointed arched entrance, a restored C13 lancet and towards W a low side window of 2 cinquefoiled lights, blind below a transom, square head with mask stopped label. To N 2 blind lancets and a large C19 opening of 3 cinquefoiled lights with a square head, 2 stage buttress.

Nave E end coped parapet with kneelers and ridge cross. 5 clerestory windows to each side, paired cinquefoiled lights with square heads, ball flower friezes. N and S aisles have restored C15 windows of 3 cinquefoiled lights with rectilinear tracery in depressed arched heads, 3 to each side. S porch has outer moulded pointed arch with shafted jambs, double plinth, diagonal buttresses, coped gable parapet, 2 light windows in returns with pointed arched heads. C15 inner 4 centred wave moulded entrance arch.

Projecting vestry with a 3 light N window as on aisles, double plinth, diagonal buttresses, coped parapet, pointed arched door to W.

Three stage W tower rebuilt to original pattern. To W rising through 2 stages is a tall 4 light window with rectilinear tracery, ogee headed label with finial and stops. 2 light foiled belfry openings with pierced quatrefoil panels. To N a small door and to N and S an additional small light in belfry, clock imposed on N belfry opening. Double plinth. String courses separate stages. 3 stage diagonal buttresses, empty niches in lower stages with crocketed, finialed surrounds. Buttresses to N and S where tower meets nave. To SE is semi-octagonal ashlar stair turret with a small outer entrance. Embattled parapet with crocketed finials at angles, weathervane at top.



## 4 Results

### 4.1 *Introduction*

A series of percolation pits were excavated under archaeological supervision within the footprint of the proposed soakaways prior to the commencement of the main works. All works were undertaken using a 1.5 tonne mechanical excavator fitted with a toothless ditching bucket. Although six soakaways were proposed surrounding the church, only four were deemed necessary. These were Soakaways 4 and 5, which were located to the north of the church and 2 and 6, which were to the south (Figures 4-5). The stratigraphy of the site remained fairly consistent throughout the cemetery and was comprised as follows:

- Topsoil (001). Dark brownish grey, friable slightly clayey sand with a moderate number of rounded and angular stone and flint inclusions. Human remains were observed within this layer. This layer was approximately 0.25m deep.
- Cemetery soil (002). Mixed soil comprising mostly of a mid-greyish brown clayey sand but also contained patches of orange sand. Flint and stone inclusions found in moderation throughout the layer many of which were quite large. Chalk flecks were also present throughout. Disarticulated human bone was noted frequently within this layer. Fragments of iron, copper and wood were recovered. The cemetery soil had a higher clay content within Soakaway 6. The base of this layer was only partially reached within Soakaway 4
- Natural (003). Orange clayey sand observed in patches within the soakaway. Flint and stone inclusions were observed including some larger flint nodules. The natural was only encountered within Soakaway 4.

A total of 49 partially and fully articulated individuals were revealed during groundworks, and of these, four were left in situ (SK10, 15, 44 and 45).

### 4.2 *Description*

#### ***Soakaway 1***

The proposed location of this soakaway was to the southeast of the south porch. It was decided that this soakaway was not required and no excavations took place in this area.

#### ***Soakaway 2***

Located to the southeast of the church, Soakaway 2 was the longest and shallowest of the soakaways. The soakaway was 5.50m long, up to 1.85m wide and up to 1m deep (Figures 5-6; Plates 1-2). The area was heavily populated with gravestones and other monuments. Two individuals, an undetermined adult (SK28) and an infant (SK49) were excavated from within the soakaway (Plate 3-4). More remains were observed; however due to time constraints the soakaway installation was reconfigured in order to leave them undisturbed.

A tomb was noted within the service run to the north of Soakaway 2 (Plate 5). This was brick built and topped with a stone slab.

#### ***Soakaway 3***

Due to the presence of pre-existing drainage, this soakaway was not excavated and the new pipe work was fed into the existing services (Figure 5; Plates 6-7).



#### ***Soakaway 4***

Soakaway 4 was located to the northwest of the church and was situated close to several stone monuments and gravestones. It was 4m long, 2m wide and 1.32m deep (Figures 5 & 7; Plates 8-10). A total of 12 individuals (SK1-12) were observed within the soakaway equating to four males, two probable males and six females (Plates 12-13, 15-18). Two of the individuals, SK 3 and SK8 were adolescents aged 16 and over and the remaining ten were adults. All the burials were orientated east-west with their heads to the west. The majority of the individuals appeared to have been coffined and although shroud pins were observed, none showed clear evidence of being shrouded.

The grave cuts, which were poorly defined due to the similarities between the cemetery soil and the grave fills, yielded coffin nails and copper alloy pins, and a large lump of ferrous material, possibly slag, was found within the grave of SK7 (Plate 14)

#### ***Soakaway 5***

To the west of the tower was a small soakaway which measured 2m in length, 1m in width and 1m in depth (Figure 5; Plates 19-20). No articulated burials were observed within this soakaway, or the service run which fed to it.

#### ***Soakaway 6***

Soakaway 6 was excavated to the southwest of the tower close to a number of modern graves (c.1970s; Figures 5 and 8-10; Plates 20-23). As an electric cable was discovered to the west of the soakaway, the excavation was moved to the east to avoid it. A total of 33 individuals (SK13-15, SK18-27 and SK29-48) were observed within this soakaway including, eight males, one probable male, four females, one probable female, seven undetermined adults and 12 children (Plates 28-3 & 32-51).

The degraded outlines of four coffins were encountered within the soakaway, the best preserved belonged to SK15, a young adult female, where much of the wood, iron fixings and copper studs were found (Plates 24-25).

Three individuals, SK34, SK35, and SK36, were buried directly on top of each other, their pelvises lining up almost perfectly (Plates 39-41). It is likely these children were related, perhaps siblings or from the same close familial unit. A very thin layer of soil was observed between each burial and it is very possible they were all buried at the same time.

A modern burial was encountered to the south of the soakaway during hand excavation. The lower left corner of the coffin was exposed as well as a silver painted plastic knob. This burial was left undisturbed.

A probable female and a male (SK16 and SK17) were recovered from the associated service run close to the church. The grave fill containing SK16 also contained fragments of a wooden coffin with copper alloy studs still attached. An iron handle and plate were also recovered (Plates 26-29).

#### ***Catch basins***

A total of 10 Catch basins were installed at the location of existing down pipes (Figure 5; Plates 54-56). These were machine dug, using an Archimedes screw attachment. The holes measured approximately 0.45m in diameter and reached a depth of approximately 0.60m. Some disarticulated remains were uncovered but no articulated burials were encountered.



Plate 1: Soakaway 2 service run, looking north northwest



Plate 2: Soakaway 2 service run, looking west



Plate 3: SK28, looking east



Plate 5: Tomb in soakaway 2 service, looking southwest



**Plate 6:** Soakaway 3 service run, looking east northeast



**Plate 7:** Soakaway 3 service run, looking north northeast



**Plate 8:** Soakaway 4 fully excavated, looking east



**Plate 9:** Soakaway 4 stratigraphy, looking south



**Plate 10:** Soakaway 4 service, looking west



Plate 11 SK1-3, looking north



Plate 12: SK4, looking south



Plate 13: SK5-6, looking south



**Plate 14:** Large ferrous object-possibly slag, found within the grave of SK7



**Plate 15:** SK7, looking west



**Plate 16:** SK8-10, looking west



**Plate 17:** SK11, looking north





Plate 18: SK12, looking north



Plate 19: Soakaway 5, looking northeast



Plate 20: Soakaway 5 stratigraphy, looking southeast



Plate 21: Soakaway 6, looking northwest



Plate 22: Soakaway 6 stratigraphy, looking southwest



**Plate 23:** Soakaway 6 service, looking east



**Plate 24:** SK13-15, looking southwest



**Plate 25:** Preserved wood and copper studs from the coffin of SK15



**Plate 26:** Preserved wood and copper studs from the coffin of SK16



**Plate 27:** Coffin handles found with SK16



Plate 28: SK16, looking north



Plate 29: SK17, looking north



Plate 30: SK18-22, looking west



Plate 31: Handles from the coffin containing SK22



Plate 32: SK24 with SK23 top right, looking north



Plate 33: SK25, looking north



Plate 34: SK26, looking north



Plate 35: SK27, looking north



Plate 36: SK29-31, looking north



Plate 37: SK32, looking north



Plate 38: SK33, looking north



Plate 39: SK34, looking south



Plate 40: SK35, looking south



Plate 41: SK36, looking south



Plate 42: SK37-39, looking south



Plate 43: SK40, looking south



Plate 44: SK41, looking south



Plate 45: SK42, looking south





Plate 46: SK43, looking north



Plate 47: SK44, looking south



Plate 48: SK45, looking south southeast



Plate 49: SK46, looking south



Plate 50: SK47, looking south southeast



Plate 51: SK48, looking south



**Plate 52:** Example of metal objects found within graves; copper and silver shroud/dress pins, copper and iron studs, iron coffin nails and iron masonry nail



**Plate 53:** Partially exposed church foundation



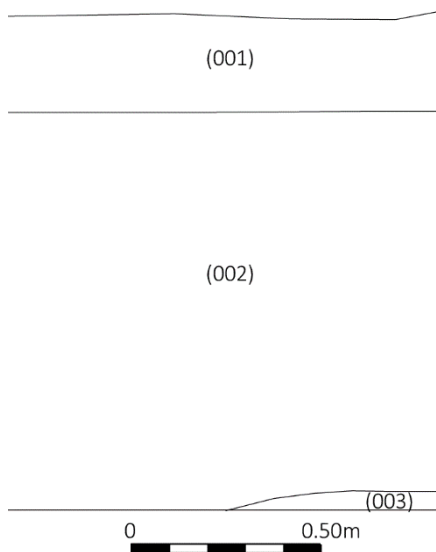
**Plate 54:** Soakaway 2 Catch Basin, looking north



**Plate 55:** Soakaway 3 Catch Basin, looking west



**Plate 56:** Soakaway 6a Catch Basin, looking northeast



**Figure 4:** Representative site stratigraphy (scale 1:20)

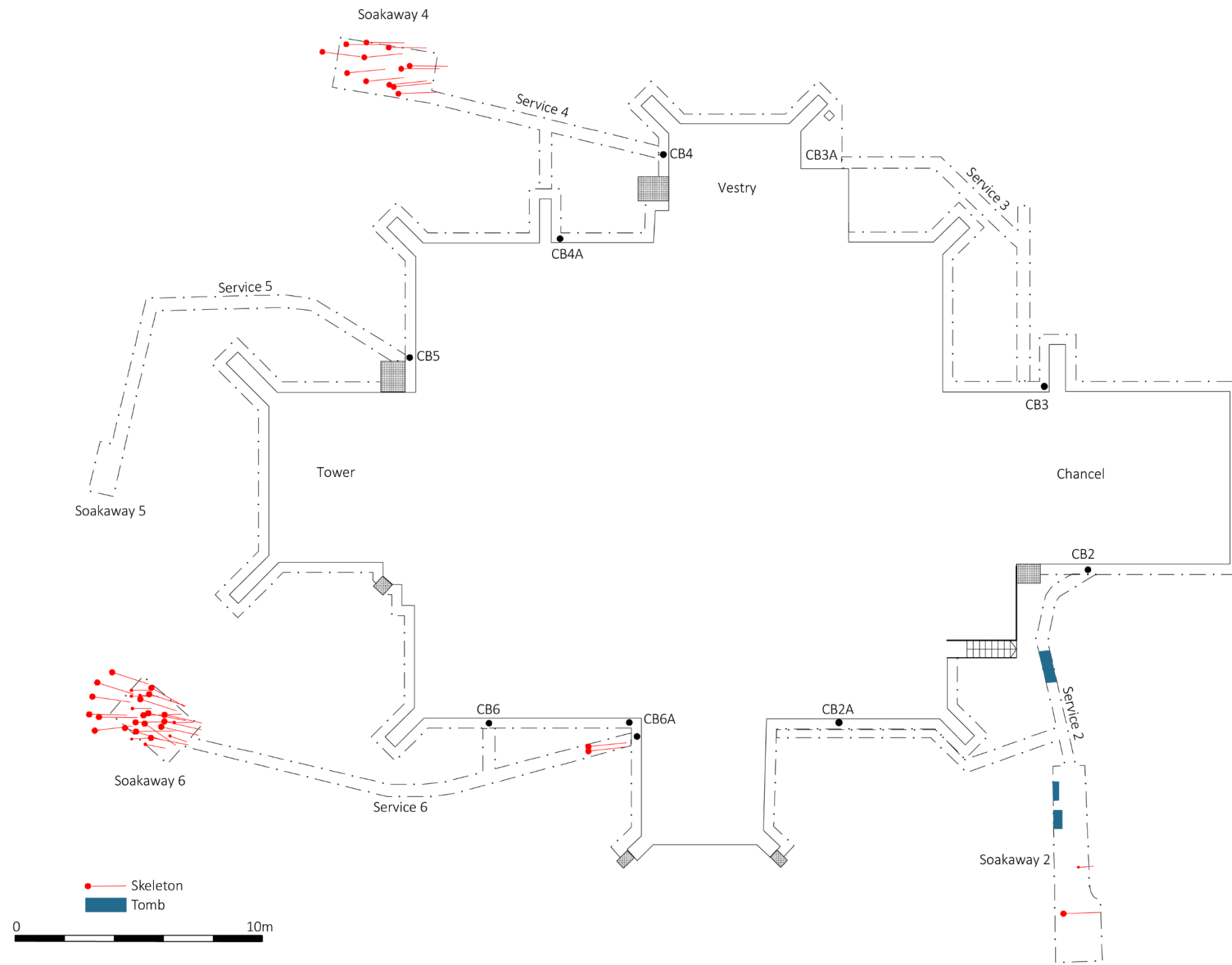


Figure 5: Plan of excavation (scale 1:200)

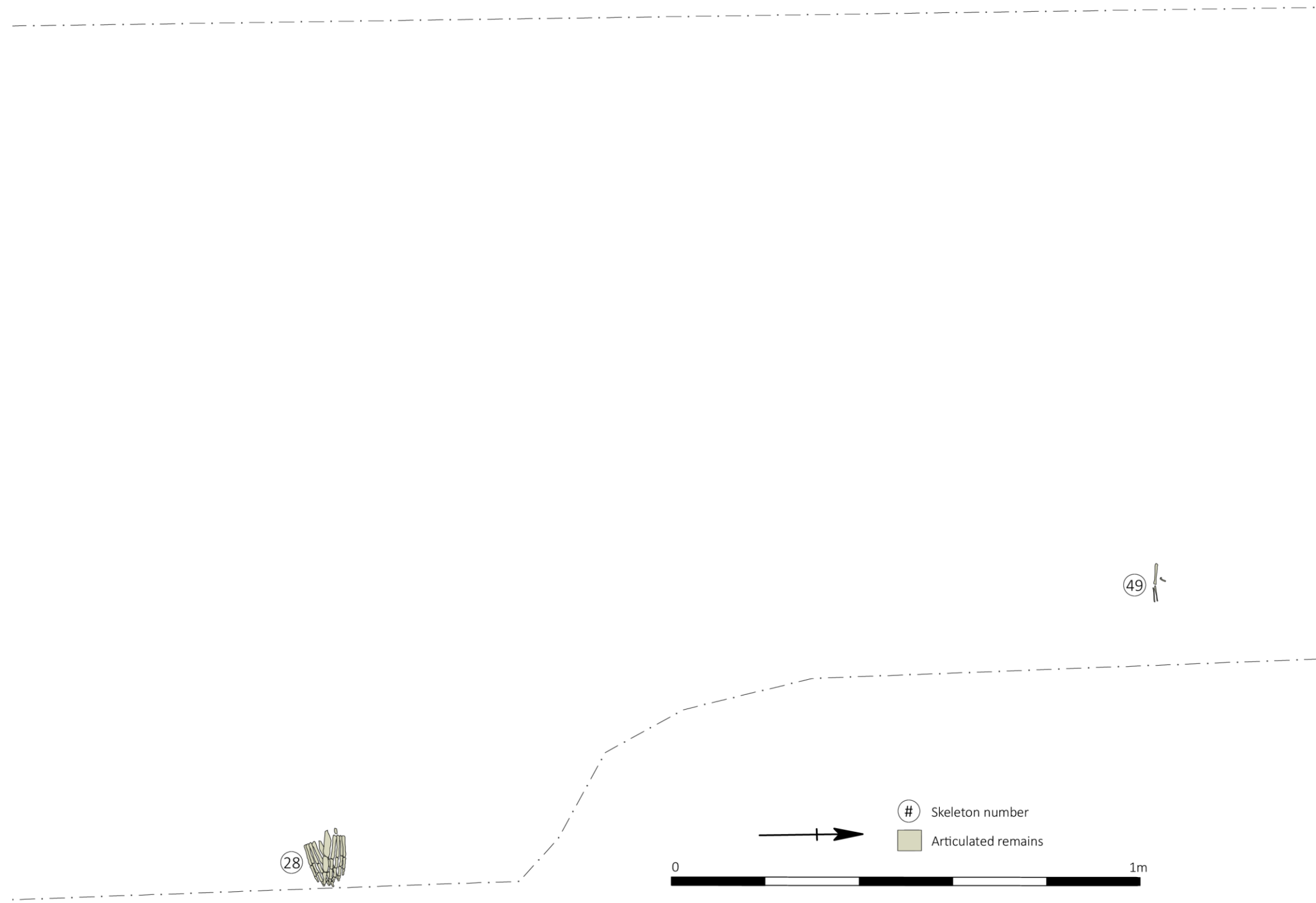


Figure 6: Soakaway 2 (scale 1:10)

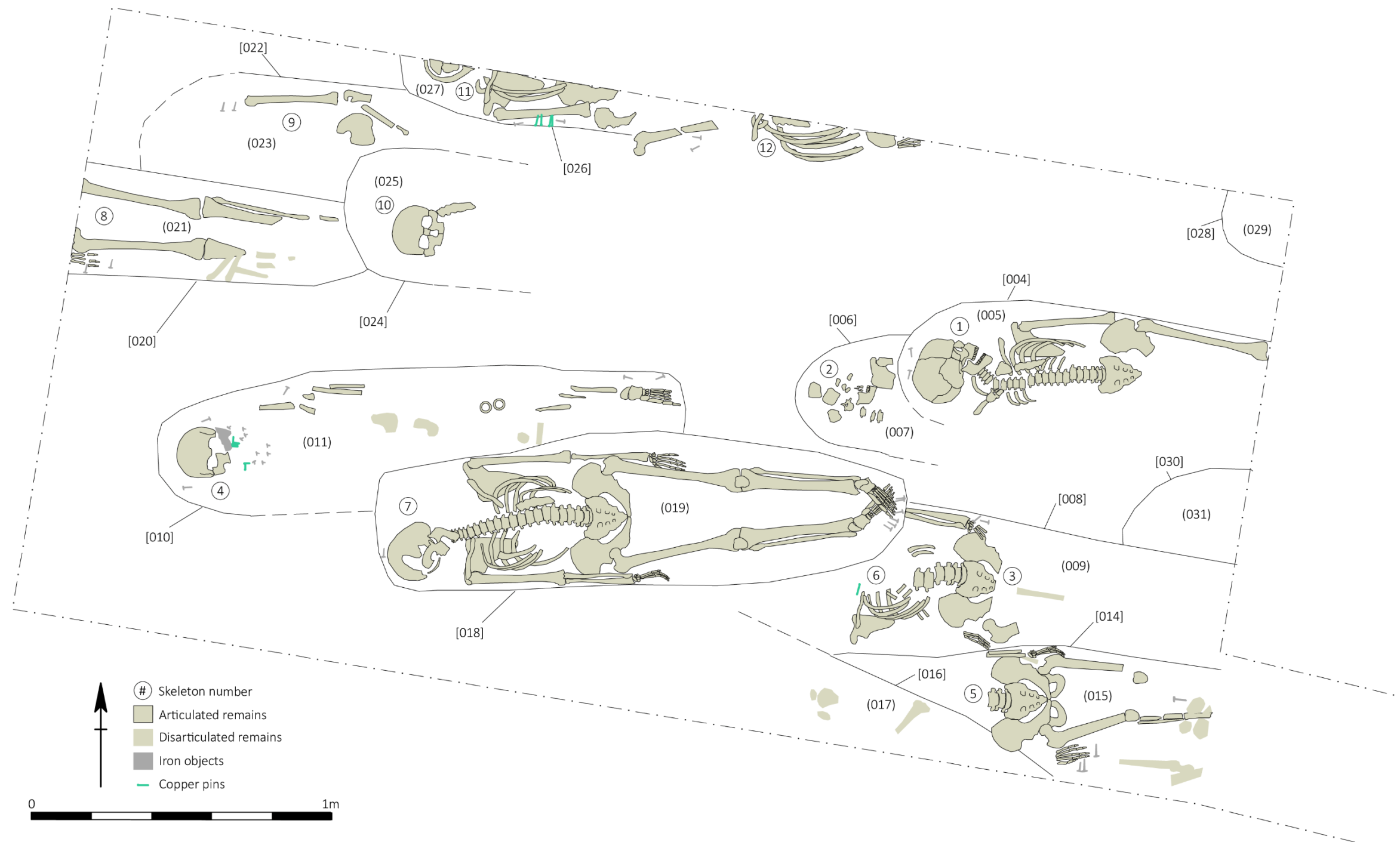


Figure 7: Soakaway 4 (Scale 1:15)



