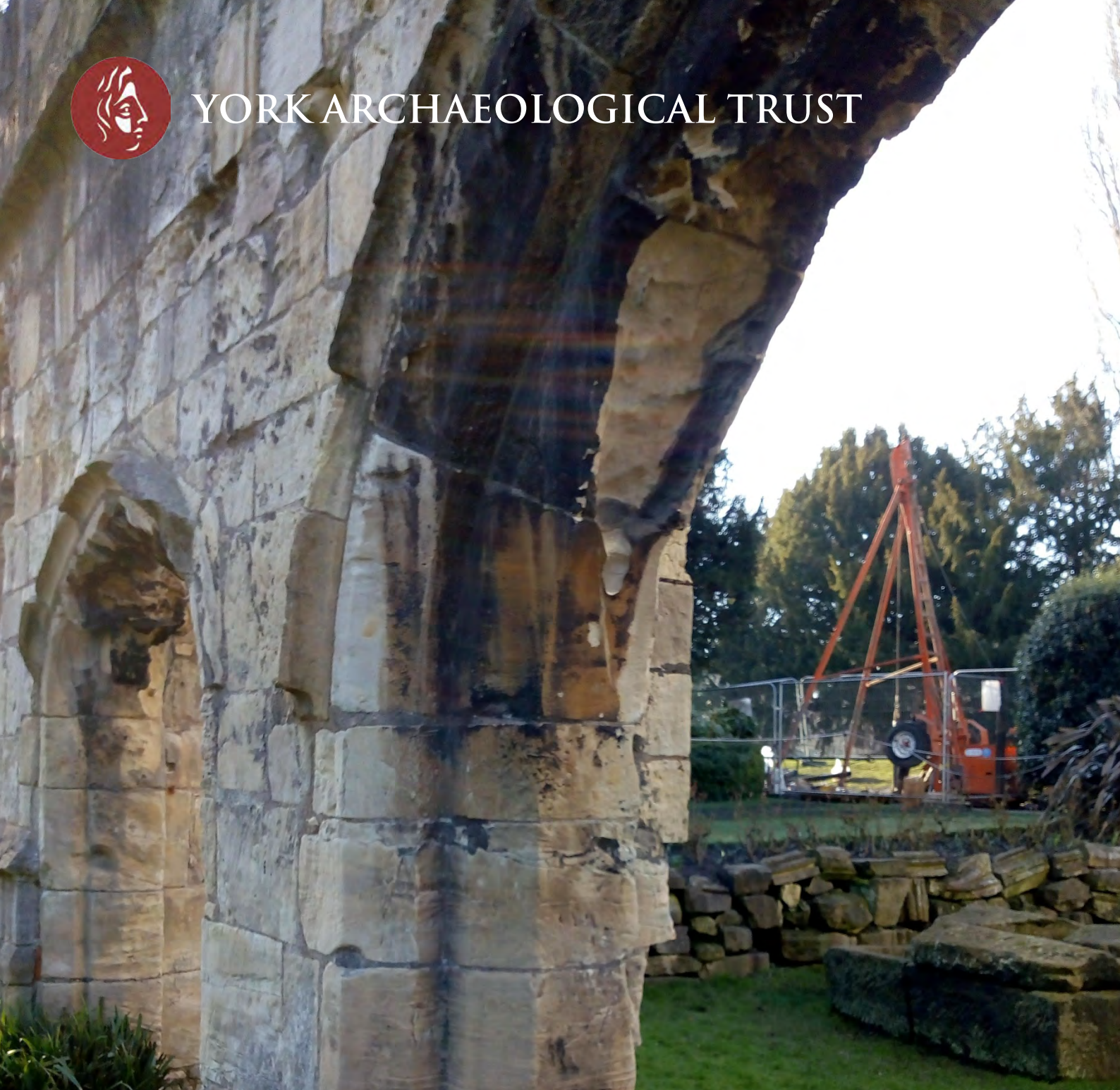




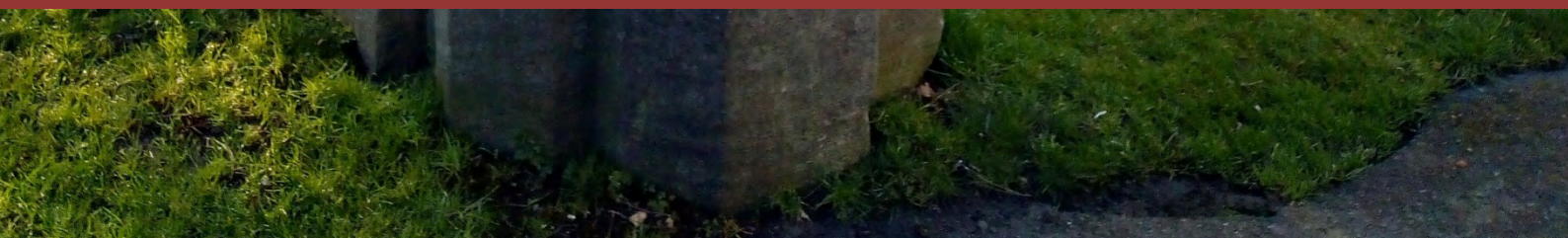
YORK ARCHAEOLOGICAL TRUST



Archaeological Monitoring of Geotechnical Investigations for York Flood Alleviation Scheme

By Clare Jackson

YAT Evaluation Report 2018/47 July 2018





YORK ARCHAEOLOGICAL TRUST



York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.

York Archaeological Trust, Cuthbert Morrell House, 47 Aldwark, York YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Website: <http://www.yorkarchaeology.co.uk>

© 2018 York Archaeological Trust for Excavation and Research Limited
Registered Office: 47 Aldwark, York YO1 7BX
A Company Limited by Guarantee. Registered in England No. 1430801
A registered Charity in England & Wales (No. 509060) and Scotland (No. SCO42846)

CONTENTS

KEY PROJECT INFORMATION	IV
1 INTRODUCTION	1
2 METHODOLOGY	1
2.1 Boreholes/Trial Pits	2
3 LOCATION.....	4
4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.....	5
5 RESULTS	8
5.1 Flood Cell B4.....	9
5.2 Flood Cell B7.....	16
5.3 Flood Cell B11.....	20
5.4 Flood Cell C1.....	21
5.5 Flood Cell C3.....	23
6 DISCUSSION.....	23
LIST OF SOURCES	26
REFERENCES	26
ACKNOWLEDGEMENTS.....	27
APPENDIX 1 – INDEX TO ARCHIVE	28
APPENDIX 2 – CONTEXT LIST.....	29
APPENDIX 3 – WRITTEN SCHEME OF INVESTIGATION	34
APPENDIX 4 – THE CERAMIC BUILDING MATERIAL	54
APPENDIX 5 – THE ANIMAL BONE.....	55
APPENDIX 6 – THE POTTERY	57
FIGURES.....	59

Plates

Cover: View of site

Plate 1 Core 4m-5m, top to the right, showing contexts (l-r) 107 & 106. 0.5m scale	9
Plate 2 Core 3m-4m, top to the right, showing contexts (l-r) 105 & 104. 0.5m scale	10
Plate 3 Core 1m-2m, top to the right, showing contexts (l-r) 103, 102 & 101. 0.5m scale	10
Plate 4 Core 3m-4m, top to the right, showing contexts (l-r) 208, 207 & 206. 0.5m scale	11
Plate 5 Core 1m-2m, top to the right, showing contexts (l-r) 209, 205, 204, 203, 202 & 201.....	11
Plate 6 Core 4m-5m, top to the left, showing wooden stake and contexts (l-r) 312, 313 & 314	12
Plate 7 Core 4m-5m, top to the left, showing contexts (l-r) 311, 312, 313, 314. 0.5m scale	13
Plate 8 Core 3m-4m, top to left, showing contexts (l-r) 308, 309 & 310. 0.5m scale.....	13
Plate 9 Core 2m-3m, top to the left, showing contexts (l-r) 303, 304, 305, 306 & 307. 0.5m scale.....	14