Figure 8: Soakaway 6 upper burials (scale 1:10)



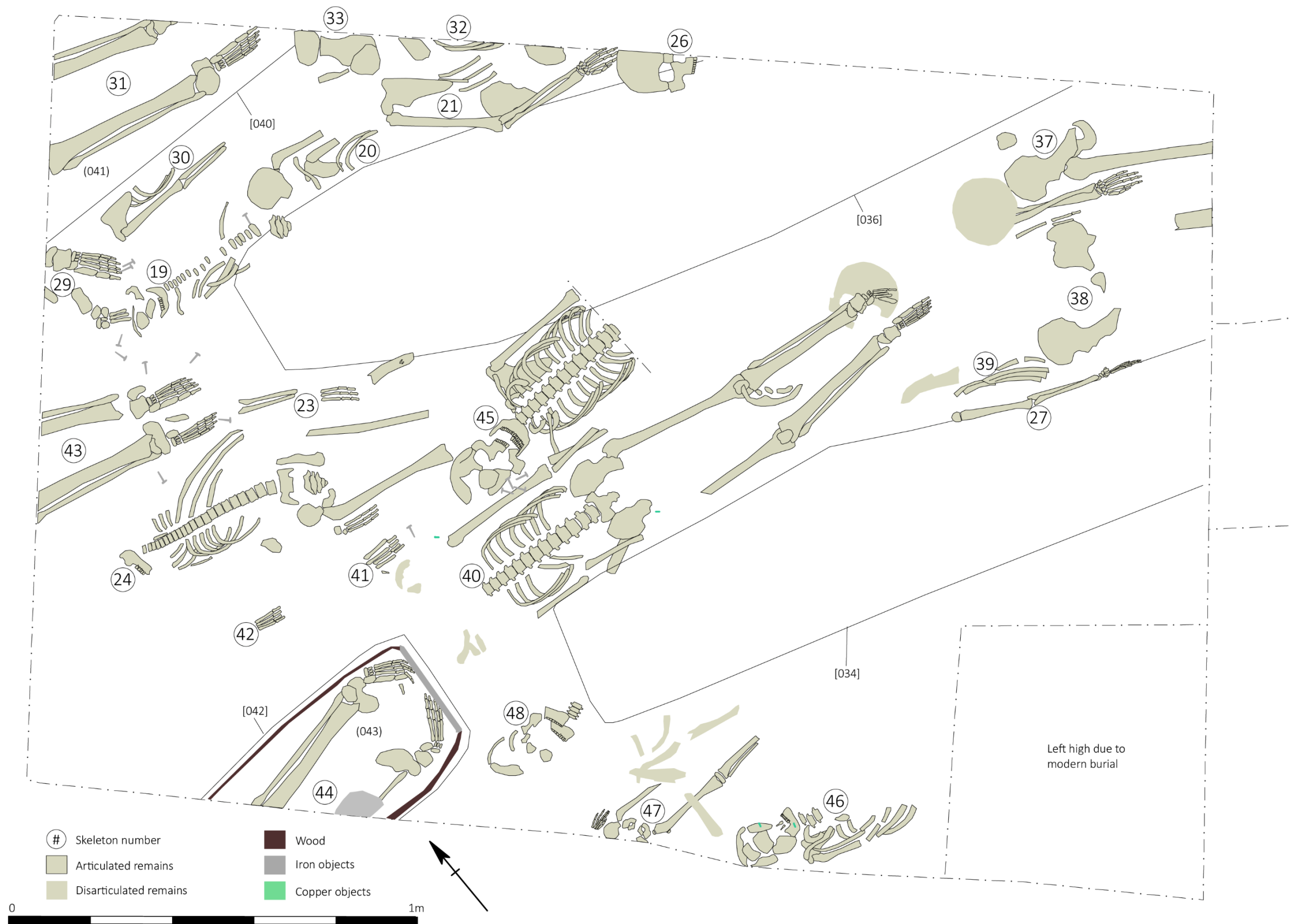


Figure 9: Soakaway 6 lower burials (scale 1:10)



CHURCH

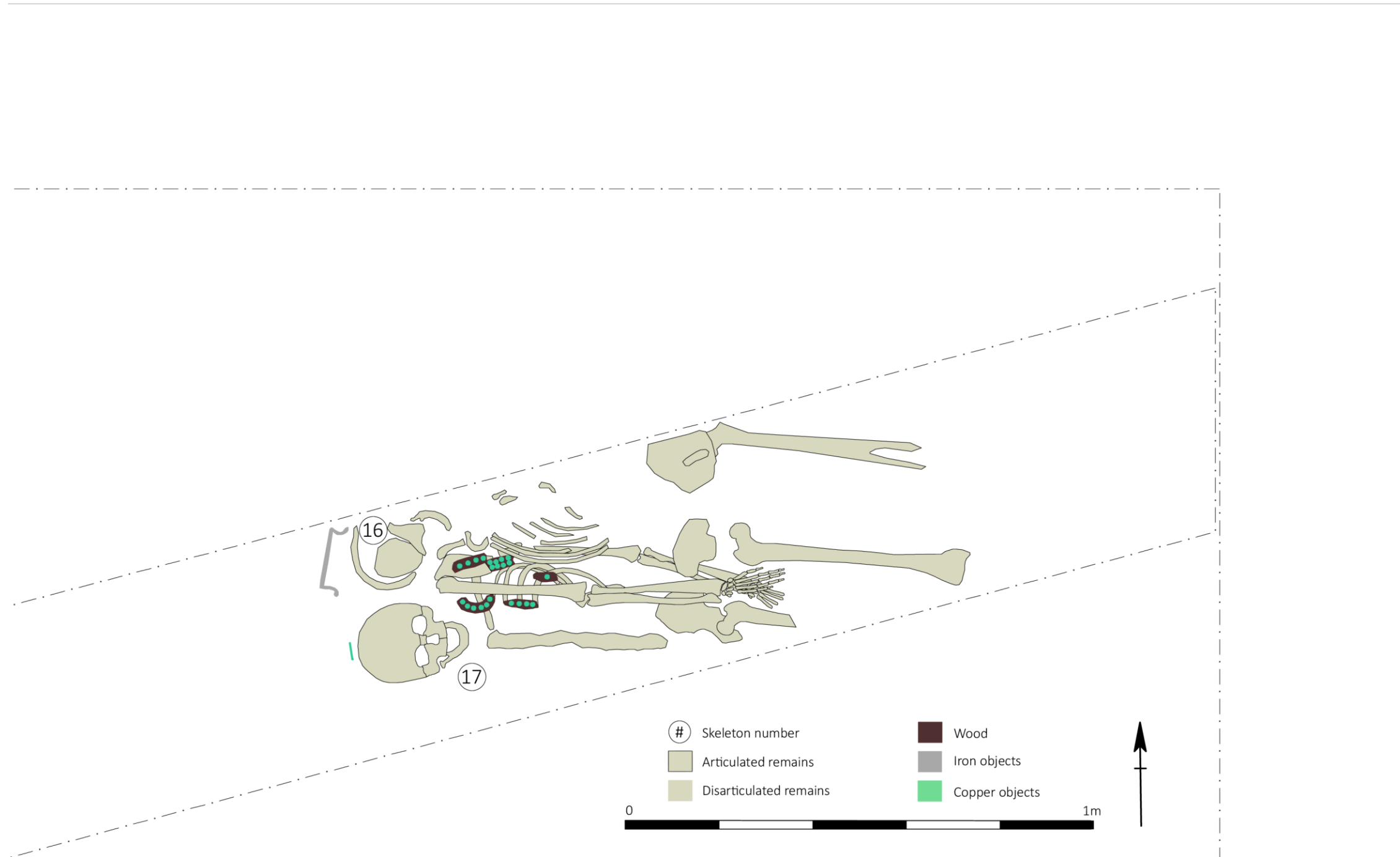


Figure 10: Soakaway 6 service (scale 1:10)



## 5 Conclusions

The grave yard contains a large burial population and it is clear from the amount of disarticulated material recovered that a considerable amount of disturbance has occurred across all excavated areas.

Although head stones are plentiful, some of which date back to the 16<sup>th</sup> century, the majority of grave markers are Victorian or modern. It is likely that many earlier monuments were removed prior to, or during the Victorian period. This may have been done for a number of reasons; the memorial may have been damaged, eroded to illegibility or fallen over and as a result cleared to improve the aesthetic of the grave yard, or the grave markers could have been removed to create an open space for the enjoyment of the public and clear areas for new and future burials. It is also highly likely that no grave markers were commissioned for many of these individuals or the grave was marked with objects like small stones, plants or wooden monuments which have perished over time.

Many of the burials were quite close to the modern ground level with the shallowest being 0.35m below the modern ground level (SK16). The practice of burying the deceased six feet below the ground dates back to the 16<sup>th</sup> century as a measure to protect against plague. In later centuries, it was seen as a protective measure against “body snatchers”; however, regulations for depth of a grave has never been enforced. It is commonly observed that post-medieval burials, particularly those interred during the 17<sup>th</sup> century onwards, are deeper than medieval burials; however, there was no obvious distinction between earlier and later burials other than the preservation of coffins and the graves which disturbed and cut through earlier interments.

A total of 49 articulated and partially articulated burials were recovered during the course of the project. Of these 34 were adults and 15 were non-adults. Biological sex could be determined for 21 individuals. Ten were female, two were probable females, 13 were male and three were probable males. The demography of the site as a whole is fairly typical as both sexes and a variety of ages were represented. There was a notable lack of non-adult individuals located to the north of the church.

Life expectancy can often be influenced by the socio-economic status of the individual with those of an urban and rural working class dying at an earlier age than their middle and upper class counterparts. Those living to a ‘grand old age’ were more likely to be from the upper socio-economic strata. Towards the end of the 18<sup>th</sup> century an increasing number of people were living beyond the age of 60; however, child mortality during the post medieval period remained high, with approximately 40% of deaths occurring before the age of five (Roberts and Cox 2003:303; Lewis 2007:83). Given this data, it appears that the mortality rate for infants and young children within the assemblage is slightly lower than can be expected for the medieval and post-medieval period, whereas the number of those living into old age is high, possibly reflecting a higher socio-economic status of the local population as a whole.

The average height for the males within the sample was 172.56cm (5’8”) and their female counterparts were shorter at 162.82cm (5’4”). The average male height is reflective of a medieval population whose averages have been estimated at 173.73cm (5’8”). The women are above average height for this period which has been calculated at 158.49cm (5’2”) (Khan-ad-Din 2003). During the post-medieval period the average stature for men was lower being 167cm (5’4”) in the 17<sup>th</sup> and 18<sup>th</sup> century which rose to 169.7cm (5’5”) by the late 19<sup>th</sup> century (Steckle 2004). Unfortunately, data for the stature for women in during this period is lacking. The tendency for taller stature within this population may also reflect the socio-economic status of



the graveyard population. Taller stature is associated with good diet, decent living conditions and outdoor activity where the body is exposed to vitamin D produced by the sun's UV rays. In addition, there was no evidence of malnutrition in any of the individuals.

The individuals analysed displayed features and maladies typically found within a medieval and post-medieval population. Dental pathologies were present in 16 of the individuals where dentition could be recorded. The most common maladies noted were calculus, periodontal disease, ante-mortem tooth loss and caries and five individuals were suffering from dental abscesses. These maladies are often indicative of a lower standard of living but may also be a result of poor diet (i.e. excess in sugars or carbohydrates) and/or poor dental hygiene and lack of dental care. Enamel hypoplasia was also present in three of the individuals.

The most prevalent pathology amongst the assemblage was joint disease, which is reflective of a population living into older age. Spinal degenerative joint disease was common and visible on 11 individuals with nine of those progressing into the more severe disease; osteoarthritis. Herniated discs or 'Schmorl's Nodes' were present in two individuals.

Other pathologies included a possible lesion on the skull of SK14. It is unclear what could have caused this or whether it contributed in any way to the death of the individual. It must be noted that the health of the population excavated during this programme of works was solely based on the skeletal material and that many pathological conditions may be short lived and thus not given time to manifest on the bone. Many maladies, such as plague, cardiovascular disease and strokes will not leave markers on the bone. Others such as rapidly spreading terminal cancers and tuberculosis which can affect bone, may not have sufficient time to do so. It should be noted that the more comprehensive analysis of the remains may have revealed further pathological anomalies.



---

## 6 Acknowledgements

KDK Archaeology is grateful to the the Rector and the PCC for commissioning this report and for their hospitality during investigations; to David Baker, Diocesan Archaeological Adviser, for monitoring the project and to Mark Wyld and his team for their assistance on site. The author would also like to thank Vicky Dodd Dip OT RSC Edin who was consulted on particular dental anomalies.

The fieldwork was carried out by Laura Dodd MSc MCIfA, Barney King PCIfA, Karin Kaye MA MCIfA and Derek Watson PhD. The report was written by Laura Dodd, and edited by Karin Kaye.



---

## 7 Archive

7.1 The project archive will comprise:

1. Method statement
2. Initial report
3. Monitoring sheets
4. Site drawings
5. Client's site plans
6. List of photographs
7. Specialist reports
8. CDROM with copies of all digital files.

7.2 The archive will be deposited with Hertfordshire Archive and Local Studies (HALS).



## 8 References

### *Standards & Specifications*

- Allen J. L. & Holt A. St J. 1986 (with later updates) *Health & Safety in Field Archaeology*. London: Federation of Archaeological Managers & Employers
- Association of Diocesan and Cathedral Archaeologists (ADCA) 2013 *Guidance Note 1: Archaeological Requirements for Works on Churches and Churchyards*. ADCA
- Association of Diocesan and Cathedral Archaeologists (ADCA) 2010 *Guidance Note 2: Archaeology and Burial Vaults*. ADCA
- Association of Diocesan and Cathedral Archaeologists (ADCA) 2010 *Guidance Note 3: Dealing with Architectural Fragments*. ADCA
- Association of Diocesan and Cathedral Archaeologists (ADCA) 2014 *Guidance Note 4: Fabric Recording in Churches and Cathedrals*. ADCA
- Association of Local Government Archaeological Officers (ALGAO) 2003 *Standards for Field Archaeology in the East of England*. East Anglian Archaeology Occasional Paper 14
- Brickley M. & McKinley J. I. 2004 *Guidelines to the Standards for Recording Human Remains*. Chartered Institute for Archaeologists Technical Paper
- CIfA 2019 *Archaeological Archive Selection Toolkit*. Reading: Chartered Institute for Archaeologists
- CIfA 2020a *Standard and Guidance for an Archaeological Watching Brief*. Reading: Chartered Institute for Archaeologists
- CIfA 2020b *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*. Reading: Chartered Institute for Archaeologists
- CIfA 2020c *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives*. Reading: Chartered Institute for Archaeologists
- CIfA 2021 *Code of Conduct*. Reading: Chartered Institute for Archaeologists
- HE 2015 *The Management of Research Projects in the Historic Environment: the MoRPHE Project Managers' Guide*. London: Historic England
- Kaye K. 2022. *Method Statement for Archaeological Observation, Investigation and Recording: Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire*. KDK Archaeology Ltd Library reference 693/BSMC/1.1
- McKinley J.I. & Roberts C. 1993 *Excavation and Post-excavation Treatment of Cremated and Inhumed Human Remains*. Chartered Institute for Archaeologists Technical Paper 13
- Paine C. (ed) 1992 *Standards in the Museum Care of Archaeological Collections*. London: Museums & Galleries Commission
- Paul S. 2018 *Hertfordshire Archaeological Archive Standards: a countywide standard for the creation, compilation and transfer of archaeological archives in Hertfordshire*. Hertfordshire Association of Museums
- Watkinson D. & Neal V. 1998 *First Aid for Finds*. Hertford & London: Rescue



---

### ***Books and Historical Sources***

Khan-ad-Din F. M. H. 2003: *Old Age, Height and Nutrition: Common Misconceptions About Medieval England*. Caidan Pentathlon

Lewis, M 2007. *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*. Cambridge University Press. Cambridge.

Mills A. D. 1991 *A Dictionary of English Place Names*. Oxford University Press: Oxford.

Roberts C. & Cox M. 2003 *Health and Disease in Britain*. Sutton Publishing Ltd.

Steckel R. H. 2004. 'New light on the "Dark Ages": The Remarkably Tall Stature of Northern European Men during the Medieval Era' In: *Social Science History*. **Vol. 28**, No 2, Special Issue: Recent Research in Anthropometric History. Cambridge University Press pp211-229

Williams A. & Martin G. H. 2002 *Domesday Book: A Complete Translation*. Penguin Group: London.

### ***Online Resources***

*British History Online* <http://www.british-history.ac.uk/rchme/herts/pp46-47> [accessed 13 May 2022].

Doig T. *The History of Barkway*. <http://www.barkway-village.org.uk/barkways-history.html>

Domesday Survey Online: <https://opendomesday.org/place/TL3835/barkway/> [accessed 06 September 2022]

Historic England: <https://historicengland.org.uk/listing/the-list/list-entry/1102624?section=official-list-entry>

RCHME: 'Barkway', in *An Inventory of the Historical Monuments in Hertfordshire* (London, 1910), pp. 46-47.





## Appendix 1: Photograph List

Shot	View	Subject
1	NE	Percolation Pit 1
2	SW	Percolation Pit 1 stratigraphy
3	W	Percolation Pit 2
4	W	Percolation Pit 2 stratigraphy
5	SE	Percolation Pit 3
6	SE	Percolation Pit 3 stratigraphy
7	WSW	Percolation Pit 4
8	ESE	Percolation Pit 4 stratigraphy
9	NE	Soakaway 5 fully excavated
10	NE	Soakaway 5 fully excavated
11	SE	Soakaway 5 stratigraphy
12	N	SK1-3
13	N	SK1
14	N	SK2
15	N	SK3
16	NE	Service for soakaway 3
17	N	Service for soakaway 3
18	S	SK4
19	E	Service for soakaway 4
20	S	SK5-6
21	S	SK5
22	S	SK6
23	W	SK7
24	W	SK8-10
25	S	SK8
26	S	SK9
27	W	SK10
28	W	SK11-12
29	N	SK11
30	N	SK12
31	NW	SK13-15
32	SSW	SK13
33	SW	SK14
34	SW	SK15
35	E	Catch basin 4
36	N	Church foundation
37	-	Preserved wood with copper studs from coffin of SK15
38	E	Catch basin 4A
39	S	Catch basin 3A
40	WSW	Catch basin 3
41	W	Catch basin 3
42	N	Catch basin 2
43	E	Catch basin 2
44	N	Catch basin 2A
45	NE	Catch basin 6A
46	E	Catch basin 6



Shot	View	Subject
47	E	Catch basin 6
48	S	Catch basin 5
49	E	Soakaway 4
50	S	Soakaway 4 stratigraphy
51	N	Soakaway 4 stratigraphy
52	N	SK16
53	N	SK17
54	-	Preserved wood with copper studs from coffin of SK16
55	W	SK18-22
56	NNE	SK18
57	N	SK19
58	N	SK20
59	N	SK21
60	SW	SK22
61	E	Service for soakaway 6
62	N	SK23
63	N	SK24
64	N	SK26
65	E	SK28
66	W	Service for soakaway 2
67	W	Service for soakaway 2
68	N	SK25
69	N	SK27
70	N	SK29-31
71	W	SK29
72	N	SK30
73	N	SK31
74	N	SK32
75	N	SK33
76	S	SK34
77	S	SK35
78	S	SK36
79	S	SK37-39
80	S	SK37
81	S	SK38
82	N	SK39
83	S	SK40
84	S	SK41
85	NE	Service for soakaway 2
86	NE	Service for soakaway 2
87	SW	Service for soakaway 2
88	N	Service for soakaway 2
89	W	Tomb in service run. Soakaway 2
90	S	SK42
91	N	SK43
92	S	SK44
93	SSE	SK45
94	S	SK46
95	SSE	SK47
96	S	SK48
97	E	SK49



Shot	View	Subject
98	NW	Soakaway 6 fully excavated
99	S	Soakaway 6 stratigraphy
100	Anterior	SK1 vertebrae-DJD
101	Posterior	SK1 vertebrae-DJD
102	Superior	SK1 vertebrae -DJD
103	Inferior	SK1 vertebrae -DJD
104	Posterior	SK1 scapula-DJD
105	Medial	SK1 clavicle-DJD
106	Anterior	SK1 maxilla-Smoking facet
107	Inferior	SK1 maxilla-Dental pathologies
108	Posterior	SK1 maxilla-Dental pathologies
109	Medial	SK1 maxilla-Dental pathologies
110	Anterior	SK1 Mandible-dental pathologies
111	Medial	SK1 Mandible-dental pathologies
112	Medial	SK1 Mandible-dental pathologies
113	Anterior	SK1 Mandible-dental pathologies
114	Medial	SK1 Mandible-dental pathologies
115	Superior	SK1 Mandible-dental pathologies
116	Superior	SK1 Mandible-dental pathologies
117	Anterior	SK1 maxilla-Dental pathologies
118	Medial	SK1 maxilla-Dental pathologies
119	Medial	SK1 Mandible-dental pathologies
120	Medial	SK1 Mandible-dental pathologies
121	Medial	SK1 Mandible-dental pathologies
122	Medial	SK2 Mandible-dental pathologies
123	Anterior	SK2 Mandible-dental pathologies
124	Anterior	SK2 Mandible-dental pathologies
125	Superior	SK2 Mandible-dental pathologies
126	Anterior	SK2 maxilla-Dental pathologies
127	Inferior	SK2 maxilla-Dental pathologies
128	Superior	SK2 Dental caries in maxillary teeth
129	Superior	SK2 Dental caries in maxillary teeth
130	Anterior	SK4 Mandible-dental pathologies
131	Medial	SK4 Mandible-dental pathologies
132	Superior	SK5 Sacrum- DJD
133	superior	SK5 lumbar vertebra- DJD
134	-	Ferrous lump of material from grave of SK7
135	Superior	SK7 vertebrae -DJD
136	Inferior	SK7 vertebrae -DJD
137	Anterior	SK7 thoracic vertebra -DJD
138	Posterior	SK7 thoracic vertebra -DJD
139	Superior	SK7 cervical vertebra -DJD
140	Inferior	SK7 cervical vertebra -DJD
141	Multiple	SK7 cervical vertebrae -DJD
142	Superior	SK7 cervical vertebrae -DJD
143	Inferior	SK7 cervical vertebrae -DJD
144	Posterior	SK7 C2 -DJD
145	Anterior	SK7 C1 -DJD
146	Anterior	SK7 mandible-dental pathologies



Shot	View	Subject
147	-	SK7 pathology on mandibular left I2 and canine
148	Anterior	SK7 mandible-dental pathologies
149	Inferior	SK7 maxilla- AMTL
150	Inferior	SK7 left maxilla- AMTL
151	Anterior	SK7 left distal radius and ulna-DJD
152	Anterior	SK7 left proximal radius and ulna-DJD
153	Anterior	SK7 right proximal humerus-DJD
154	Lateral	SK7 femoral head-DJD
155	Posterior	SK7 Proliferative rib lesion-Infection?
156	Lateral	SK7 medial end of clavicles-DJD
157	Medial	SK7 distal end of clavicles-DJD
158	Superior	SK11-Skull pathology-Infection?
159	Superior	SK11-Skull pathology-Infection?
160	Anterior	SK11 maxilla pathology-AMTL
161	Superior	SK11 Mandible-AMTL
162	Various	SK11 medial and lateral ends of right clavicle
163	Inferior	SK11 medial end of right clavicle-DJD
164	Anterior	SK11 cervical vertebra-DJD
165	Superior	SK11 cervical vertebra-DJD
166	Inferior	SK11 cervical vertebra-DJD
167	Inferior	SK11 C2-DJD-eburnation
168	Superior	SK11 vertebrae-DJD, Schmorl's nodes
169	Inferior	SK11 vertebrae-DJD, Schmorl's nodes
170	Superior	SK14 left mandible-AMTL
171	Lateral	SK14 medial end of left clavicle
172	Posterior	SK15 mandible- Calculus
173	Superior	SK16 mandible-AMTL
174	Medial	SK16 mandible-AMTL and possible abscess
175	-	SK16 Coffin handles
176	Anterior	SK16 right distal femur-DJD
177	Lateral	SK17 left proximal humerus
178	Medial	SK17 Cervical spine articular facets-DJD
179	Various	SK17 Cervical spine articular facets-DJD
180	Various	SK17 Cervical spine articular facets-DJD
181	Superior	SK17 Cervical vertebral body- DJD
182	Anterior /medial	SK17 mandible- Dental pathologies
183	Medial	SK17 mandible- Dental pathologies
184	Superior	SK17 mandible- Dental pathologies
185	Anterior	SK17 mandible- Dental pathologies
186	Various	SK18 dental caries
187	Anterior	SK22 Cervical vertebrae-DJD
188	Superior	SK22 Vertebrae-DJD
189	Inferior	SK22 Vertebrae-DJD
190	Anterior	SK22 Vertebrae-DJD
191	-	SK 22 Coffin handles
192	Anterior	SK22 mandible-Unusual wear
193	Posterior	SK22 mandible-Unusual wear
194	Anterior	SK22 Maxilla-Unusual wear, chipping and dental pathologies



Shot	View	Subject
195	Medial	SK22 Maxilla-Unusual wear, chipping and dental pathologies
196	Inferior	SK22 Maxilla-Unusual wear, chipping and dental pathologies
197	Inferior	SK22 Maxilla-Unusual wear, chipping and dental pathologies
198	Inferior	SK22 molar root caries
199	Medial	SK22 mandible-Unusual wear
200	Anterior	SK26 maxilla- dental pathologies
201	Posterior	SK26 maxilla- dental pathologies
202	Anterior	SK26 mandible- dental pathologies
203	Superior	SK26 mandible- dental pathologies
204	Lateral	SK26 mandible- dental pathologies
205	Medial	SK26 mandible- dental pathologies
206	Superior	SK26 vertebrae -DJD
207	Inferior	SK26 vertebrae -DJD
208	Anterior	SK26 vertebrae -DJD
209	Inferior	SK38 lumbar vertebra-DJD
210	Anterior	SK38 lumbar vertebra-DJD
211	Superior	SK40 vertebra-DJD
212	Inferior	SK40 vertebra-DJD
213	Medial	SK40 distal end of right humerus-eburnation
214	Superior	SK40 sacrum-eburnation
215	Superior	SK40 sacrum-eburnation
216	Inferior	SK40 proximal left radius-eburnation
217	Anterior	SK40 distal left ulna-eburnation
218	Various	SK40 medial and lateral end of left clavicle-DJD
219	Anterior	SK40 left clavicle-DJD
220	Anterior/ medial	SK40 mandible-AMTL
221	Posterior	SK40 thoracic vertebra-DJD
222	Superior	SK40 vertebra-DJD and Schmorl's nodes
223	Various	SK40 cervical vertebrae-DJD
224	Inferior	SK40 vertebra-DJD and Schmorl's nodes
225	Anterior	SK45- Mandible- Linear hypoplasia
226	Medial	SK45- Mandible- Linear hypoplasia
227	Anterior/ medial	SK45- Mandible- Linear hypoplasia
228	Medial	SK46- Mandible- Linear hypoplasia
229	Lateral	SK46- Mandible- Linear hypoplasia
230	Superior	SK46- Mandible- dental pathologies
231	Superior	Staining of the teeth
232	-	Metal objects from graves



## Appendix 2: Excavation Summary Tables

### Context Register

Context	Type	Measurements (m)			Description			Interpretation
		W	L	D	Colour/ Shape	Texture/ Sides	Consistency/ Base	
001	Layer	-	-	0.25	Dark brownish grey	Clayey sand	Friable	Topsoil found throughout the site. Disarticulated bone as well as post-medieval/modern detritus found within this layer
002	Layer	-	-	>1.3	Mid grey brown	Clayey sand	Fairly friable	Cemetery soil. Contained frequent disarticulated bone throughout. Moderate flint and stone inclusions also present
003	Layer	-	-	-	Orange	Clayey sand	Fairly friable	Natural. Observed in patches within the soakaway. Flint and stone inclusions were observed including some larger flint nodules. The natural was only encountered within Soakaway 4.
004	Cut	>0.49	>1.22	>0.33	Oval	Steep	Flat	Cut of Grave containing SK1. Edges not well defined to the south and appears to be cut by a later grave. Cuts grave of SK2
005	Fill	>0.49	>1.22	>0.33	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [004]. Contained the remains of SK1. Fill contains a moderate number of stones and flints. Coffin nails observed within the fill
006	Cut	>0.39	>0.49	>0.20	Oval	Steep	Flat	Cut of grave containing SK2. Poorly defined edges.
007	Fill	>0.39	>0.49	>0.20	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [006]. Contained the remains of SK2. Cut to the east by SK1 and a second unidentified grave. Contained occasional rounded stones and angular flints
008	Cut	>0.61	>1.36	>0.18	Oval	Steep	Flat	Cut of grave containing SK3 and/or SK6. Cuts Grave [030] to the north.
009	Fill	>0.61	>1.36	>0.18	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [008]. Contained the remains of SK3 and/or SK6. Cut by Grave [018] to the west and [014] to the south. Contained a moderate number of stone and flint inclusions. Iron coffin nails and copper shroud pins also recovered
010	Cut	0.48	1.77	>0.38	Oval	Steep	Flat	Cut of grave containing SK4. Grave had well defined edges
011	Fill	0.48	1.77	>0.38	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [010]. Contained the remains of SK4. Heavily disturbed by Grave [012] and [018] to the south. Contained a number of iron nails and copper alloy pins. Also contained a heavily degraded metal plate which was over the jaw of SK4.
012	Cut	>0.28	>0.47	-	Oval	Not excavated	Not excavated	Cut of grave. Skeleton not reached. Difficult to determine edges. Cuts SK4
013	Fill	>0.28	>0.47	-	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [012]. Contained a moderate amount of disarticulated material, likely from SK4
014	Cut	0.45	>1.28	>0.11	Oval	Steep	Flat	Cut of grave containing SK5. Had a well-defined edge to the north. Cuts (009)
015	Fill	0.45	>1.28	>0.11	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [014]. Contained the remains of SK5. Stone and flint inclusions found throughout as well a high proportion of disarticulated material and some iron coffin nails. Cut to the south by Grave [016]



Context	Type	Measurements (m)			Description			Interpretation
		W	L	D	Colour/ Shape	Texture/ Sides	Consistency/ Base	
016	Cut	>0.29	>0.93	-	Oval	Not excavated	Not excavated	Cut of grave. Skeleton not reached. Cuts (015) to the northeast
017	Fill	>0.29	>0.93	-	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [016]. Contained a moderate amount of stone and flint. Disarticulated bone found close to the surface
018	Cut	0.51	1.77	>0.35	Oval	Steep	Flat	Cut of grave containing SK7. Very well defined edges. Cuts (013) and (010) to the northwest and (009) and (017) to the southeast
019	Fill	0.51	1.77	>0.35	Mid grey brown	Clayey sand	Fairly friable and loose	Fill of Grave [018]. Contained the remains of SK7. Individual buried with a large lump of ferrous material (likely slag). A number of iron coffin nails recovered from around the feet and head area. Stone and flint found throughout.
020	Cut	0.37	>0.99	>0.18	Oval	Steep	Flat	Cut of grave containing SK8. Cuts Grave [022] to the north. Well defined edges
021	Fill	0.37	>0.99	>0.18	Mid grey brown	Clayey sand	Fairly friable and loose	Fill of Grave [020]. Contained the remains of SK8. Cut by [024] to the east. Contained a large amount of disarticulated material as well as a moderate number of stones and flints. Soil looser than surrounding graves
022	Cut	>0.39	>0.94	>0.22	Oval	Steep	Flat	Cut of grave containing SK9. Poorly defined edges
023	Fill	>0.39	>0.94	>0.22	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [022]. Contained the remains of SK9. Iron coffin nails were recovered from the fill. Contained a moderate number of stones and flints throughout. Cut by Grave [026] to the north, [024] to the southeast and [020] to the south.
024	Cut	0.45	>0.55	-	Oval	Not excavated	Not excavated	Cut of grave containing SK10. Grave not fully excavated/chased. Cuts (023) and (021)
025	Fill	0.45	>0.55	-	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [024] Contained the remains of SK10. Contained a moderate number of stone and flint inclusions. Individual remained in situ
026	Cut	>0.17	>0.89	>0.22	Oval	Steep	Flat	Cut of grave containing SK11. Cuts Grave [022] to the south
027	Fill	>0.17	>0.89	>0.22	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [026]. Contained the remains of SK11. Copper alloy pins and several silver coated dress pins recovered. It is likely this individual's clothes were pinned around them rather than them being properly dressed. Iron coffin nails also observed
028	Cut	>0.23	>0.23	-	Oval	Not excavated	Not excavated	Cut of grave. Skeleton not reached. Found in the northeast corner of the soakaway
029	Fill	>0.23	>0.23	-	Mid orangey brown	Clayey sand	Fairly friable	Fill of Grave [028]. Not investigated
030	Cut	>0.31	>0.38	-	Oval	Not excavated	Not excavated	Cut of grave. Skeleton not reached. Found to the east of the soakaway
031	Fill	>0.31	>0.38	-	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [030]. Cut to the south by Grave [008]



Context	Type	Measurements (m)			Description			Interpretation
		W	L	D	Colour/Shape	Texture/Sides	Consistency/Base	
031	Fill	>0.31	>0.38	-	Mid grey brown	Clayey sand	Fairly friable	Fill of Grave [030]. Cut to the south by Grave [008]
032	Cut	0.49	>1.12	>0.29	Oval	Steep	Flat	Cut of grave containing SK14. Well defined edges. On top of Grave [038] and slightly cutting it
033	Fill	0.49	>1.12	>0.29	Mid grey brown	Sandy clay	Fairly malleable	Fill of Grave [032]. Contained the remains of SK14. A frequent amount of disarticulated material was recovered from the fill. Contained a moderate number of flint and stone inclusions
034	Cut	0.43	>1.71	-	Oval	Steep	Flat	Cut of grave containing SK15. Well defined edges. Cuts (033) to the north and a number of earlier burials.
035	Fill	0.43	>1.71	-	Dark grey brown	Sandy clay	Fairly malleable and loose	Fill of Grave [034]. Contained a high amount of degraded wood and much of the coffin was still intact. Degraded metal plates were noted over the face and pelvis of the individual. Grave fill was darker than the surrounding fills and fairly loose. Individual remained in situ
036	Cut	0.52	>2.02	>0.39	Oval	Steep	Flat	Cut of grave containing SK22. Had well defined edges. Cuts (039) to the south and a number of other burials
037	Fill	0.52	>2.02	>0.39	Mid grey brown	Sandy clay	Fairly malleable	Fill of Grave [036]. Contained the remains of SK22. The outline of a heavily degraded wooden coffin was observed surrounding and below the individual
038	Cut	>0.29	>1.38	>0.28	Oval	Steep	Flat	Cut of grave containing SK25. Had a well-defined southern edge.
039	Fill	>0.29	>1.38	>0.28	Mid grey brown	Sandy clay	Fairly malleable	Fill of Grave [038]. Contained the remains of SK25. The outline of a heavily degraded wooden coffin was observed within the fill. Cut to the northeast by Grave [036]
040	Cut	>0.41	>0.58	>0.27	Oval	Steep	Flat	Cut of grave containing SK31. Cut a number of earlier burials
041	Fill	>0.41	>0.58	>0.27	Mid orangey brown	Sandy clay	Fairly malleable and loose	Fill of Grave [040]. Contained the remains of SK31. The fill was very loose and contained a moderate number of stone and flint inclusions.
042	Cut	>0.40	>0.57	>0.32	Oval	Steep	Flat	Cut of grave containing SK44. Edges well defined. Individual remained in situ
043	Fill	>0.40	>0.57	>0.32	Mid grey brown	Sandy clay	Fairly malleable	Fill of Grave [042] Contained the remains of SK44. The well preserved remains of a wooden coffin were observed. Iron handle plates were noted at the lower edge and by the right shin

## Plan Register

Drawing No	Sheet No	Scale	Contexts
1	1	1:10	Plan of burials in soakaway 4
2	2	1:10	Plan of burials in Soakaway 6
3	3	1:10	Plan of burials in Soakaway 6
4	2	1:10	SK16 in soakaway 6 service
5	1	1:10	SK17 in soakaway 6 service





---

<b>Drawing No</b>	<b>Sheet No</b>	<b>Scale</b>	<b>Contexts</b>
6	1	1:10	SK24
7	1	1:10	SK35
8	1	1:10	SK36



---

## Appendix 3: Osteology Report –*Laura Dodd MSc MCIfA*

### Introduction

A total of 49 articulated and partially articulated burials were excavated during development works at the Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire. The burial assemblage comprised 15 non-adults and 34 adults. Amongst the assemblage were 13 males, three probable males, 10 females, two probable females. The remaining individuals were of undetermined biological sex.

The skeletons had been interred on a west/east alignment, with their heads to the west and feet to the east. All were extended and supine.

Osteological analysis is principally employed to determine the general identity of individuals and of a burial community by estimating the particular traits. This data can be useful in linking together the various biological information for both specific burial samples and the wider ancient communities (Brothwell 1981:65). In assessing the skeletal remains of past populations, it is possible to better understand life expectancy, mortality rates, birth rates and population growth, and the size and density of historical population (White & Folkens 2005:414).

This summary analysis was undertaken to determine the overall completeness and preservation of the individuals present, their age at time of death, biological sex and stature, and to record and diagnose any pathological manifestations and lesions visible on the bone.

### Methods

Due to time constraints only selected skeletal elements were washed prior to analysis. This was done using cool water and a soft-headed toothbrush and the remains were allowed to dry completely at room temperature. Each skeleton was analysed and recorded following the recommendations set out by Brickley & McKinley (2004) and all findings were recorded using KDK Skeletal Recording spreadsheets produced in Excel following the guidelines set out in Buikstra and Ubelaker (1994). Photographs were compiled of pathological and developmental conditions and the lesions were recorded and described.

### *Preservation, Completeness and fragmentation*

The preservation of human remains may be dependent on a number of factors. Soil type plays a large roll in overall bone surface texture and these conditions can vary considerably from soil to soil, even within the same burial ground. Heat, rooting, insect, animal and human activity can also affect the organic matrix of the bone, leading to the bone becoming brittle and porous (Brothwell 1981:8). In addition, an individual's age, sex, pathologies and the general robusticity of the bone can influence the preservation of remains. It is both useful and important to assess taphonomic changes in the bone in order to avoid mistaking physical and chemical post-mortem modification with antemortem pathological processes (White & Folkens 2005:49).