Plate 10 Core 2m-3m, top to left, showing context 302 to the left. 0.5m scale	14
Plate 11 Core 1m-2m, top to the left, showing contexts (l-r) 301 & 302. 0.5m scale.....	15
Plate 12 Trial pit TP05 with 0.5m scale, view east	16
Plate 13 Core 2m-3m, top to the right, showing (l-r) 107, 106, 105 and 104. Scale 0.5m.....	17
Plate 14 Core 1m-2m, top to the right, showing (l-r) contexts 104, 103 and 102. Scale 0.5m.....	17
Plate 15 TP01, view northeast, scale 0.5m	18
Plate 16 TP02, view south, scale 0.5m.....	19
Plate 17 TP10, view west, scale 0.5m	20
Plate 18 WS02 core 2m-3m, top to the right, showing the laminations in context 208.....	21
Plate 19 WS02 core 1m-2m, top to the left, showing (l-r) contexts 202, 203 & 204.....	22
Plate 20 WS04, core 4m-5m, top to the left, showing (l-r) contexts 403 and 404. Scale 0.5m	22
Plate 21 WS05, core 3m-4m, top to the left, showing (l-r) contexts 501 and 502. Scale 0.5m	22
Plate 22 WS03 core 2m-3m, top to the left, showing (l-r) contexts 303 and 304	23

Tables

Table 1 Number and type of exploratory holes	2
Table 2 GI interventions monitored.....	4
Table 3 Index to archive.....	28
Table 4 Context list	33
Table 5 CBM in relation to context	54
Table 6 Animal Bone	55
Table 7 Pottery quantification	58

Figures

Figure 1 Original Borehole Locations for FC B4	59
Figure 2 Original Borehole Locations for FC B7	60
Figure 3 Original Borehole Location for FC B11	61
Figure 4 Original Borehole Locations for FC C1	62
Figure 5 Original Borehole Locations for FC C3	63
Figure 6 Locations of Monitored Interventions for FC B4.....	64
Figure 7 Locations of Monitored Interventions for FC B7.....	65
Figure 8 Location of Monitored Borehole for FC B11	66
Figure 9 Locations of Monitored Boreholes for FC C1	67
Figure 10 Locations of Monitored Boreholes for FC C3	68
Figure 11 CP Borehole Profiles for FC B4	69
Figure 12 CP Borehole Profile for FC B11.....	70
Figure 13 CP Borehole profiles for FC C3	71
Figure 14 WS Borehole Profiles for C7	72
Figure 15 WS Borehole Profiles for FC C1	73
Figure 16 Trial Pit Sections for FC B7	74
Figure 17 CP Deposit Model for FC B11	75
Figure 18 CP Deposit Model for FC C3	76
Figure 19 WS Deposit Model for FC B4.....	77
Figure 20 WS Deposit Model for FC B7.....	78
Figure 21 WS Deposit Model for FC C1.....	79
Figure 22 CP Deposit Model on southwest to northeast transect for FC C3	80
Figure 23 WS Deposit Model on west to east transect for FC C1	81

Abbreviations

AOD – Above Ordnance Datum

BGL – Below Ground Level

CBM – Ceramic Building Material

CP – Cable Percussion borehole

FC – Flood Cell

FAS – Flood Alleviation Scheme

TP – Trial Pit

WS – Windowless Sample borehole

WSI – Written Scheme of Investigation

YAT – York Archaeological Trust

Non-technical Summary

York Archaeological Trust was commissioned by Capita AECOM on behalf of the Environment Agency to undertake archaeological monitoring of site investigations for the York Flood Alleviation Scheme (FAS). The programme of works was carried out between 7th March and 9th May 2018.

Key archaeological remains were recovered in two windowless sample boreholes; in Flood Cell B4, borehole WS03B, deposits relating to 10th–11th century land management and reclamation were identified at 6.30m AOD. These deposits were sealed by medieval dump deposits at 7.10m AOD. In Flood Cell B7, borehole WS01 potential Roman and medieval deposits were recorded from 5.76m AOD. These were truncated by 18th–19th century cellars.