The preservation of the individuals were assessed using the grading system defined by McKinley (Brickley & McKinley 2004:16) which is scored as follows:

- Grade 0- Excellent: Surface morphology clearly visible with fresh appearance to bone and no modifications
- Grade 1- Very Good. Slight and patchy surface erosion
- Grade 2-Good. More extensive surface erosion than Grade 1 with deeper surface penetration
- Grade 3-moderate. Most of bone surface affected by some degree of erosion; general morphology maintained but detail of parts of surface masked by erosive action



- Grade 4-Poor. All of bone surface affected by erosive action; general profile maintained and depth of modification not uniform across whole surface
- Grade 5-Very poor. Heavy erosion across whole surface, completely masking normal surface morphology, with some modification of profile
- Grade 5+- Extremely Poor. As Grade 5 but with extensive penetrating erosion resulting in modification of profile

As with preservation, the level of completeness and fragmentation of skeletal remains determine the level and accuracy of analytical data collected from each individual. Certain elements, such as the pelvis and skull, provide vital information to identify the sex of an individual and their age at time of death. Many of the analytical methods deployed are dependent on certain skeletal landmarks being partially present or undamaged.

The completeness of an individual is assessed using the criteria below:

- 0-25% (less than a quarter of the skeleton present)
- 25-50% (quarter to half of the skeleton present)
- 50-75% (half to three quarters of the skeleton present)
- 75-100% (three quarters to the entire skeleton present)

Bone fragmentation is categorised as followed:

- Slight – Little to no fragmentation
- Minimal – Some fragmentation on isolated areas of bone. Bone is damaged but mostly present
- Moderate- approximately 50% of skeleton with minimal bone fragmentation, distal and/or proximal ends of bones damaged or missing. Able to record some osteological data but not all elements
- Severe- highly fragmented, distal and/or proximal ends of long bones damaged or missing. Unable to record majority of osteological data
- Extreme - Certain skeletal elements, or the entire skeleton is affected by fragmentation. Very little to no osteological data can be retrieved from the bone

In addition to the analysis of the complete skeletons, the body was sub-divided into skull, axial skeleton, upper appendicular, upper extremities, lower appendicular and lower extremities to assess bone surface preservation, completeness and bone fragmentation.

### ***Demography –Age & Sex***

There are distinct differences within any human population between adult male and female individuals, and understanding the biological sex of a sample population is vital for building a palaeodemographic profile of past societies. In addition to understanding the number of adult male and females within a sample, the identification of biological sex can also aid in further analysis, such as aging, stature and health patterns. The assessment of these demographic profiles as well as the placement within a cemetery and treatment during the burial process, which may differ between males and females or between adults and children, contributes to wider research aims in relation to equality and segregation, disease frequency and mortality rates among different demographic groups (Roberts 2012:120).

The analysis of the skull and pelvis produce the most accurate results when assessing the sex of an individual. When these elements are missing metric traits, general robustness and to a lesser extent, gave goods are also used when determining an individual's sex. The pelvis takes precedence over other skeletal elements in regards to accuracy as there are clear and



unmistakable differences within females which reflect their ability of childbearing and childbirth (Roberts 2012:124). Where possible, the assessment of the biological sex of the individuals recovered was based on the morphological characteristics of the skull and pelvic regions (as outlined in Schwartz 1995, 280-281; Buikstra & Ubelaker 1994; Buikstra and Mielke 1985; Phenice 1969; Milner 1992; Acsadi and Nemeskeri 1970), and metric data (Stewart 1979).

The categories are as follows:

- N/A (applies to Non-adults)
- Undetermined sex (due to a lack of preservation)
- Female
- Probable female
- Ambiguous sex
- Male
- Probable male

Analysing the biological sex of an individual is generally not applied to skeletons under the age of 18 as they lack the sexual dimorphisms needed. This type of analysis can be attempted for individuals in late adolescence (16-18 years) but it is not always recommended (Roberts 2012:123).

In addition to biological sex, the estimation of age is also a useful tool in building a palaeodemographic map of past populations. Assessing the age of an individual at the time of their death may help in understanding mortality rates and life expectancy within a sample population or a wider ancient community. Age estimation can also be a useful tool in identifying times of warfare or famine; for example, a mass burial associated with an historic battle would contain mainly young and middle aged men, whereas a mass grave containing a variety of individuals both male and females of different age groups would be more indicative of a plague pit. Age assessment is also useful in understanding how some diseases affect different age groups (Roberts 2012:140).

Once more, the pelvis is the preferred skeletal element when estimating the age of an adult individual. The degenerative changes of the auricular surface, (as described in Lovejoy *et al.* 1985), and the pubic symphysis (as described in Brooks and Suchey 1990 and Todd 1921 a & b) are used wherever possible to assess age. If these elements are absent, dental attrition (as described in Brothwell 1981 and Smith 1984) and degenerative joint disease (DJD) can also be used. Cranial suture closure is employed only if no other techniques can be used. This method is used with caution as it is seen to be less accurate than other assessment practises (Baker 1984; Mann *et al* 1987; Meindl and Lovejoy 1985; Todd and Lyon 1924, 1925a, 1925b, 1925c). Non-adults are generally easier to age than their adult counterparts, as changes during an individual's development is relatively easily measured and well documented. The preferred methods deployed for the estimation of age at time of death for individuals under the age of 18 years include bone measurements (Schaefer, Black and Scheuer 2009), the stage of epiphyseal fusion of the long bones (Schwartz 1995:185-222; Schaefer, Black and Scheuer 2009; Ubelaker 1989) and dental development (Ubelaker 1978 and Buikstra & Ubelaker 1994).

Individuals are grouped into age categories as follows:

- Foetal (0-38 weeks in *utero*)
- Neonate (Around the time of birth)
- Infant (birth to 1 year)
- Young Child (2 to 5 years)
- Older Child (6 to 12 years)



- Adolescent (13 to 17 years)
- Young adult (ya; 18-25 years)
- Young-middle adult (yma; 26-35 years)
- Old middle adult (oma; 36-45 years)
- Mature adult (ma; 46+)

**Note:** the term adult (>18 yrs) was used when bones are fully fused and preservation does not allow a more precise age range to be assigned, or, analysis has provided a broad age range for the individual.

### ***Normal Metric Variation***

Normal metric analysis can be used to calculate the height of an individual as well as aiding the estimation of biological sex and the age of a non-adult individual. In addition, metric and non-metric analysis of a skeletal population is taken in the attempt to determine the variation between different population groups from archaeological sites both geographically and temporally. This form of analysis can help in understanding the evolutionary aspects of a human population, relatedness between populations as well as assessing the effect of environment and activity on the human skeleton (Roberts 2012:141). Metrical features are influenced by factors such as genes, environment, diet, health and activity, whereas non-metric traits are assumed to be primarily hereditary and are therefore used to infer familial relationships within a cemetery. They can also be studied to identify the 'ethnicity' of an individual or a group of individuals as certain non-metric traits are more common among particular ethnic groups; for example, 'shovelling' on the incisor teeth are common amongst Native American and Asia populations (Roberts 2012:147).

Post-cranial measurements were taken where possible following the standards set out by Buikstra and Ubelaker (1994). This was done using sliding and spreading callipers. Stature was calculated from long bone measurements using the method devised by Trotter and Gleser (1952: 1958), Trotter (1970) and Jantz *et al* (1994) using an osteometric board and a soft tape measure.

### ***Dentition***

As mentioned above, dental development and attrition may be used to help determine age at the time of death. In addition, analysing the teeth can be helpful in determining health, diet, genetic traits and can even suggest an individual's occupation. Throughout history teeth have been used as tools; for example, pulling fibrous material through the spaces between the teeth for cloth or basket production, often producing uneven wear and other alteration. Cultural motivations may also play a part in dental mutilations, including inlays, scoring and artificial colouring to name a few (Mower 1999:42).

Dental recordings were undertaken using the standards set out by Buikstra and Ubelaker (1994) and Brickley and McKinley (2004) and Turner *et al* (1991).

### ***Health and Disease***

Diseases, trauma and abnormal changes can be revealed by an individual's skeletal remains, and in some cases, preserved soft tissue. The palaeopathological analysis is employed to recognise abnormal changes and skeletal modification to an individual prior to (anti-mortem) or at the time of (peri-mortem) death. The analysis of health and disease of an individual from an archaeological context can not only help identify a possible cause of death, but give insight on how an individual lived, how they coped with their ailments, and what treatment they received both medically and socially. In addition to studying particular individuals or communities, the study of ancient maladies can also highlight the presence, absence and evolution of specific



diseases within particular cultures and communities over hundreds or even thousands of years (Roberts 2012:153)

The human remains recovered from the Church of St Mary Magdalene were analysed for any abnormal bone changes associated with either developmental, pathological or dental conditions following standards set out by Buikstra and Ubelaker (1994) and Brickley and McKinley (2004).

Dental pathologies were recorded, following the above standards that included ante-mortem tooth loss, caries, abscesses and periodontal disease.

## Results

### *Completeness and bone surface preservation*

The overall preservation of the remains recovered from the Church of St Mary Magdalene was generally very good (Grade 1) to moderate (Grade 3).

Completeness of the individuals is inevitably biased and does not fully reflect the true number of skeletal elements within the assemblage. This is in part due to nine burials continuing beyond the limit of excavation.

The overall completeness, preservation and fragmentation for each skeleton is outlined below (N.B. Those marked with an \* continued beyond the limit of excavation):

SK No	Completeness	Preservation	Fragmentation
1	51-75%	Grade 1	Moderate
2	26-50%	Grade 1	Moderate
3	0-25%	Grade 2	Slight
4	26-50%	Grade 2	Moderate
5	26-50%	Grade 3	Moderate
6	0-25%	Grade 1	Severe
7	76-100%	Grade 1	Slight
8	26-50%	Grade 1	Slight
9	0-25%	Grade 2	Slight
10	0-25%*	Grade 1	Slight
11	0-25%*	Grade 2	Moderate
12	0-25%*	Grade 1	Slight
13	0-25%	Grade 2	Slight
14	0-25%	Grade 1	Slight
15	76-100%	Grade 1	Minimum
16	26-50%	Grade 2	Moderate
17	26-50%	Grade 2	Moderate
18	26-50%	Grade 1	Moderate
19	0-25%	Grade 2	Slight
20	0-25%	Grade 2	Moderate
21	0-25%	Grade 1	Slight
22	76-100%	Grade 1	Slight
23	0-25%	Grade 1	Slight
24	0-25%	Grade 2	Moderate
25	26-50%	Grade 2	Severe
26	0-25%	Grade 1	Moderate
27	0-25%	Grade 1	Slight
28	0-25%	Grade 1	Slight



SK No	Completeness	Preservation	Fragmentation
29	0-25%*	Grade 2	Slight
30	0-25%	Grade 1	Moderate
31	0-25%*	Grade 1	Slight
32	0-25%	Grade 1	Moderate
33	0-25%	Grade 1	Moderate
34	26-50%	Grade 1	Moderate
35	51-75%	Grade 1	Moderate
36	26-50%	Grade 1	Moderate
37	0-25%	Grade 1	Slight
38	0-25%	Grade 1	Slight
39	0-25%	Grade 1	Slight
40	51-75%	Grade 1	Moderate
41	0-25%	Grade 2	Severe
42	0-25%	Grade 1	Minimum
43	0-25%*	Grade 1	Minimum
44	0-25%*	Grade 1	Minimum
45	26-50%*	Grade 1	Slight
46	0-25%	Grade 2	Moderate
47	26-50%*	Grade 1	Slight
48	0-25%	Grade 2	Moderate
49	0-25%	Grade 1	Moderate

### ***Demographic Attributes***

Demographic attributes of each individual are displayed below:

Skeleton Number	Sex	Age (Years)	Age Range
1	Male	50+	Mature adult
2	Female	18-33	Young/young middle adult
3	Female	16	Adolescent
4	Female	18-25	Young adult
5	Male	60+	Mature adult
6	Female	17-25	Young adult
7	Male	60+	Mature adult
8	Male?	17-18	Adolescent
9	Female	60+	Mature adult
10	Undetermined	Undetermined	Adult
11	Male	50+	Mature adult
12	Female	44-49	Mature adult
13	Female?	60+	Mature adult
14	Male	50+	Mature adult
15	Female	18-25	Young adult
16	Female?	60+	Mature adult
17	Male	50+	Mature adult
18	N/A	c.5	Early childhood
19	N/A	c.8	Late childhood
20	Female	Undetermined	Adult
21	Female	Undetermined	Adult
22	Male	44-59	Old middle/Mature adult
23	N/A	<14	Adolescent
24	N/A	12-14	Adolescent
25	Male	60+	Mature adult
26	Male	50+	Mature adult
27	N/A	6-7	Late childhood



Skeleton Number	Sex	Age (Years)	Age Range
28	Undetermined	Undetermined	Adult
29	Undetermined	Undetermined	Adult
30	N/A	c.5	Early childhood
31	Undetermined	Undetermined	Adult
32	Undetermined	30-50	Adult
33	N/A	c.9	Late childhood
34	N/A	3-5	Early childhood
35	N/A	6-7	Late childhood
36	N/A	6-7	Late childhood
37	Male	Undetermined	Adult
38	Male	50-59	Mature adult
39	Male	Undetermined	Adult
40	Male	60+	Mature adult
41	Undetermined	Undetermined	Adult
42	Undetermined	Undetermined	Adult
43	Undetermined	Undetermined	Adult
44	Undetermined	Undetermined	Adult
45	Female	20-30	Young/middle adult
46	N/A	9-11	Late childhood/puberty
47	N/A	3-4	Early childhood
48	Male?	18-25	Young adult
49	N/A	1-2.5	Early childhood

### Age

The individuals recovered during excavations comprised 34 adults and 15 non-adults. A total of 36 individuals could be assigned a specific age category. The remaining 13 individuals could not be placed into an appropriate age group. These skeletons either lacked the appropriate elements to undertake any analytical investigation or produced a wide estimated age range too broad to fit within the aforementioned categories.

### Sex

Due to the lack of sexual dimorphism in non-adult individuals, sex estimation was not attempted on those deemed to be under the age of 18 years with exception of adolescence individuals who showed early dimorphic changes. Of the 49 people within the assemblage, biological sex could not be determined for 21 individuals as the skeletal elements required for analysis were either missing, too poorly preserved to analyse or not yet matured. Of the 28 individuals which could be sexed, 10 were female, two were probable females, 13 were male and three were probable males. The ratio of males to females from this assemblage does not differ significantly nor does their age distribution; however, it is worth noting that only one adult male within the assemblage died before the age of 45. More of their female counterparts (n=4) were dying at an earlier age which is to be expected of a medieval/post-medieval population due to the issues associated with childbirth.

### Stature

The stature for six adults was calculated based around long bone measurements that overall ranged between 153.04 +/- 4.24 cm (5'0") and 182.36 +/-4.00cm (5'11"). The statures of each individual are displayed below:





Sex	Skeleton	Stature		Bone(s) used
		cm	Feet and inches	
Male	1	176.93± 4.57 cm	5'9"	Humerus (L)
	7	170.99± 2.99 cm	5'7"	Femur and Tibia (L)
	14	168.26± 4.57 cm	5'6"	Humerus (L)
	22	170.73± 2.99 cm	5'7"	Femur and Tibia (L)
	25	178.38± 4.57 cm	5'10"	Humerus (R)
	40	160.27± 2.99 cm	5'3"	Femur and Tibia (L)
	44	182.36± 4.00 cm	5'11"	Tibia (L)
	<b>Mean:</b>	<b>172.56</b>	<b>5'8"</b>	
undetermined	31	(M)179.5± 4.00 cm or (F)167.67± 3.66 cm	(M)5'10" or (F)5'6"	Tibia (R)
Female	4	156.6± 3.72cm	5'1"	Femur (L)
	9	173.89± 4.45 cm	5'8"	Humerus (L)
	13	169.16± 4.24 cm	5'6"	Radius (R)
	15	161.05± 3.72 cm	5'3"	Femur (F)
	16	169.94± 3.72 cm	5'6"	Femur (R)
	21	153.04± 4.24 cm	5'0"	Radius (R)
	45	156.08± 4.45 cm	5'1"	Humerus (L)
	<b>Mean:</b>	<b>162.82</b>	<b>5'4"</b>	

### ***Health and Disease***

The health of the assemblage was investigated by assessing the bones and teeth for the presence of abnormalities attributed to developmental conditions, dental and bone pathologies. It was found that out of the 49 individuals, 19 displayed abnormalities and/or pathological changes.

### ***Dental Health and Disease***

The dentition of the skeletal population can provide insight into the health, diet, oral hygiene as well as information about environmental and congenital conditions of an individual or a wider population. A total of 18 individuals had surviving teeth, of which 14 were adults and four were non-adults.

Of the 18 dentitions present 16 (13 adults, three non-adult) displayed some form of dental disease or anomaly (Plates 57-63). A summary of dental diseases and their severity is outlined below (Calculus was recorded following Brothwell 1981 (grade1= small, grade 2= moderate and grade 3=large amounts), Roberts and Connell 2004 were used to grade periodontal disease (grade 1= 2-3mm, grade 2= 3-5mm and grade 3= >5mm);

SK number	Periodontal Disease	AMTL	Calculus	Caries	Abscess	Other
1	Grade 3	Yes	Grade 1	Multiple	Multiple	Pipe smoking facet
2	Grade 2	Yes	Grade 2	Multiple	-	Horizontally positioned M3
4	-	-	Grade 1	-	-	Enamel Hypoplasia
7	Grade 3	Yes	-	Multiple	-	-
11	-	Yes	-	-	-	All teeth lost antemortem
14	-	Yes	-	-	-	-
15	-	-	Grade 1	-	-	-
16	Grade 3	Yes	Grade 1	-	Yes	Lingual wear on upper left canine
17	Grade 3	Yes	-	Multiple	Yes	-
18	-	-	-	Yes	-	-



SK number	Periodontal Disease	AMTL	Calculus	Caries	Abscess	Other
19	-	-	-	Yes	-	Wear on the upper deciduous dentition (I2, I1, I1, I2) and damage on both I2
22	Grade 2	Yes	Grade 1	Multiple	Yes	Abnormal wear on several teeth. Possibly due to grinding teeth Diastema
25	-	Yes	-	-	-	-
26	Grade 2	Yes	Grade 1	Multiple	Yes	Chipped upper and lower I1s Fenestration Diastema
45	Grade 1	-	-	-	-	Enamel Hypoplasia
46	-	-	Grade 1	Yes	-	Enamel Hypoplasia Brown and grey staining on forming molars

### Periodontal Disease and AMTL

Eight individuals showed signs of periodontal disease which is a consequence of gingivitis, an inflammation of the gums that is often caused by an excess of calculus and poor dental hygiene. Resorption of the alveolar bone and loss of the periodontal ligament supporting the teeth can ultimately lead to ante-mortem tooth loss (Robert and Manchester 2005: 73-74; White and Folkens 2005: 330). Ante-mortem tooth loss (AMTL) is the loss of a tooth during lifetime, for non-adults it is a natural process for the deciduous teeth to fall out and be replaced by the permanent dentition. AMTL in adults on the other hand is a dental pathology that can be linked to the age, diet and oral hygiene of the individual (Roberts and Manchester 2005: 73-74).

### Calculus

Dental calculus was present in eight of the individuals with recordable dentition. This in all cases was slight to moderate and did not appear consistently throughout the dentition appearing as flecks and/or small linear deposits on the tooth. Dental plaque is made up of micro-organisms that accumulate in the mouth and are found within a matrix that consists of not only the organisms themselves but from proteins in the saliva also. Dental plaque can become mineralized into dental calculus where crystallites of mineral are deposited in the plaque. Two types of calculus can be seen: supragingival which is above the gum and subgingival which is below the gum (Hillson, 1968: 284; Roberts and Manchester 2005:71-72; White and Folkens 2005:330).

### Dental Caries

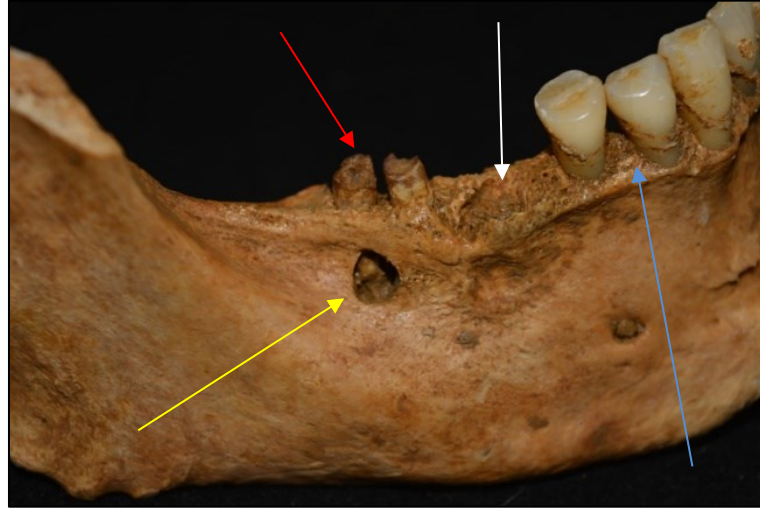
Dental caries occurs in the form of small opaque spots on the teeth surface or as cavities. An infectious and transmissible disease that is caused by the fermentation of food by bacteria that is present on the teeth in plaque. Two areas of the tooth may be affected: the crown of the tooth, and the roots, both of which can allow the accumulation of plaque to develop (Roberts and Manchester 2005:65-71; Hillson 1986: 287; White and Folkens 2005: 329). Dental caries were recorded for nine individuals. These ranged from small cavities on the tooth surface to complete destruction of the crown.

### Dental Abscesses

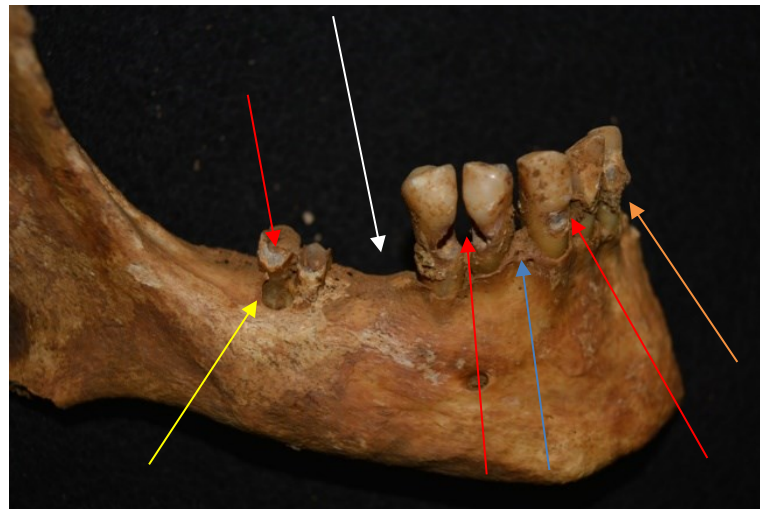
Dental abscesses can develop as a direct result of dental caries, attrition or trauma exposing pulp cavity which in turn allowing bacteria to infiltrate the cavity. Abscesses can also arise if an individual develops periodontal disease and a periodontal pocket. Here micro-organisms accumulate in the pulp cavity, inflammation occurs and dead cells and bacteria (pus) collect, also termed an abscess. This builds up of pus and pressure can eventually create a hole or sinus



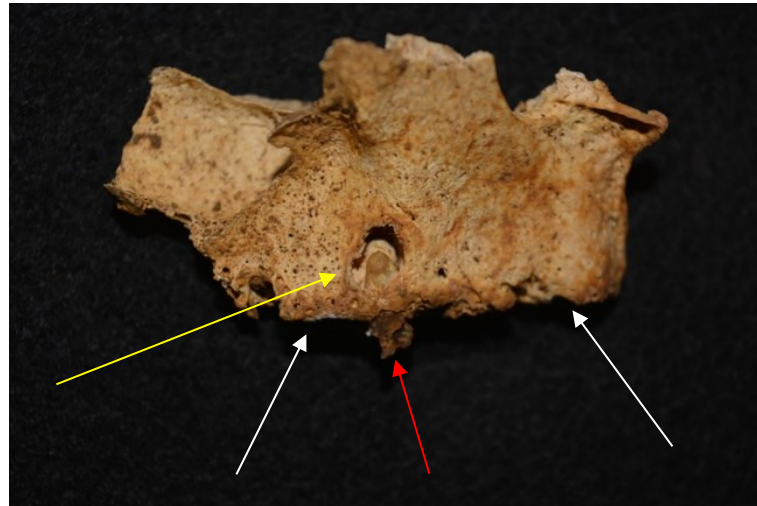
in the jawbone allowing the pus to escape, and in turn may also lead to ante mortem tooth loss (AMTL; Roberts and Manchester 2005:70). Five individuals showed evidence of abscesses as a direct result of dental disease.



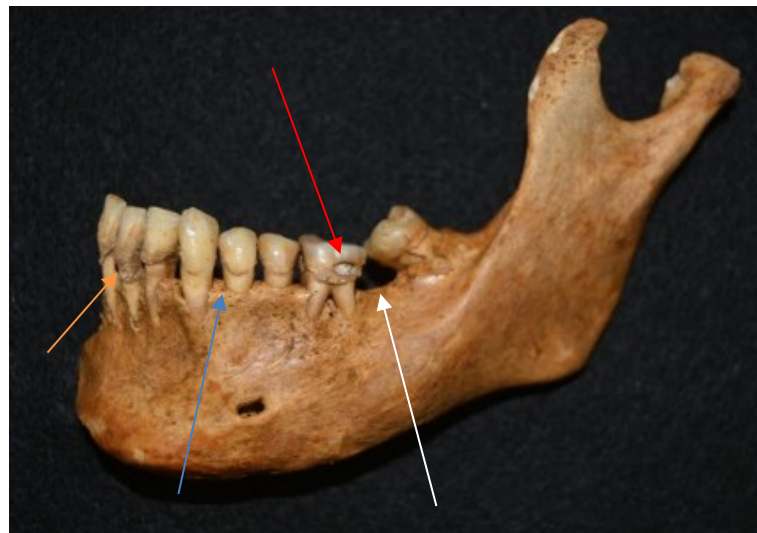
**Plate 57:** SK26. Caries (red arrow), AMTL (white arrow), periodontal disease (blue arrow) and an abscess (yellow arrow)



**Plate 58:** SK1. Caries (red arrow), AMTL (white arrow), periodontal disease (blue arrow) calculus (orange arrow) and an abscess (yellow arrow)



**Plate 59:** SK22. Caries, AMTL, and an abscess



**Plate 60:** SK2. Caries (red arrow), AMTL (white arrow), periodontal disease (blue arrow) and calculus (orange arrow) NB. Left third molar impacted and likely responsible for loss of M2

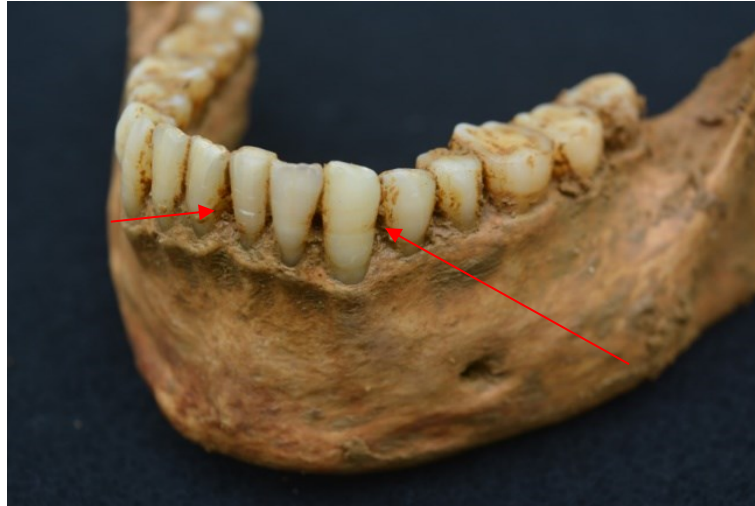


**Plate 61:** SK2. Periodontal disease (blue arrow) and calculus (orange arrow)



### Enamel Hypoplasia

Three skeletons showed evidence of slight linear enamel hypoplasia. This dental enamel defect can occur as lines, pits or grooves on the enamel surface in the earlier stages of life while the teeth are developing. These defects remain on the teeth permanently and they can be broadly associated with hereditary anomalies, localized trauma and systemic metabolic stress, for instance nutritional deficiency during the first to seventh year of childhood (Roberts and Manchester 2005: 75-76; White and Folkens 2005: 329).



**Plate 62:** SK45. Linear enamel hypoplasia on the canines, I2s and I1s



**Plate 63:** SK46. Linear enamel hypoplasia on the right canines and I2s and both I1s

### Pipe smoking facet

Pipe smoking began in the 1570s in England and was common practice by the end of the period. As well as the obvious health implications smoking is known to cause, the repetitive placement of abrasive objects, such as a clay pipe, can cause circular wear on the crown of the teeth (Ubelaker 1996:322). This wear is bilateral and affects the teeth of the maxilla and opposing mandible. A single individual, SK1, had a visible pipe smoking facet (Plate 64).



**Plate 64:** SK1 Pipe smoking facet (red arrow)

**Pathological Conditions**

A list of the pathologies encountered are outlined below:

Skeleton Number	Pathologies	Areas affected	Severity	Condition
1	Coalesced pitting, marginal osteophytes and joint contour remodelling	Vertebrae	Severe	Osteoarthritis
5	Coalesced pitting and marginal osteophytes	Lumbar vertebra	Moderate	Osteoarthritis
7	Marginal osteophytes and porosity	Femoral head (in the fovea capitis)	Moderate	Osteoarthritis
	Joint contour remodelling, marginal osteophytes, ankyloses (vertebrae) and porosity (incl coalesced pitting)	Proximal and distal ulna and radius and on both ends of both clavicles. Right proximal end Several vertebrae affected	Severe	
	Eburnation (polish)	Odontoid process, and articular facet of several vertebrae	Moderate	
	Schmorl's nodes	Thoracic Vertebra	Moderate	
11	Porosity (incl coalesced pitting)	Vertebral bodies Medial and lateral ends of the right clavicle	Severe	DJD
	Joint contour remodelling Marginal osteophytes	Vertebrae, particularly around the articular facets	Severe	Osteoarthritis
	Eburnation (grooves)	C2	Severe	
	Schmorl's Nodes	Lumbar and thoracic vertebral bodies	Moderate	Herniation of the vertebral disc
	Pitting	Right parietal bone	Minor	Possible endocranial lesion. But may also be erosion.



Skeleton Number	Pathologies	Areas affected	Severity	Condition
14	Porosity	Sternoclavicular joint of the left clavicle	Moderate	DJD
16	Marginal osteophytes	Right distal femur	Minor	DJD
17	Porosity	Left humerus head	Minor	DJD
	Porosity (incl. coalesced), marginal osteophytes and joint contour remodelling	Articular facets and vertebral bodies of cervical vertebra	Severe	Osteoarthritis
22	Porosity (incl. coalesced), marginal osteophytes and joint contour remodelling	Articular facets and vertebral bodies. Most severe on the cervical vertebra	Severe	Osteoarthritis
26	Porosity (incl. coalesced), marginal osteophytes and slight joint contour remodelling	Articular facets and vertebral bodies	Severe	Osteoarthritis
38	Porosity (Pin point) and marginal osteophytes	Vertebral bodies	Moderate	Osteoarthritis
40	Porosity (incl. coalesced)	Articular facets and vertebral bodies and Clavicle	Severe	Osteoarthritis
	Eburnation (polished and grooved)	Distal humerus, articular facets of the sacrum, distal and proximal radius,	Severe	
	Joint contour remodelling	Cervical vertebral bodies and clavicle	Severe	

### Joint Disease

Joint disease encompasses a large number of conditions, including but not limited to, degenerative joint disease, osteoarthritis and inflammatory maladies such as septic arthritis or immune joint disease such as rheumatoid arthritis. The most common pathological conditions observed amongst this assemblage was degenerative joint disease (DJD). This affliction is associated with gradual bone deterioration commonly associated with advancing age or physical lifestyle. The disease will affect one or more of the joints, and the bone abnormalities observed are proliferative which can be bone formation, or erosive being bone destruction, or both can occur. Bone formation takes place in the form of bony outgrowths from joint surfaces and margins, known as osteophytes. Osteophytes are a direct result of the bodies attempt at spreading the load of the joint due to stress. The initial stages of joint disease will often involve the cartilage whereby repeated stress on the joint can lead to a breakdown of cartilage leading to bone exposure which in turn leads to the bone becoming hardened (sclerosis). Degenerative joint disease is recognised with the presence of either marginal osteophytes (osteophytosis/bone lipping), porosity, joint contour remodelling, fusion (ankylosis) and extra-articular ossification (hardening of the cartilage, ligaments, tendon and blood vessels).

Given enough time, this condition can advance into more severe forms of the disease. One such is malady is osteoarthritis (OA). For this condition, two or more of the above mentioned conditions must be present. In addition, the presence of polishing on the joint surface (eburnation) is instantly identifiable as osteoarthritis as it is pathognomonic of the disease



regardless of whether other indicators of degenerative joint disease are present (Roberts & Manchester 2005: 132-163; Rogers and Waldron 1995: 32-45).

A study in 1962 found that within the third decade of life a large proportion of individuals studied had vertebral osteophytosis, by the fifth decade, all individuals had some form of degenerative joint disease (Roberts and Manchester 2005:140). This statistic is reflected within the spines of all individuals over the estimated age of 50 within the assemblage

Degenerative joint disease was present in 11 of the adult individuals (10 males, 1 probable females; Plates 65-67), of these eight had the more severe form of the disease, Osteoarthritis.



**Plate 65:** SK7 Coalescent pitting and joint contour remodelling on the cervical vertebra



**Plate 66:** SK40. Coalescent pitting and joint contour remodelling on the cervical vertebra





**Plate 67:** SK11. Eburnation on the articular facet of C2 (grooves)

### Schmorl's Nodes

Schmorl's nodes are formed when the intervertebral discs become herniated under stress and exert pressure on the adjacent vertebral bodies. It is most common in the thoracic and lumbar regions of the spine, and can affect both the superior and/or inferior surfaces of the vertebral bodies. Aetiology of Schmorl's nodes is debateable. Past studies have suggested that the presence of Schmorl's nodes can be associated with degenerative changes or an isolated traumatic episode but can also be attributed to specific disorders such as Scheuermann's disease, metabolic and neoplastic diseases; however, more recent studies have shown that the occurrence is probably associated with the vertebral development process during an individual's early growth (Dar et al., 2010). For the purposes of this report, Schmorl's nodes will be recorded as pathology; however, the author understands that this may not be appropriate in all cases. Schmorl's nodes were present in two individuals, SK7 and SK11 (Plate 68).



**Plate 68:** SK11. Schmorl's Nodes N.B. DJD also present

### Possible endocranial lesion

Fine pitting was observed on the cranium of SK11 (Plate 69). The lesion appeared as fine localised pitting within a slight depression on the right parietal bone. It is possible that this is a response to infection or possibly a well healed compressed fracture. It is also possible that it is the result of erosion.



**Plate 69:** SK11. Possible endocranial lesion on the right parietal bone

### References

- Acsádi G. & Nemeskéri J. 1970. *History of Human Life Span and Mortality*. Akadémiai Kiadó, Budapest
- Brickley M. & McKinley M. 2004. Guidelines to the standards for recording of human remains. *Institute for Archaeologists Paper 7*.
- Brooks S.T. & Suchey J.M. 1990. 'Skeletal Age Determination Based on the *Os Pubis*: A Comparison of the Ascadi-Nemeskeri & Suchey-Brooks Methods' *Human Evolution* **5**, 227-238.
- Brothwell D. R. 1981. *Digging up Bones*. Cornell University Press, Ithaca, New York.
- Buikstra J. E. and Mielke J. H. 1985. Demography, Diet and Health. In Gilbert R. I, Jr & J. H Mielke (eds) *Analysis of Prehistoric Diets*. Academic Press, New York, pp359-422.
- Buikstra J.E. and Ubelaker D.H. 1994. *Standards for Data Collection from Human Skeletal Remains*. Arkansas 118/BCB99 Archaeological Survey Research Series **44**.
- Dar G., Masharawi Y., Peleg S., Steinberg N., May H., Medlej B., Peled N., and Hershkovitz I. 2010. *Schmorl's nodes distribution in the human spine and its possible etiology*. *Eur Spine J* **19:670-675**
- Jantz R.L., Hunt D. R. & Meadows L. 1994. Maximum Length of Tibia: How did Trotter Measure It? *American Journal of Physical Anthropology* **93**:525-528.
- Finnegan M. 1978. Non-Metric Variation of the Infracranial Skeleton. *Journal of Anatomy* **125**, 23-37.
- Hillson S. 1986. *Teeth*. Cambridge, Cambridge University Press.
- Hillson S. 1996. *Dental Anthropology*. Cambridge University Press.
- Lovejoy C.O., Meindl R.S., Pryzbeck T.R. & Mensforth R.P. 1985. 'Chronological metamorphosis of the auricular surface of the ilium: A new method for the determination of adult skeletal age at death'. *American Journal of Physical Anthropology* **68**, 15-28.
- Lewis M. 2007. *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*. Cambridge University Press. Cambridge.
- Mann R. W., Symes S. A. & Bass W. M. 1987. Maxillary Suture Obliteration: Aging the Human Skeleton Based on Intact or Fragmentary Maxilla. *Journal of Forensic Sciences* **32**, 148-157.



- Meindl R. S. & Lovejoy C. O. 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.
- Milner G. R. 1992. Determination of Skeletal Age and Sex: A Manual Prepared for the Dickson Mounds Reburial Team. Ms. On file, Dickson Mounds Museum, Lewiston, Illinois.
- Phenice T. 1969. A Newly Developed Visual Method of Sexing in the Os Pubis. *American Journal of Physical Anthropology* **30**, 297-301.
- Roberts C. & Connell B. 2004. Guidance of recording paleopathology In Brickley M. and McKinley J.I. *Guidelines to the Standards for Recording Human Remains* IFA Paper No. 7, 34-39.
- Roberts C. & Cox M. 2003. *Health and Disease in Britain*. Sutton Publishing Ltd.
- Roberts C. & Manchester K. 2005. *The Archaeology of Disease*. Third Edition, Sutton Publishing Ltd.
- Roberts C. 2012. *Human Remains in Archaeology: A Handbook*. CBA Practical Handbook 19. York.
- Rogers J. & Waldron T. 1995. *A Field Guide to Joint Disease in Archaeology*. Chichester, John Wiley & Sons, 32-45.
- Schaefer M., Black S. and Scheuer L. 2009. *Juvenile Osteology A Laboratory and Field Manual*. Elsevier Inc.
- Schwartz J. H. 1995. *Skeleton Keys*. Oxford University Press (Oxford).
- Smith B.H. 1984. Patterns of molar wear in hunter-gatherers and agriculturalists. *American Journal of Physical Anthropology* **63**, 39-56.
- Stewart T. D. 1979. *Essentials of Forensic Anthropology*. Charles C. Thomas. Springfield. Illinois.
- Todd T.W. 1921a. Age Changes in the Pubic Bone. I: The Male White Pubis. *American Journal of Physical Anthropology* **3**, 285-334.
- Todd T. W. 1921b. Age Changes in the Pubic Bone. III: The Pubis of the White Female. IV: The Pubis of the female white-negro hybrid. *American Journal of Physical Anthropology* **4**, 1-70.
- Trotter M. & Gleser G. C. 1952. Estimation of stature from long bones of American whites and negroes. *American Journal of Physical Anthropology* **10**:463-514.
- Trotter M. & Gleser G. C. 1958. A re-evaluation of stature based on measurements taken during life and of long bones after death. *American Journal of Physical Anthropology* **16**: 79-123.
- Trotter M. 1970. Estimation of stature from intact limb bones; in TD Stewart (ed.) *Personal identification in mass disasters*. Washington Smithsonian Institute, 71-83.
- Ubelaker D. H. 1989. Estimation of age at death from immature human bone. In Işcan M. Y. (ed): *Age markers in the human skeleton*. Springfield, IL, Charles C. Thomas, pp 55-70.
- Ubelaker D. H. 1996. Pipe Wear: Dental Impact of Colonial American Culture. *Anthropologie* XXXIV/3 pp. 321-327
- White T. M. and Folkens P. A. 2005 *The Human Bone Manual*. Elsevier Academic Press.
- Waldron T. 2009. *Palaeopathology*. Cambridge University Press. Cambridge.