KEY PROJECT INFORMATION

Project Name	York Flood Alleviation Scheme (FAS)
YAT Project No.	6008
Document Number	2018/47
Type of Project	Archaeological borehole survey and monitoring of test pits
Client	Capita AECOM on behalf of the Environment Agency
Museum Accession No.	Pending
OASIS Identifier	Yorkarch1-320662

REPORT INFORMATION

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
1	CJ	July 2018	BR	24/07/18	BR	24/07/18
2	CJ	August 2018				

Copyright Declaration:

York Archaeological Trust give permission for the material presented within this report to be used by the archives/repository with which it is deposited, in perpetuity, although York Archaeological Trust retains the right to be identified as the author of all project documentation and reports, as specified in the Copyright, Designs and Patents Act 1988 (chapter IV, section 79). The permission will allow the repository to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

Disclaimer:

This document has been prepared for the commissioning body and titled project (or named part thereof) and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of the author being obtained. York Archaeological Trust accepts no responsibility or liability for the consequences of this document being used for a purpose other than that for which it was commissioned.

1 INTRODUCTION

York Archaeological Trust was commissioned by Capita AECOM on behalf of the Environment Agency to undertake archaeological monitoring of site investigations for the York Flood Alleviation Scheme (FAS). The programme of works was comprehensively carried out between March and May 2018. The archaeological monitoring was intended to gain information on the deposit sequence revealed by the GI investigations through a variety of interventions including percussive boreholes, window samples and hand-dug trial pits. A targeted selection of the window samples were also subjected to palaeoenvironmental sampling and installation of water level monitoring stand pipes in order to assess the character of deep deposits and their potential for organic remains and the depositional environment within which they lie in relation to ground water levels.

For the purposes of the York FAS, ten communities have been identified across York and these communities are further sub-divided on the basis of 'flood cells' (FC) (Figure 1). A flood cell is defined as an area where the flood risk can be addressed independently of the areas up- and downstream. The Environment Agency is exploring a range of potential flood management options for each cell. Three flood cells contained or were located within Scheduled Monuments; Flood Cells B4, B12 and B15. The methodologies and results of Flood Cells B12 and B15 have been produced in separate flood cell-specific reports and therefore will not be featured here.

2 METHODOLOGY

As stated in the WSI (Appendix 3) the aims of the GI was to investigate the deposit sequence along the banks of the River Ouse and to assess the character of the deposits within each flood cell. Particular objectives of the archaeological monitoring include:

- To record the character and sequence of the deposits within each GI intervention
- To assess the potential for deposits to preserve organic remains and palaeoenvironmental evidence
- To retrieve dating evidence for deposits where possible
- To minimise disturbance to significant archaeological remains if encountered or if this is unavoidable to ensure that the remains are investigated and recorded in a controlled archaeological manner
- To assess the extent to which modern activity may have affected deposits in the immediate area

2.1 Boreholes/Trial Pits

The aims of the archaeological monitoring were to be met through the observation of the following:

No. of exploratory holes	Exploratory hole type
Flood Cell B4	
1	Cable Percussion
8	Trial Pit
Flood Cell B7	
1	Windowless Sample
10	Trial Pit
Flood Cell B9	
3	Windowless Sample
Flood Cell B11	
1	Cable Percussion
Flood Cell C1	
3	Cable Percussion
Flood Cell C3	
3	Cable Percussion

Table 1 Number and type of exploratory holes

The following changes to the original monitoring schedule took place over the course of the programme, details of which can be found in Table 2:

- Flood Cell B9 was originally planned to have three windowless samples monitored, however these were cancelled and therefore no archaeological monitoring took place in Flood Cell B9.
- Due to circumstances outside of YAT control seven trial pits in Flood Cell B4, including TP011 which was located adjacent to the medieval city walls, were not monitored.
- Due to circumstances outside of YAT control seven trial pits in Flood Cell B7 were not monitored.
- The originally planned three cable percussion boreholes in Flood Cell C1 were subsequently changed to four windowless sample boreholes.

Methodology for trial pits

Trial pits were excavated as part of ground investigations by Geotechnics, the GI contractor commissioned by Capita AECOM. The pits were hand excavated under the direction of the geotechnical team and measured approximately 0.4m by 0.4m to a depth of 1.2m. The location and AOD of the trial pits were provided by Capita AECOM's survey team (Figures 1–10).

Archaeological observations were carried out during digging of the test pits. Deposit characteristics and depths were recorded on pro forma sheets, a representative sample of sections and surfaces were drawn to scale and digital photographs were taken with an appropriate scale.

Methodology for boreholes

Inspection pits for the window samples and boreholes were hand excavated by the GI contractor to a depth of 1.2m and observed by YAT. Deposit characteristics and depths were recorded on pro forma sheets and digital photographs were taken.

Cable percussion boreholes

A cable percussion rig was used to drill to a depth of 15m Below Ground Level (BGL), producing samples for inspection by the GI team every 2–3m. Archaeological monitoring was conducted only until natural sands were reached.

Window Sample boreholes

A tracked windowless sampling rig was used to drill to a depth of 5m BGL under the direction of the GI contractor. This depth was attained in all five boreholes. Plastic sleeves containing the drilled out cores, measuring 1m in length, and either 8" or 6" in width were opened on site. These cores were subsequently cleaned, digitally photographed with an appropriate scale and recorded by the onsite archaeologist. A total of seven environmental samples for General Biological Analysis (GBA) were collected from boreholes B4-WS01 and B4-WS03B when deposits which contained potential organic material were encountered. A sealed sample was also taken for triaxial analysis from borehole B7-WS01. The depth of samples taken was recorded on standardised pro forma sheets, as well as the presence, depth and description of each deposit.

The location of the boreholes and depths of deposits relating to Ordnance Datum were determined based on information provided by the GI contractor.

Borehole ref no.	Easting	Northing	Notes
B4-WS01	459811	451892	Not part of original plan of works.
B4-WS02B	459861	451887	Not part of original plan of works. Relocated from original location due to presence of brick and mortar structure at 1.10m BGL.
B4-WS03B	460068	451796	Relocated from original location due to presence of hard concrete at 0.35m BGL.
B4-TP05	459774	451905	Halted after reaching 0.4m due to presence of hard concrete
B4-BH03	460033	451847	Halted after reaching 1.2m BGL due to presence of services
B7-WS01	460230	451452	
B7-TP01	460159	451578	Depth reached was 0.50m due to concrete footing and services
B7-TP02	460164	451568	Depth reached was 0.73m due to presence of wall foundation in base of trench

B7-TP03-09	N/A	N/A	Not observed.
B7-TP10	460304	451311	
B11-BH06	459380	452376	Observations stopped at 7.20m as sterile natural clay was reached.
C1-WS02	459632	447711	Substitute for CP boreholes
C1-WS03	459667	447715	Substitute for CP boreholes
C1-WS04	459702	447721	Substitute for CP boreholes
C1-WS05	459732	447727	Substitute for CP boreholes
C3-BH05	459838	445636	Starter pit not fully dug due to high water level
C3-BH06	459791	445580	Borehole was halted at 1.2m BGL due to presence of high electricity cable.
C3-BH07	459759	445551	Observations stopped after 4m BGL as sterile natural clay had been reached.

Table 2 GI interventions monitored

Key: The borehole reference number provides flood cell location and exploratory hole type. The first two digits provide the cell number. The next two digits provide exploratory type; where BH is percussion borehole, WS is window sample and TP is test pit. E.g. C3-BH07 is a cable percussion borehole located in Flood Cell C3.

3 LOCATION

For the purposes of the FAS GI investigations the city is divided into two areas:

- The Inner Ouse comprising the banks of the Ouse as it runs from Government House to the A64 at Fulford (B flood cells).
- The Outer Ouse running from Bishopthorpe to Naburn (C flood cells)

The flood cells within the Inner Ouse that were subjected to archaeological monitoring were:

- Scarborough Bridge to Ouse Bridge right bank (FC B4)
- Queen's Staith and Skeldergate (FC B7)
- Government House to Scarborough Bridge (FC B11)
- Scarborough Bridge to Lendal Bridge left bank (FC B12)
- King's Staith (FC B15)

The flood cells within the Outer Ouse that were subjected to archaeological monitoring were:

- Bishopthorpe (FC C1)
- Naburn (FC C2)

Detailed locations of the archaeological monitoring are provided in Table 2 above.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The history of York is well known and extensive, dating from the Roman period through to present day. For expediency, in this section only a brief outline will be given as an outline of the known archaeology and history of the individual flood cells.