Appendix 4: Skeletal Catalogue

Dental abbreviations:

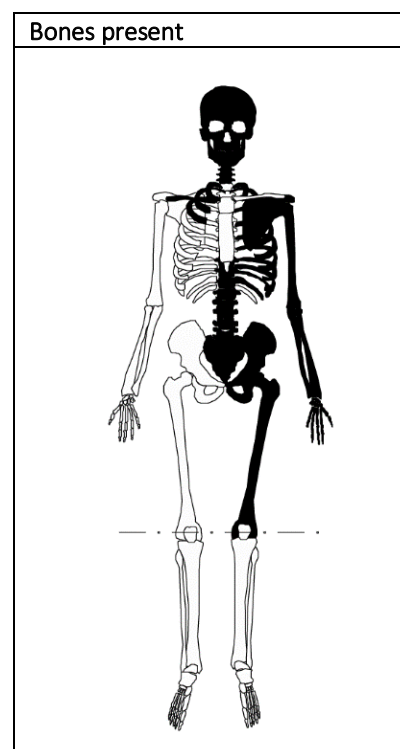
**State of tooth (A)**

- P Tooth present
- / Lost postmortem
- X Lost antemortem
- B Broken
- NP Not present
- R Root
- U Unerupted
- ER Erupted
- PU Pulp
- ? Unerupted and not visible in jaw

**State of alveolar bone (B)**

- √ Alveolar socket present
- Alveolar socket absent

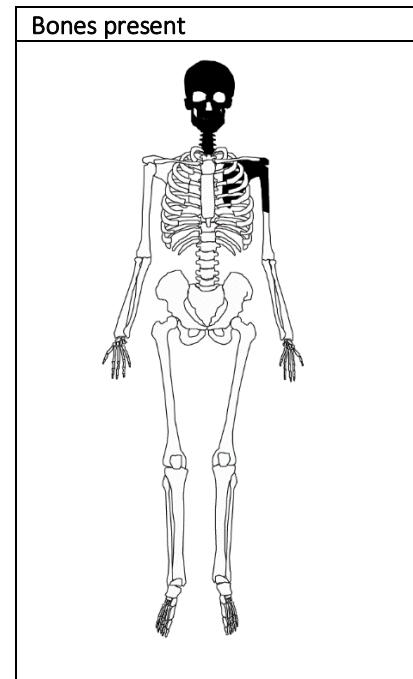
<b>SK Number 1</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Arms by side
Position of legs/feet	Legs straight
Age	50+
Sex	Male
Completeness	51-75%
Stature	176.93±4.57cm
Dental pathologies	AMTL Caries Abscess Slight/medium calculus Severe periodontal disease Pipe smoking facet
Pathologies	Osteoarthritis
Other observations	None



SK1 Dentition	Right															Left	
	B	A	Maxillary	Mandibular	A	B	Maxillary	Mandibular	A	B	Maxillary	Mandibular	A	B	Maxillary		Mandibular
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	/	/	/	/	/	P	P	P	X	P	P	/	P	P	P	P	
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	/	P	/	P	P	P	P	P	X	P	P	P	P	/	P	P	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

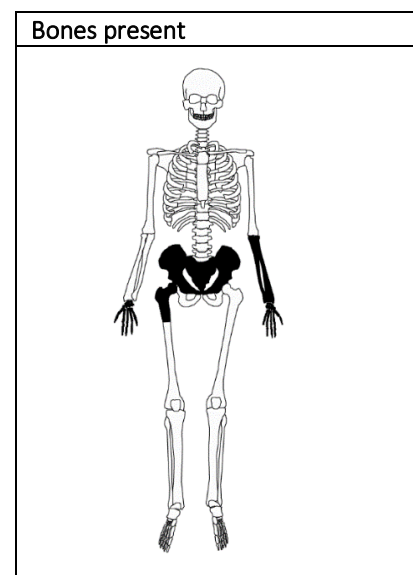


<b>SK Number 2</b>	<b>Young/young middle adult</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	18-33
Sex	Female
Completeness	0-25%
Stature	Undetermined
Dental pathologies	Calculus AMTL Caries Slight/medium periodontal disease
Pathologies	None observed
Other observations	Horizontally positioned lower left 3 <sup>rd</sup> molar



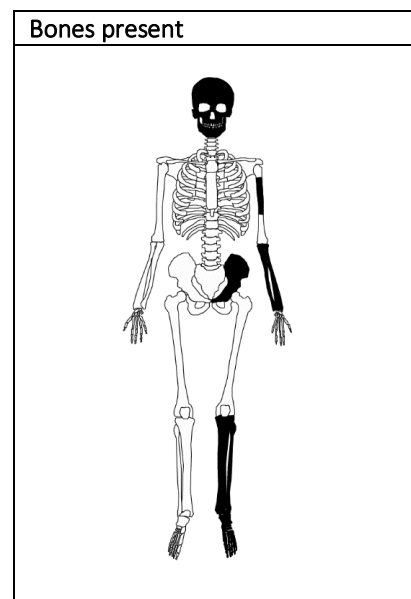
SK2 Dentition	Right															Left		
	B	A	M <sup>3</sup>	M <sup>2</sup>	M <sup>1</sup>	P <sup>2</sup>	P <sup>1</sup>	C	I <sup>2</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>2</sup>	C	P <sup>1</sup>	P <sup>2</sup>	M <sup>1</sup>	M <sup>2</sup>	M <sup>3</sup>
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-
A	X	X	P	R	R	P	P	P	P	P	P	P	R	B	P	R	NP	
Maxillary																		
Mandibular																		
A	X	X	P	P	P	P	P	P	P	P	P	P	P	P	P	X	P	
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

<b>SK Number 3</b>	<b>Adolescent</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight/hands by hips
Position of legs/feet	Unknown
Age	16
Sex	Female
Completeness	0-25%
Stature	Undetermined
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



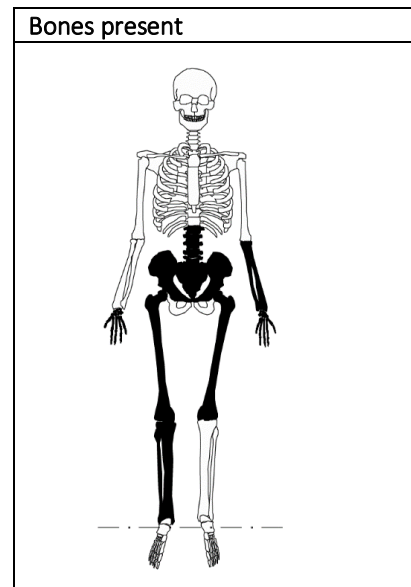


<b>SK Number 4</b>	<b>Young adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Legs straight. Feet pointing east
Age	18-25
Sex	Female
Completeness	26-50%
Stature	156.6±3.72cm
Dental pathologies	Slight EH Slight calculus
Pathologies	None observed
Other observations	None



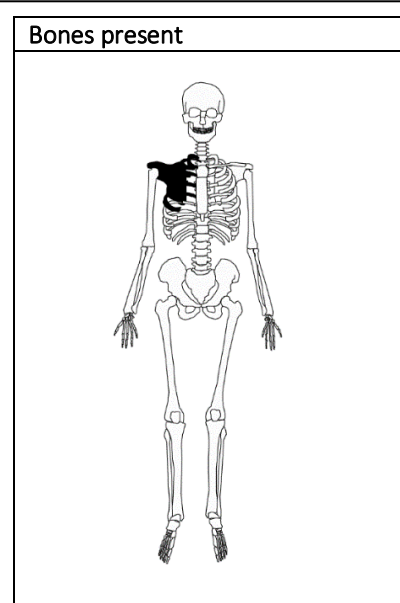
SK4 Dentition	Right															Left	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>p<sup>1</sup></i>	<i>C</i>	<i>i<sup>2</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>2</sup></i>	<i>C</i>	<i>p<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	?	P	P	P	P	P	P	P	P	/	/	/	/	/	NP	NP	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	-

<b>SK Number 5</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight
Age	60+
Sex	Male
Completeness	26-50%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	Osteoarthritis
Other observations	None

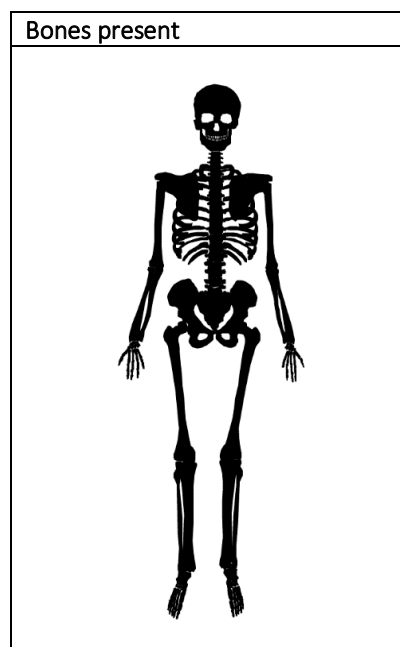




<b>SK Number 6</b>	<b>Young adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	17-25
Sex	Female
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



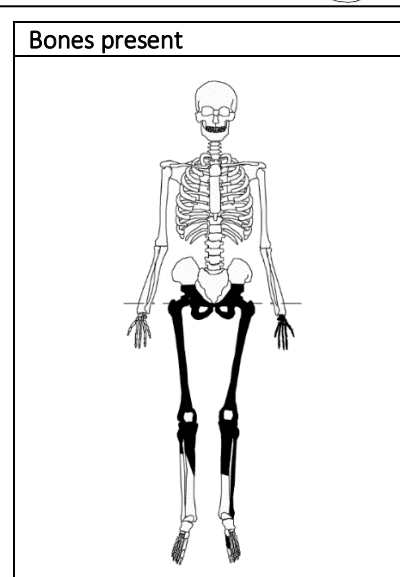
<b>SK Number 7</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	South
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight. Feet crossed
Age	60+
Sex	Male
Completeness	75-100%
Stature	170.99 ± 2.99 cm
Dental pathologies	Caries Periodontal disease AMTL
Pathologies	Osteoarthritis
Other observations	None



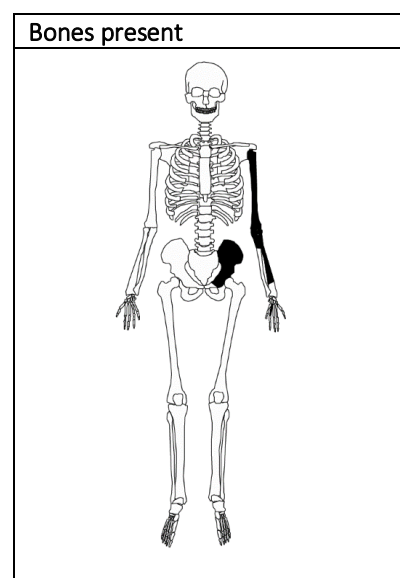
SK7 Dentition	Right															Left		
	M <sup>3</sup>	M <sup>2</sup>	M <sup>1</sup>	P <sup>2</sup>	P <sup>1</sup>	C	I <sup>2</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>2</sup>	C	P <sup>1</sup>	P <sup>2</sup>	M <sup>1</sup>	M <sup>2</sup>	M <sup>3</sup>		
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Maxillary																		
Mandibular																		
A	X	X	X	X	X	X	X	X	X	P	P	X	X	X	X	X		
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		



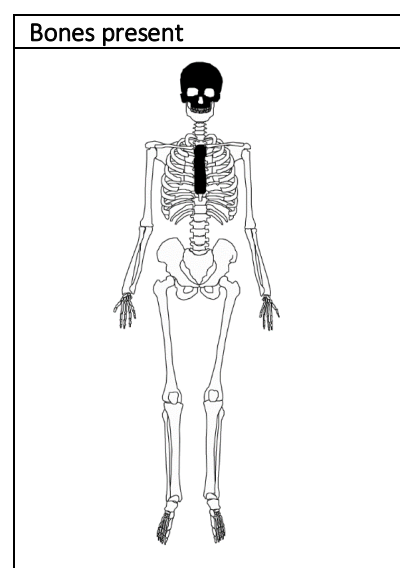
<b>SK Number 8</b>	<b>Adolescent</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Straight. Feet unknown
Age	17-18
Sex	Male?
Completeness	26-50%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 9</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight
Position of legs/feet	Unknown
Age	60+
Sex	Female
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



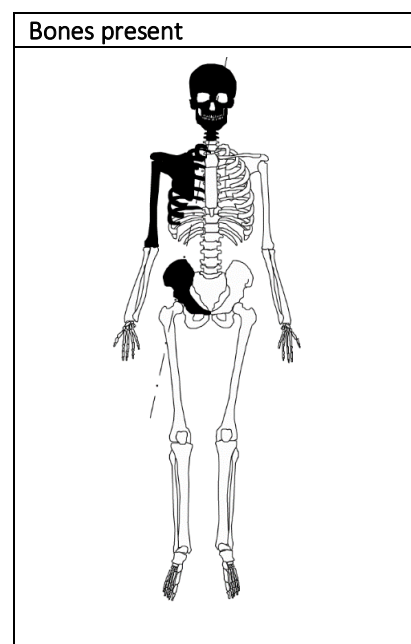
<b>SK Number 10</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Not exposed
Position of legs/feet	Not exposed
Age	Undetermined
Sex	Male?
Completeness	0-25% (not fully exposed and left in situ)
Stature	Unknown
Dental pathologies	Not investigated
Pathologies	Not investigated
Other observations	None





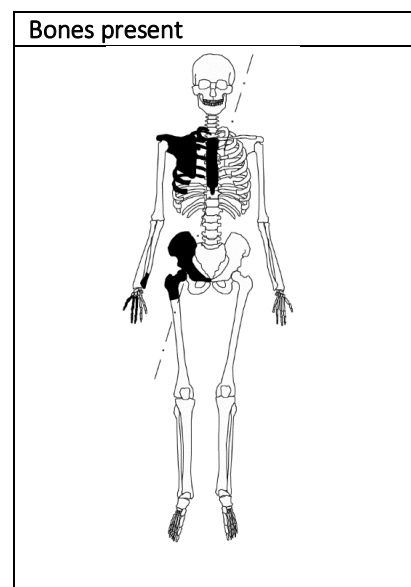


<b>SK Number 11</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	50+
Sex	Male
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	AMTL
Pathologies	Osteoarthritis Schmorl's nodes Possible destructive lesion on the skull
Other observations	None



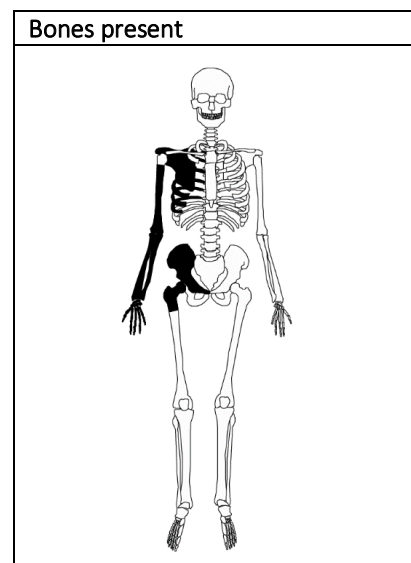
SK11 Dentition	Right															Left	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

<b>SK Number 12</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	44-49
Sex	Female
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

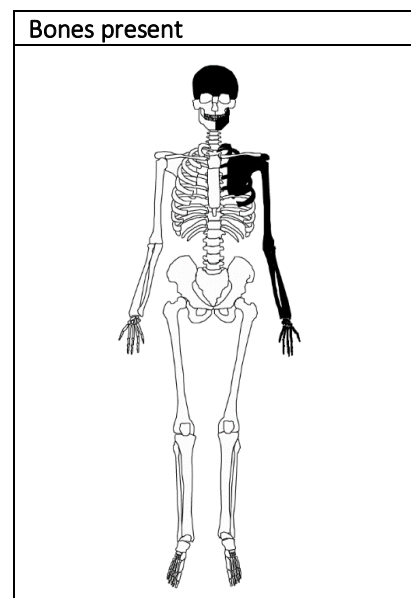




<b>SK Number 13</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	60+
Sex	Female?
Completeness	0-25%
Stature	169.16 ± 4.24 cm
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



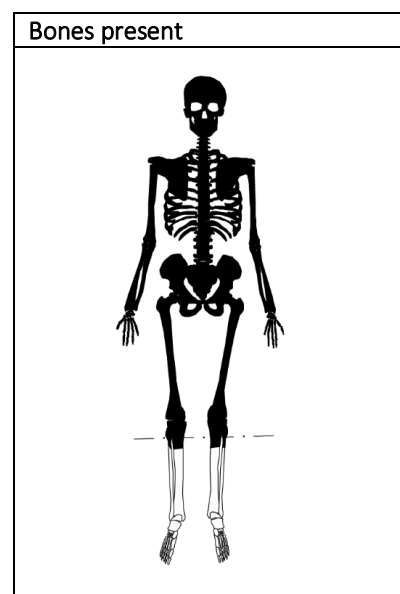
<b>SK Number 14</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	50+
Sex	Male
Completeness	0-25%
Stature	168.26± 4.57 cm
Dental pathologies	AMTL
Pathologies	Degenerative Joint Disease
Other observations	None



SK14 Dentition	Right																Left
	B	A	Maxillary	Mandibular	A	B	A	Maxillary	Mandibular	A	B	A	Maxillary	Mandibular	A	B	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	/	X	X	X	X	X	
B	-	-	-	-	-	-	-	-	-	-	√	√	√	√	√	√	

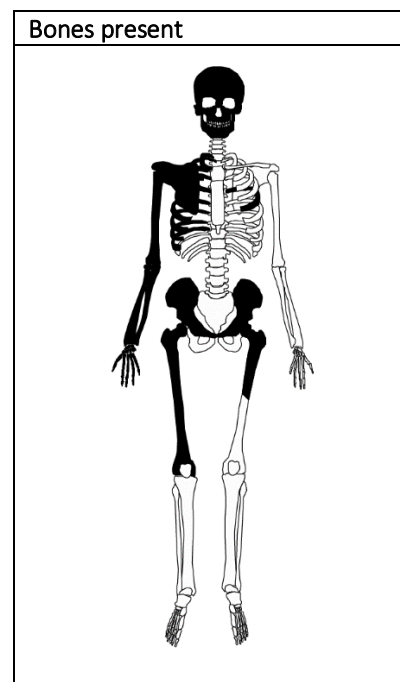


<b>SK Number 15</b>	<b>Young Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Arms straight. Left hand over hip, right hand by hip
Position of legs/feet	Legs straight
Age	20-24
Sex	Female
Completeness	76-100% (not fully exposed)
Stature	161.05 ± 3.72 cm
Dental pathologies	Slight calculus
Pathologies	None observed
Other observations	None



SK15 Dentition	Right															Left	
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	?
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

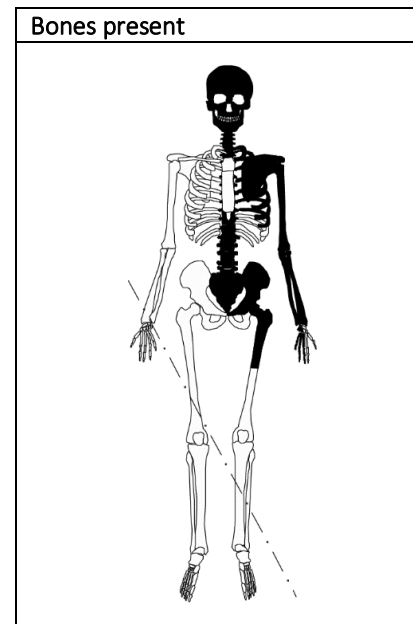
<b>SK Number 16</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight
Age	60+
Sex	Female?
Completeness	26-50%
Stature	169.94 ± 3.72 cm
Dental pathologies	AMTL Abscess Lingual wear on upper left canine Minor calculus Periodontal disease
Pathologies	Degenerative Joint disease
Other observations	None





SK16 Dentition	Right																Left	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>		
Mandibular																		
A	X	X	X	X	X	X	X	X	X	X	X	p	X	X	X	X	X	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