Scarborough Bridge to Ouse Bridge right bank (FC B4)

Roman

The defences surrounding York have been present in various forms since first constructed around the Roman *colonia*. Sections of a wall, thought to be Roman, were seen underneath the medieval defences in 1839 and 1939 and a clay and stone wall foundation was recorded in 1874 when the Station Road arch was put in the medieval wall (RCHM 1962). The medieval stone walls of the city were constructed from the 12th–14th centuries, with further phases of building in the 19th century.

The section of site to the east of the city walls lay within the Roman *colonia*. A number of 18th–century and later discoveries in this area have provided evidence of Roman deposits and structures period within the study area. Roman road surfaces have been observed along Tanner Row, close to the junction with George Hudson Street (RCHM 1962) and between the road and the City Walls on a north-west / south-east alignment. Excavations by YAT along Wellington Row in 1988 (1988–1989.24), almost directly opposite WS03, uncovered a road dating to c.AD 71–120, along with an associated drainage ditch. The road was aligned south-west / north-east and sloped down to the River Ouse. No evidence of the road was found in a 1980s borehole excavated on the adjacent North Street, suggesting that the river was wider at this point than at present.

During the 2nd century there is evidence of upgrading the road system in this area of York; at Wellington Row (YAT 1988–1989.24) a new drainage ditch was dug which contained a timber structure that may have controlled the flow of water and the road was resurfaced with crushed magnesian limestone. Sometime after AD 150–60 a major stone building was constructed on the site with substantial foundation trenches and deep timber piles. Evidence of settlement of this date was also recorded at the General Accident Tanner Row site (YAT 1983–1984.32); a turf and loam platform was found on which two timber buildings were erected. The buildings were reconstructed in the 2nd century and were associated with craft activity including iron-smithing, copper-working, leather-working and weapon repair.

During the late 2nd–3rd century there was a major building campaign on the south-western bank of the River Ouse, possibly linked to the granting of York's *colonia* status (McComish 2015). This period also saw a major episode of terracing; evidence of which has been seen at several excavations in the area including the former Presto's supermarket on George Hudson Street (*ibid.*).

From the late 4th century onwards there was a significant change in the fortunes of the civilian settlement at York; whilst some buildings remained in use others fell into disuse and decay. This was the case at Wellington Row where the stone building became derelict and roofless and was used for the dumping of rubbish (YAT 1988–1989.24). However, the presence of a timber-lined channel dating to this period may suggest that there was a continued water

supply to Roman York into the early fifth century. Evidence of a possible Roman waterfront has been recorded along Skeldergate; timbers have been recorded at four sites which from their depth and associated deposits were considered Roman.

Outside of the Roman settlement, to the west of the flood cell, part of an extensive Roman cemetery was found during the construction of York Railway Station in the 19th century. A number of burials, including several in stone coffins, were discovered close to Scarborough Bridge (RCHM 1962, 85–6). A borehole survey and archaeological evaluation undertaken at the former Foxton's Garage on Leeman Road (YAT 1998.1) encountered natural glacial drift at 5.25m BGL. Redeposited material containing Roman pottery and human bone was encountered at 3m BGL and was believed to be a result of earth moving from the construction of the railway station in the 19th century.

Anglian

For much of York the evidence for Anglian period settlement activity is scant. The most substantial evidence for occupation and trading activity comes from the Fishergate area, the site of what has been interpreted as an Anglian *wic*, or trading settlement. The majority of the other Anglian evidence comes from funerary assemblages and 'casual finds', often in the context of secondary deposition. For some areas of the city there is little or no evidence for Anglian activity, in others there is evidence for 'dark earth' deposits, which may represent abandonment or possibly agricultural land use. The somewhat patchy nature of representation suggests the settlement known as Eoforwic may best be described as Polyfocal. At Wellington Row (YAT 1988–1989.24) there seemed to be evidence of agriculture during this period in the form of reworked dark-earth from which finds dating to the 9th century were recovered including strap-ends, a brooch and coins. Evidence of material accumulated by episodes of flooding were found at 23–28 Skeldergate (YAT 1989.1) and the Pumping Station on North Street (YAT 1993.1), suggesting that the riverside area was marginal land during the Anglian period (McComish 2015).

Medieval

Wattle and timber revetments dating from the 9th–11th century were recorded at North Street and showed a possible attempt at land reclamation. Timbers were used to stabilise the river bank during 11th and 12th centuries, with dumping, interspersed with alluvial deposits continuing to build up during the 13th century (YAT 1993.1). Once the land had been levelled there began a period of structural building; foundations of a building with associated floors were recorded and dated to the 13th century. During an evaluation and borehole survey at All Saints, North Street (YAT 2015) archaeologists encountered evidence for the survival of several metres of medieval archaeology in the area; including 12th–15th century pits and waterlogged deposits up to 1.6m thick. Late medieval deposits were also encountered at around 2.5m BGL.

The flood cells located to the immediate west of the medieval city walls were predominantly used for agriculture during the medieval and post-medieval periods. The area was not significantly developed until the 19th century when manufacturing and industrial works were established in the area around Bishop's Fields. The building of the current railway station, associated buildings, lines and works located to the east of the study site were completed in the 1870s and the study area was also the former location of the Great North of England coal

depot, later known as the York & North Midland coal depot. During the post-medieval period the riverside front was an area of industry, with factories and warehouse present along the river bank.

Queen's Staith and Skeldergate (B7)

During the Roman period the site was located to the north-east of the *colonia* and evidence of Roman activity has been uncovered on the south-west side of Skeldergate. The first use of the name Skeldergate was in the 12th century and is thought to be an Old Norse name *Skjoldr* or from the corruption of Old Norse *skelde* meaning shelf. During the medieval period the area was enclosed within the city walls and thereafter became one of the principal dock areas of York. Excavations in the area have revealed that major land reclamation programmes and the erection of substantial buildings occurred during the 15th century, however by the mid-16th century the area was in decline. 19th century maps show the area occupied by narrow tenements leading from the road to the river with large yards for the storage of goods brought in by the river. By 1961 most of the tenements had been demolished and in 1964/5 major redevelopment had modernised much of Skeldergate.

A large number of excavations and archaeological investigations have taken place along Skeldergate over the years; key sites include 58–59 Skeldergate (AY 4/1) where Roman and Anglo-Scandinavian deposits were exposed at 7m AOD and 7.50m AOD respectively. Medieval stone buildings were also recorded at 9.40m AOD. Excavations at City Mill (YAT 1972.19, 1983.2 & 1983.25) showed that successive campaigns of land reclamation during the medieval period had pushed the waterfront 28m into the former course of the river. A 12th-century timber waterfront survived at a depth of 6.50m AOD and evidence of 14th/15th century waterfront was recorded at 8m AOD. Excavations at 26–34 Skeldergate uncovered a water lane that had gone out of use in the late 18th century (YAT 1989.9). The lane was located at 31–2 Skeldergate, 7m from the street front and survived at a depth of 8.43m AOD. 18th/19th century cellars were also recorded along the modern riverfront, penetrating to depths of 6.25m AOD. A 1991 YAT borehole survey at the same site recorded potential Roman deposits at 4m AOD and post-Roman material at a maximum height of 5.20m AOD.

Government House to Scarborough Bridge (B11)

The site is located south of the routes of Roman Road 5, Roman Road 6, and Roman Road 7, in an area of known Roman activity. The roads have been recorded in a number of interventions. During the demolition of an old swimming pool at St Olave's School a number of archaeological features including several linear features, one of which was on a similar alignment to the Roman Road 5 (Evans 2010). A possible pit was also recorded but none of the features were excavated and no dating evidence was recovered. Better evidence of Roman Road 6 was recorded during a watching brief close to Clifton Street frontage at St Peter's School in 1999 (Ottaway 2011, 143–149). An irregular cobbled surface was uncovered less than 0.5m BGL and pottery and coins dating to the Roman period were recovered during the course of the investigation.