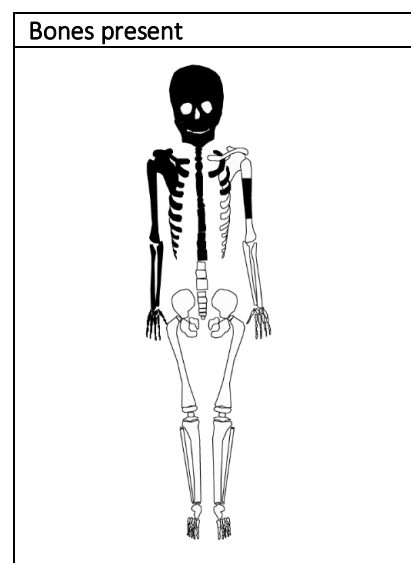
SK Number 17	Mature adult
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Arm straight. Hands by hips
Position of legs/feet	Unknown
Age	50+
Sex	Male
Completeness	26-50%
Stature	Unknown
Dental pathologies	AMTL Severe periodontal disease Caries, Abscess
Pathologies	Osteoarthritis
Other observations	None



SK17 Dentition	Right																Left	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	X	X	X	X	X	X	X	X	X	X	X	X	X	p	X	X	X	X
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>		
Mandibular																		
A	X	X	X	R	R	X	X	X	X	X	p	X	X	X	X	X	p	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

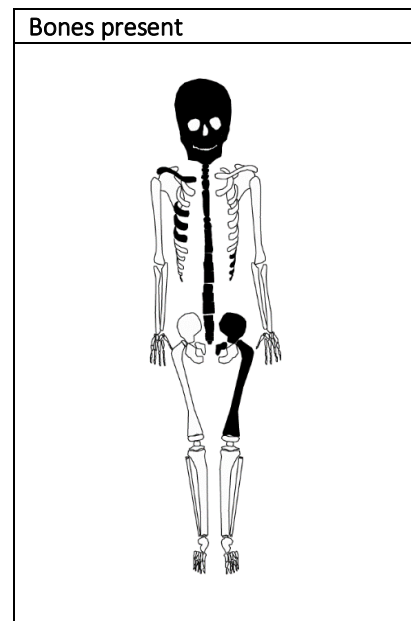


<b>SK Number 18</b>	<b>Early childhood</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Arms straight. Hands by side
Position of legs/feet	Unknown
Age	5
Sex	N/A
Completeness	26-50%
Stature	N/A
Dental pathologies	Caries
Pathologies	None observed
Other observations	None



SK18 Dentition	Right					Left				
	B	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary										
Mandibular	<i>e</i>	<i>d</i>	<i>c</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
A	P	P	P	P	P	P	P	P	P	P
B	√	√	√	√	√	√	√	√	√	√

<b>SK Number 19</b>	<b>Late childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	8
Sex	N/A
Completeness	0-25%
Stature	N/A
Dental pathologies	Caries
Pathologies	None noted
Other observations	Wear on the upper deciduous dentition (I2, I1, I1, I2) and damage on both I2

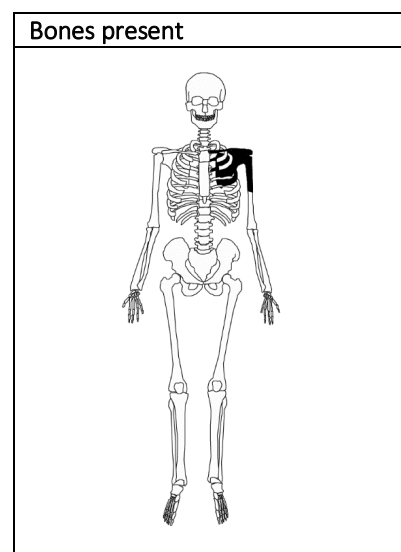




SK19 Permanent Dentition	Right															Left	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	?	?	?	?	?	?	?	U	U	U	U	?	?	?	U	?	
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	?	P	?	?	U	?	U	U	?	?	U	NP	NP	NP	NP	NP	
B	√	√	√	√	√	√	√	√	√	√	√	-	-	-	-	-	

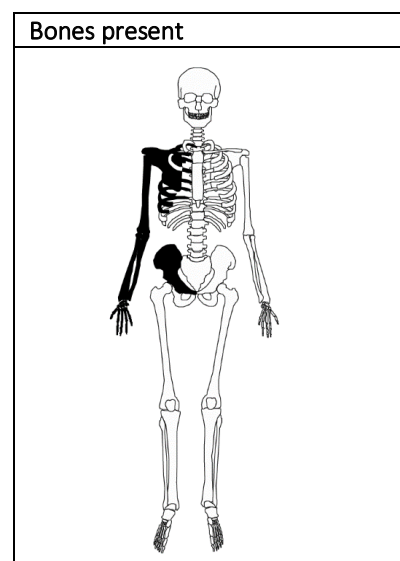
SK19 Deciduous Dentition	Right										Left
B	√	√	√	√	√	√	√	√	√	√	√
A	P	P	P	P	P	P	P	P	P	P	P
Maxillary	<i>e</i>	<i>d</i>	<i>c</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	
Mandibular											
A	P	P	P	P	P	P	P	NP	NP	NP	
B	√	√	√	√	√	√	√	-	-	-	

SK Number 20	Adult
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	Undetermined
Sex	Female
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

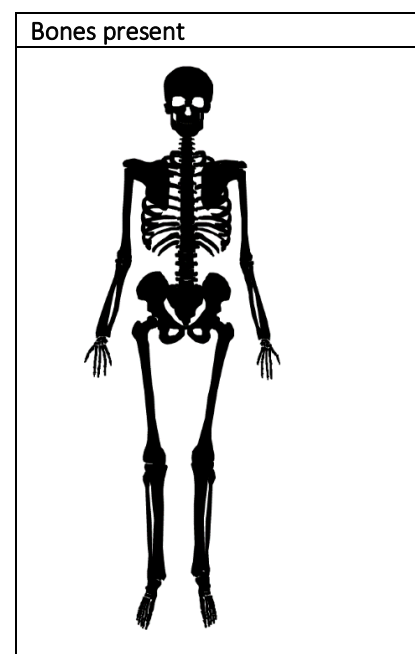




<b>SK Number 21</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Slightly bent at elbow. Hands over pelvis
Position of legs/feet	Unknown
Age	Undetermined
Sex	Female
Completeness	0-25% (not fully exposed)
Stature	153.04± 4.24 cm
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



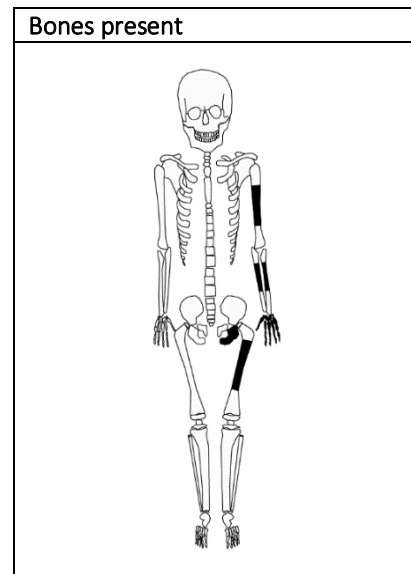
<b>SK Number 22</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	South
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight. Feet pointing south
Age	44-59
Sex	Male
Completeness	76-100%
Stature	170.73± 2.99 cm
Dental pathologies	AMTL, Caries, Abscess, Slight calculus Chipped upper incisor Periodontal disease
Pathologies	Osteoarthritis
Other observations	Unusual wear on the front teeth. Possibly used as tools



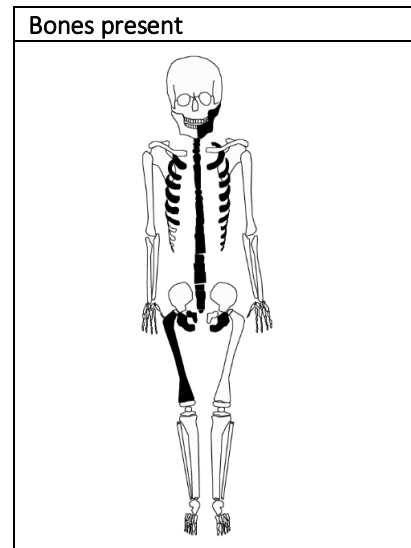
SK22 Dentition	Right															Left
B	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	NP	X	X	R	X	X	X	P	P	X	X	P	X	X	P	/
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>
Mandibular																
A	X	X	X	X	P	P	P	P	P	P	P	P	X	X	X	X
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√



<b>SK Number 23</b>	<b>Adolescent</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	<14
Sex	N/A
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 24</b>	<b>Adolescent</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight
Age	12-14
Sex	N/A
Completeness	0-25%
Stature	N/A
Dental pathologies	None observed
Pathologies	None observed
Other observations	None

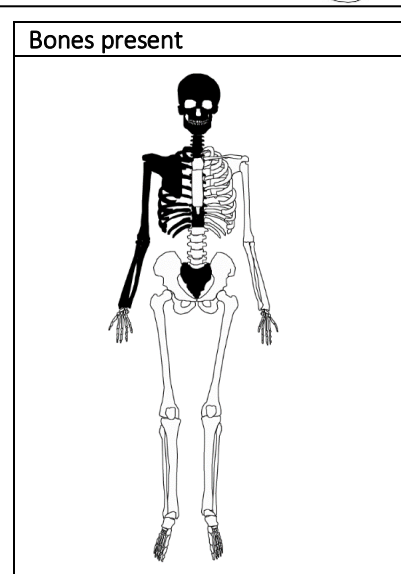


SK24 Dentition	Right																Left	
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>p<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>p<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>		
Mandibular																		
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	/	P	P	P	P	P	P	U/NP	
B	-	-	-	-	-	-	-	-	-	-	√	√	√	√	√	√	√	



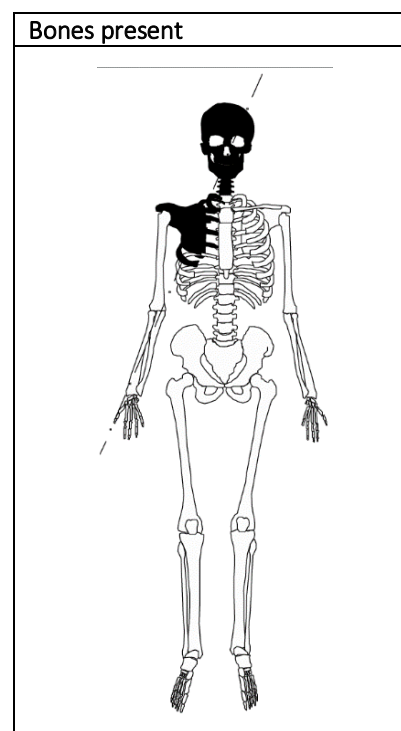


<b>SK Number 25</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	60+
Sex	Male
Completeness	26-50%
Stature	178.38± 4.57 cm
Dental pathologies	AMTL
Pathologies	Osteoarthritis
Other observations	None



SK25 Dentition	Right															Left							
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Maxillary	<b>M<sup>3</sup></b>	<b>M<sup>2</sup></b>	<b>M<sup>1</sup></b>	<b>P<sup>2</sup></b>	<b>P<sup>1</sup></b>	<b>C</b>	<b>I<sup>2</sup></b>	<b>I<sup>1</sup></b>	<b>I<sup>1</sup></b>	<b>I<sup>2</sup></b>	<b>C</b>	<b>P<sup>1</sup></b>	<b>P<sup>2</sup></b>	<b>M<sup>1</sup></b>	<b>M<sup>2</sup></b>	<b>M<sup>3</sup></b>							
Mandibular																							
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

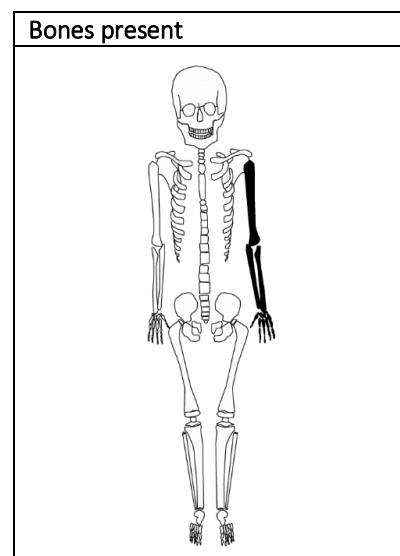
<b>SK Number 26</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	50+
Sex	Male
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	Caries Chipped upper and lower I1 Minor calculus Periodontal disease Abscess
Pathologies	Osteoarthritis
Other observations	Fenestration Diastema



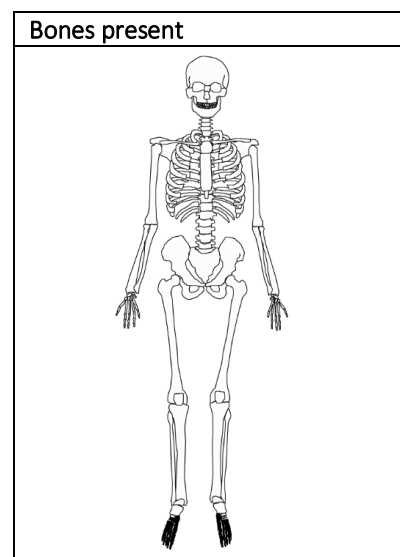


SK26 Dentition	Right															Left		
B	-	-	-	√	√	√	√	√	√	√	√	√	√	√	-	-	-	
A	NP	NP	NP	P	P	P	P	P	P	P	P	P	P	NP	NP	NP		
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>p<sup>1</sup></i>	<i>C</i>	<i>i<sup>2</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>2</sup></i>	<i>C</i>	<i>p<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>		
Mandibular																		
A	X	R	X	P	P	P	P	P	P	P	P	P	P	X	X	NP		
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-		

SK Number 27	Late childhood
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	6-7
Sex	N/A
Completeness	0-25%
Stature	Unknown
Dental pathologies	Not recordable dentition
Pathologies	None observed
Other observations	None

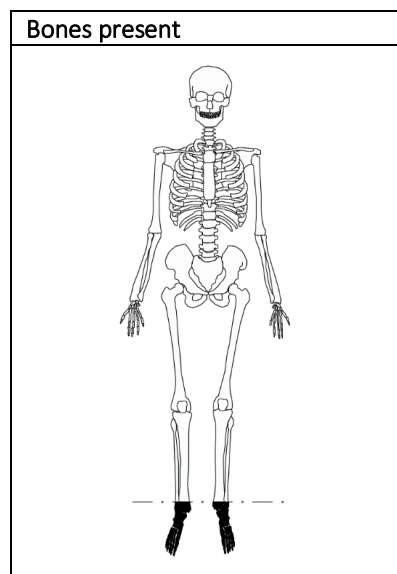


SK Number 28	Adult
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25%
Stature	Unknown
Dental pathologies	No observable dentition
Pathologies	None observed
Other observations	None

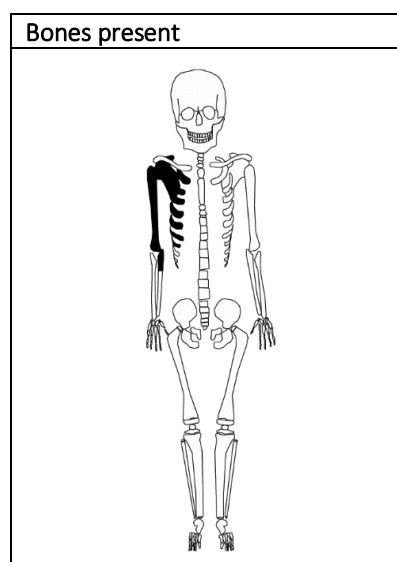




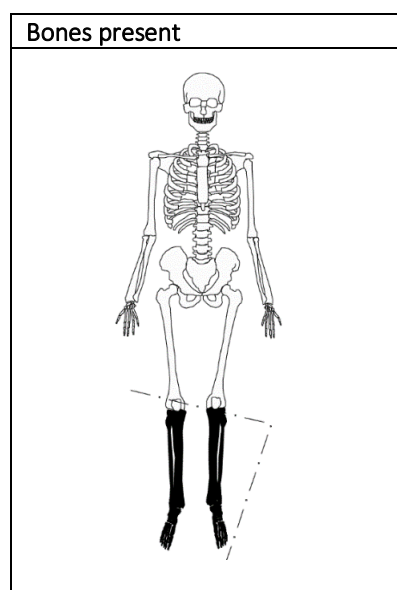
<b>SK Number 29</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Legs straight. Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 30</b>	<b>Early childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight
Position of legs/feet	Unknown
Age	5
Sex	N/A
Completeness	0-25%
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

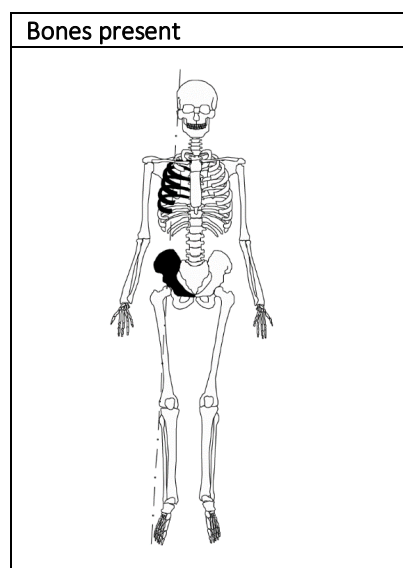


<b>SK Number 31</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Legs straight. Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25% (not fully exposed)
Stature	179.5 ± 4.00 cm (M)/ 167.67 ± 3.66 cm (F)
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

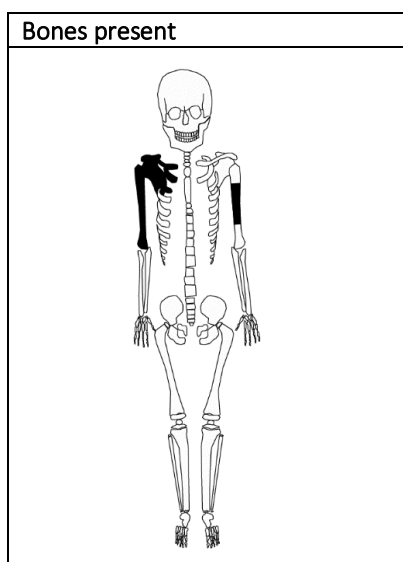




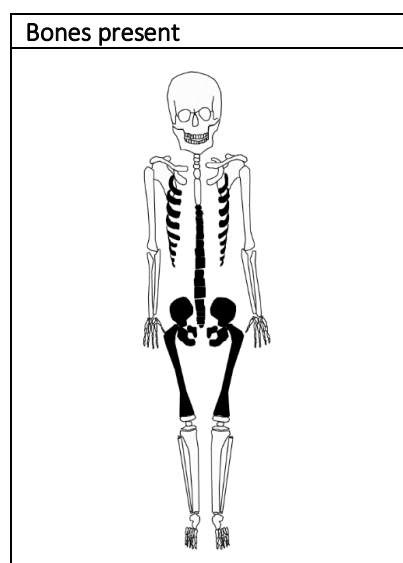
<b>SK Number 32</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	30-50
Sex	Undetermined
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 33</b>	<b>Late childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight
Position of legs/feet	Unknown
Age	9
Sex	N/A
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

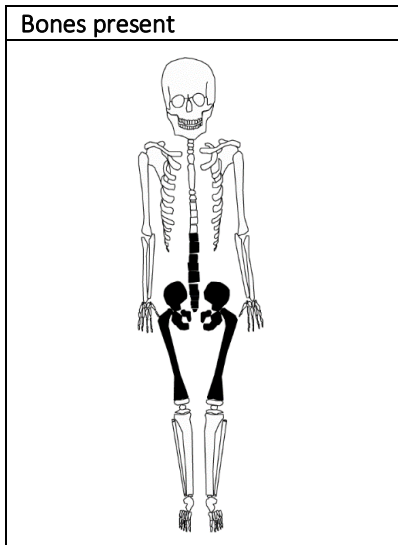


<b>SK Number 34</b>	<b>Early childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	3-5
Sex	N/A
Completeness	26-50%
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

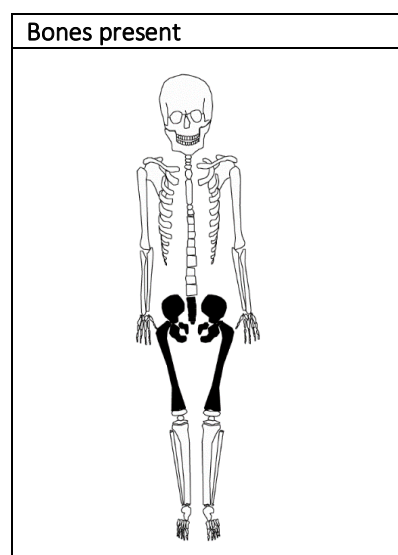




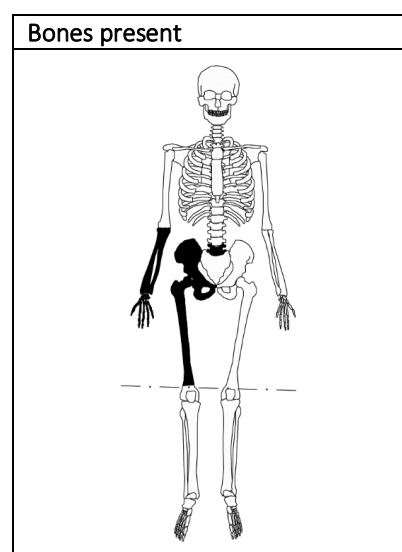
<b>SK Number 35</b>	<b>Late childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Unknown
Age	6-7
Sex	N/A
Completeness	51-75%
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 36</b>	<b>Late childhood</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	6-7
Sex	N/A
Completeness	26-50%
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

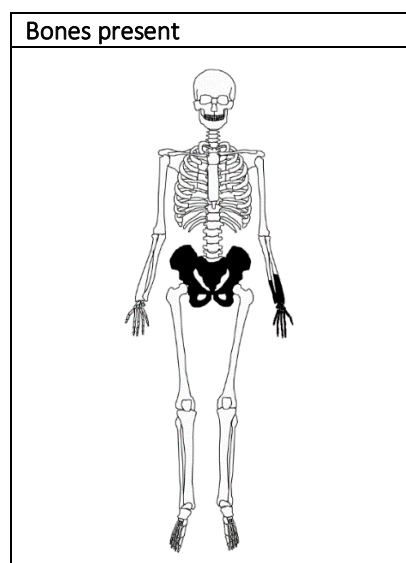


<b>SK Number 37</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight
Age	Undetermined
Sex	Male
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

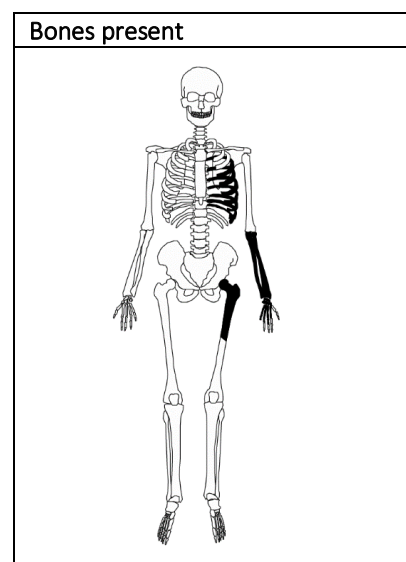




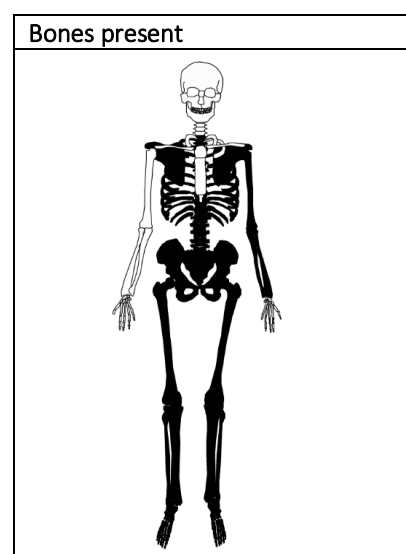
<b>SK Number 38</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	50-59
Sex	Male
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	Osteoarthritis
Other observations	None



<b>SK Number 39</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hand by hips
Position of legs/feet	Unknown
Age	Undetermined
Sex	Male
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

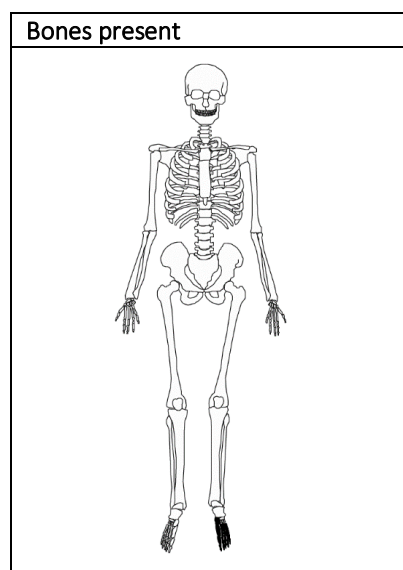


<b>SK Number 40</b>	<b>Mature adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by hips
Position of legs/feet	Legs straight. Feet pointing east
Age	60+
Sex	Male
Completeness	51-75%
Stature	160.27± 2.99 cm
Dental pathologies	No recordable dentition
Pathologies	Osteoarthritis
Other observations	None

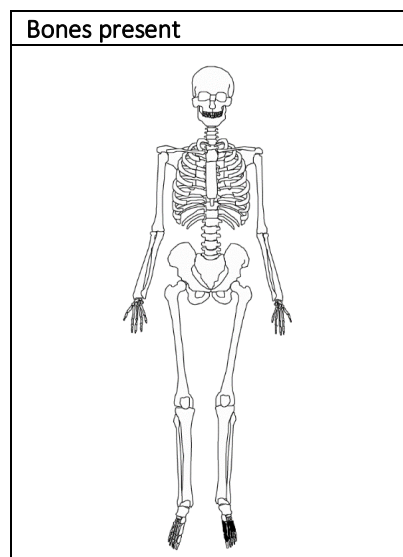




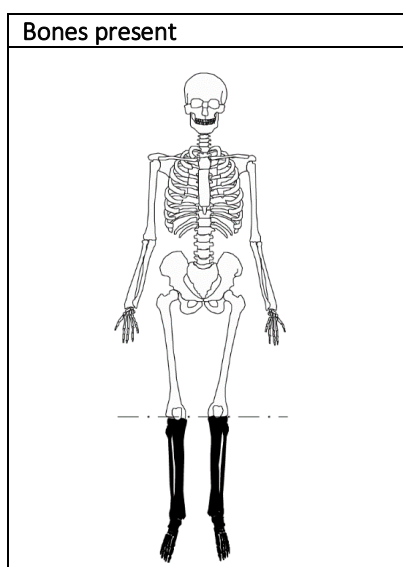
<b>SK Number 41</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 42</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25%
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

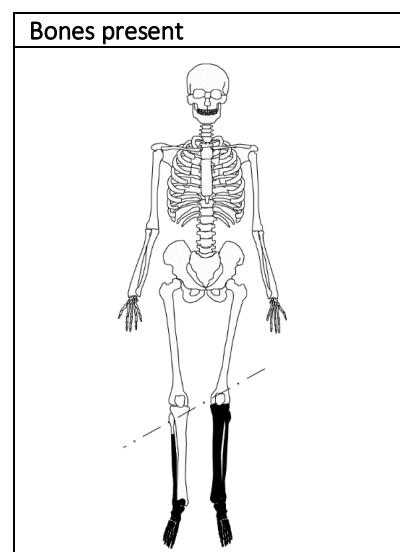


<b>SK Number 43</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Legs straight. Feet pointing east
Age	Undetermined
Sex	Undetermined
Completeness	0-25% (not fully exposed)
Stature	Unknown
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None

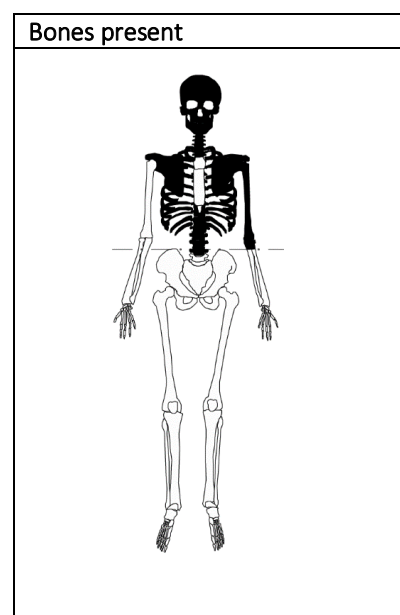




<b>SK Number 44</b>	<b>Adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Legs straight. Feet bent inwards
Age	Undetermined
Sex	Undetermined
Completeness	0-25% (not fully exposed and left in situ)
Stature	182.36 ± 4.00 cm
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None



<b>SK Number 45</b>	<b>Young/middle adult</b>
Burial type	Primary inhumation
Grave type	Coffin
Orientation	East-west
Head to the...	West
Head facing	East
Position of body	Supine
Position of arms/hands	Arms straight
Position of legs/feet	Unknown
Age	20-30
Sex	Female
Completeness	26-50% (Not fully exposed and left in situ)
Stature	156.08± 4.45 cm
Dental pathologies	Enamel hypoplasia Slight periodontal disease
Pathologies	None observed
Other observations	None

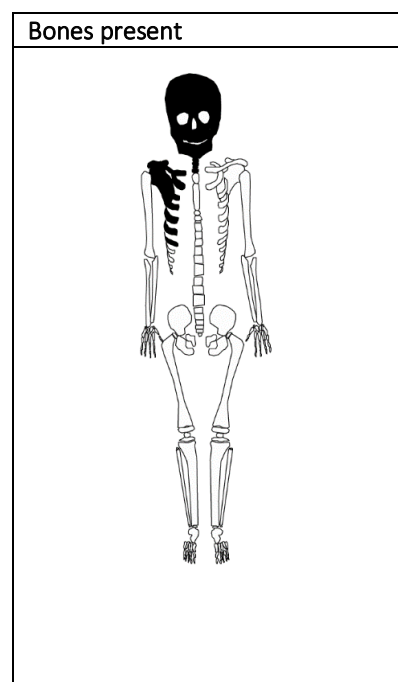


SK45 Dentition	Right															Left			
	B	A	M <sup>3</sup>	M <sup>2</sup>	M <sup>1</sup>	p <sup>2</sup>	p <sup>1</sup>	C	ρ <sup>2</sup>	ρ <sup>1</sup>	ρ <sup>1</sup>	ρ <sup>2</sup>	C	p <sup>1</sup>	p <sup>2</sup>		M <sup>1</sup>	M <sup>2</sup>	M <sup>3</sup>
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Maxillary																			
Mandibular	M <sup>3</sup>	M <sup>2</sup>	M <sup>1</sup>	p <sup>2</sup>	p <sup>1</sup>	C	ρ <sup>2</sup>	ρ <sup>1</sup>	ρ <sup>1</sup>	ρ <sup>2</sup>	C	p <sup>1</sup>	p <sup>2</sup>	M <sup>1</sup>	M <sup>2</sup>	M <sup>3</sup>			
A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√





<b>SK Number 46</b>	<b>Late childhood/puberty</b>
Burial type	Primary inhumation
Grave type	Possible shroud
Orientation	East-west
Head to the...	West
Head facing	North
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	9-11
Sex	N/A
Completeness	0-25%
Stature	N/A
Dental pathologies	Enamel Hypoplasia Slight calculus Brown and grey staining in forming molars Caries
Pathologies	None observed
Other observations	None

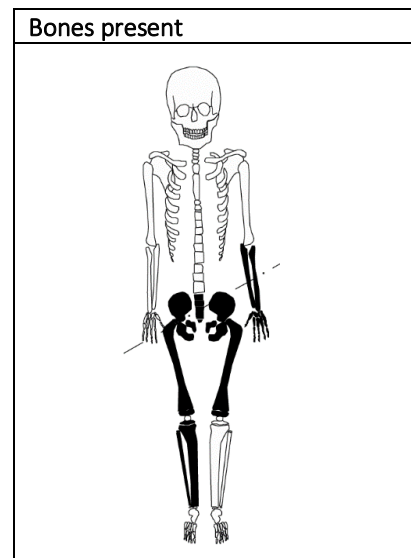


SK46 Permanent Dentition	Right															Left			
	B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
A	?	U	p	?	U	U	p	p	p	?	U	?	?	?	?	?	?	?	?
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>p<sup>1</sup></i>	<i>C</i>	<i>i<sup>2</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>1</sup></i>	<i>i<sup>2</sup></i>	<i>C</i>	<i>p<sup>1</sup></i>	<i>p<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>			
Mandibular																			
A	?	U	U	U	U	p	p	p	p	p	NP	NP	NP	NP	NP	NP	NP	NP	NP
B	√	√	√	√	√	√	√	√	√	√	√	-	-	-	-	-	-	-	-

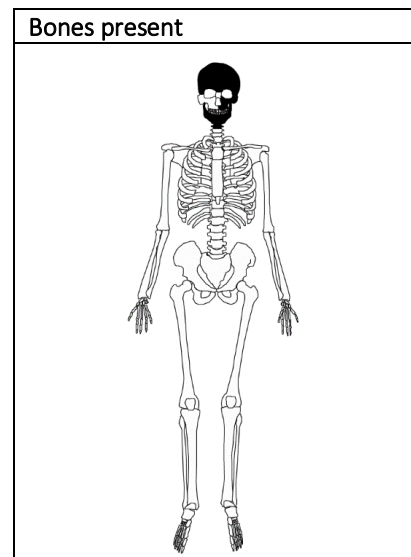
SK46 Deciduous Dentition	Right										Left		
	B	√	√	√	√	√	√	√	√	√	√	√	√
A	p	p	p	X	X	X	X	NP	NP	NP	NP	NP	NP
Maxillary	<i>e</i>	<i>d</i>	<i>c</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>			
Mandibular													
A	p	p	p	X	X	X	X	NP	NP	NP	NP	NP	NP
B	√	√	√	√	√	√	√	-	-	-	-	-	-



<b>SK Number 47</b>	<b>Early childhood</b>
Burial type	Primary inhumation
Grave type	Possible coffin
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms straight. Hands by side
Position of legs/feet	Legs straight
Age	3-4
Sex	N/A
Completeness	26-50% (not fully exposed)
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None noted
Other observations	None



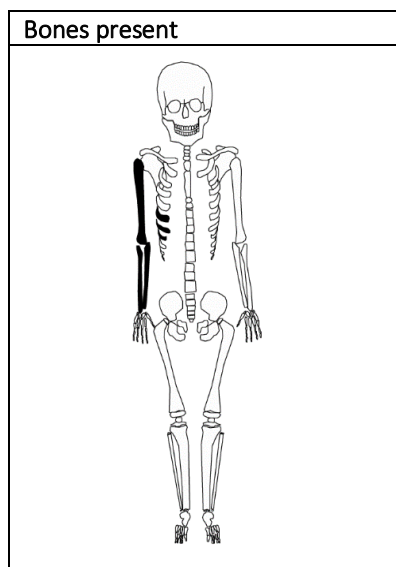
<b>SK Number 48</b>	<b>Young adult</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	South
Position of body	Supine
Position of arms/hands	Unknown
Position of legs/feet	Unknown
Age	18-25
Sex	Male?
Completeness	0-25%
Stature	Unknown
Dental pathologies	None observed
Pathologies	None observed
Other observations	None



SK48 Dentition	Right															Left	
	B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Maxillary	<i>M<sup>3</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>P<sup>1</sup></i>	<i>C</i>	<i>I<sup>2</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>1</sup></i>	<i>I<sup>2</sup></i>	<i>C</i>	<i>P<sup>1</sup></i>	<i>P<sup>2</sup></i>	<i>M<sup>1</sup></i>	<i>M<sup>2</sup></i>	<i>M<sup>3</sup></i>	
Mandibular																	
A	X	P	P	P	P	P	X	X	X	P	P	P	P	P	P	X	
B	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	



<b>SK Number 49</b>	<b>Early childhood</b>
Burial type	Primary inhumation
Grave type	Unknown
Orientation	East-west
Head to the...	West
Head facing	Unknown
Position of body	Supine
Position of arms/hands	Arms by side
Position of legs/feet	Unknown
Age	1-2.5
Sex	N/A
Completeness	0-25%
Stature	N/A
Dental pathologies	No recordable dentition
Pathologies	None observed
Other observations	None





## Appendix 5: OASIS and Site Data

PROJECT DETAILS			
<b>Project Name &amp; Address</b>	Church of St Mary Magdalene, Church Lane Barkway, Hertfordshire	<b>Project Site Code</b>	693/BSCM
<b>OASIS reference</b>	kdkarcha1-506743	<b>Event/Accession no</b>	TBC
<b>OS reference</b>	TL3828 3561	<b>Study area size</b>	71.51 sq m
<b>Project Type</b>	Observation and Recording	<b>Height (mAOD)</b>	131
<b>Short Description</b>	Between June and July 2022 KDK Archaeology Ltd undertook a programme of Observation and Recording during the installation of new soakaways and associated drains at the Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire. Four soakaways and associated drainage trenches were excavated around the churchyard and a total of 49 articulated and partially articulated skeletons were uncovered. The concentration of individuals within the soakaways shows that the cemetery is heavily populated, particularly to the southwest. Individuals of all ages were encountered; however, the articulated and partially articulated remains of children were largely absent to the north of the church.		
<b>Previous work</b>	None	<b>Site status</b>	Grade I listed church and churchyard
<b>Planning proposal</b>	Drainage works	<b>Current land use</b>	Churchyard
<b>Local Planning Authority</b>	North Hertfordshire	<b>Faculty ref.</b>	1056
<b>Monument type</b>	Graves	<b>Monument period</b>	Medieval/post-medieval
<b>Significant finds</b>	Human remains	<b>Future work</b>	No
PROJECT CREATORS			
<b>Organisation</b>	KDK Archaeology Ltd		
<b>Project Brief originator</b>	None	<b>Project Design originator</b>	KDK Archaeology Ltd
<b>Project Manager</b>	Karin Kaye	<b>Director/Supervisor</b>	Laura Dodd
<b>Sponsor/funding body</b>	Rector & PCC, Church of St Mary Magdalene		
PROJECT DATE			
<b>Start date</b>	01.06.2022	<b>End date</b>	14.07.2022
PROJECT ARCHIVES			
	<b>Location</b>	<b>Content (e.g. pottery, animal bone, files/sheets)</b>	
<b>Physical</b>		None	
<b>Paper &amp; digital</b>	HALS	Method statement, Report, Fieldwork forms, permatrace drawings, digital files and photographs	
<b>Digital</b>	OASIS	Report	
BIBLIOGRAPHY (Journal/monograph, published or forthcoming, or unpublished client report)			
<b>Title</b>	Archaeological Observation and Recording Report: Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire		
<b>Serial title &amp; volume</b>	693/BSMC/2.1		
<b>Author(s)</b>	Laura Dodd MSc MCifA		
<b>Page no's</b>	89	<b>Date</b>	07.09.2022



## Appendix 6: Hertfordshire Historic Environment Record Sheet

Site name and address: Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire	
County: Hertfordshire	District: North Hertfordshire
Village/Town: Barkway	Parish: Barkway
Planning application reference: N/A	
Client's name, address, & tel. no: Rector & PCC Church of St Mary Magdalene Barkway Hertfordshire	
Nature of application: Drainage works	
Present land use: Churchyard	
Size of application area: 71.51sq m	Size of area investigated: 71.51 sq m
NGR (to 8 figures): TL3828 3561	Site code: 693/BSMC
Site director: Laura Dodd MSc MCIfA	Organization: KDK Archaeology Ltd
Type of work: Observation and Recording	
Date of Work: Start: 01.06.2022	Finish: 14.07.2022
Curating museum: North Hertfordshire	
Related HER no's:	Periods represented: Medieval-Victorian
Relevant previous summaries/reports: None	
<p>Between June and July 2022 KDK Archaeology Ltd undertook a programme of Observation and Recording during the installation of new soakaways and associated drains at the Church of St Mary Magdalene, Church Lane, Barkway, Hertfordshire. Four soakaways and associated drainage trenches were excavated around the churchyard and a total of 49 articulated and partially articulated skeletons were uncovered. The concentration of individuals within the soakaways shows that the cemetery is heavily populated, particularly to the southwest. Individuals of all ages were encountered; however, the articulated and partially articulated remains of children were largely absent to the north of the church.</p>	
Author: Laura Dodd MSc MCIfA	Date: 07.02.2022