On Bootham Terrace, to the north-east of FC B11, a 3rd–4th century inhumation cemetery was uncovered in the late 19th century not far from Roads 5–7. A watching brief at 18 Bootham Terrace discovered two inhumations (OSA 2006). Another cemetery was also discovered in the

late 17th / early 18th century in playing fields to the south of Westminster Road. The cemetery was extensive and contained both inhumations and cremations, and discoveries from the area include a hoard of 100 copper coins, a brick tomb, a coffin made of tegulae and stone sarcophagi (RCHME 1962, 73–74). Inhumations and cremations have also been recorded at The Avenue and the area to the south-east, in the grounds of St Olave’s school. Two inscribed stone coffins were found close to the school in 1813 and human remains and cinerary urns were recovered in 1881 by Canon James Raine (RCHME 1962, 74–75). An excavation at Wentworth House on The Avenue recorded 20 inhumations as well as an earlier Roman ditch (Ottaway 2011). A Roman building with a tessellated pavement was also found in 1813 at St Peter’s School and is marked on Skaife’s 1864 map of York.

Bishopthorpe (C1)

The village of Bishopthorpe is thought to have been settled during the Saxon period and was originally known as ‘Thorp’, though this changed to ‘Andrewthorpe’ or ‘Thorpe St Andrew’ in the 13th century when a church was built in the village by St Andrew’s Priory of York. In 1226 Walter de Gray, Archbishop of York, purchased the manor as a location for a country seat and by 1241 had built a house on the site with a chapel and chantry. Thereafter the village was known as Bishopthorpe.

A watching brief conducted at the Bishop’s Palace in 2008 (FAS) uncovered medieval cobbled surfaces and consolidation soils to the rear of the palace. Remains of two stone walls were also recorded to the west of the palace, and were thought to be part of the former west range which was demolished by the 18th century. A single inhumation burial was recorded on the site, along with remains of the gatehouse, a lead working hearth and another tile-built hearth dating the medieval period.

Naburn (C3)

Naburn is a small village located four miles to the south of York surrounded by open farmland. Much of the township was once surrounded by small open fields and a large common moor which was not enclosed until 1768 (VCH 1976, 74–82). Woodland also covered much of the landscape, some of which still survives to the south-east of Naburn. There has been a ferry across the Ouse at Naburn from early times and ‘ferryman’ is recorded as a personal name in 1500. In 1739 the ferry was situated just to the west of Naburn Hall, but by the early 19th century a road led from the village, past the hall and across the ings to a ferry close to Acaster Malbis village (*ibid*). In 1824 the road was closed as the traffic was considered a nuisance by the occupants of Naburn Hall. The new ferry was moved to a point in the middle of the village and was only closed in 1956.

5 RESULTS

In order to differentiate between the different exploratory hole types blocks of context numbers were assigned corresponding to their designation; trial pits were assigned numbers in the 10’s, windowless sampling boreholes had numbers in the 100’s and CP boreholes were assigned numbers in the 1000’s. In addition to this the borehole or trial pit reference number also corresponded with the assigned context number; windowless sample borehole WS01 commenced with context 100 onwards, WS02 commenced with context 200 onwards and so

on. These contexts were then allocated to a group which represented a broad phase of activity. Due to the paucity of finds recovered from the boreholes, it should be noted that the designation of these phases are tentative and rely on observations by the experienced attendant archaeologist.

Full descriptions of these deposits and their phase designations can be found in the context table which forms Appendix 2 of this report.

5.1 Flood Cell B4

Windowless Sample Borehole WS01

Windowless sample WS01 (Figures 1, 6, and 19; Plates 1–3) was monitored on 8th May 2018. There was no core recovery from 2m to 3m. Ground level on the garden topsoil was 10.67m AOD.

Phase 1 Alluvial deposits

A band of alluvial deposits were encountered from 4.20m BGL (6.47m AOD) to 5m BGL (5.67m AOD). The earliest deposit was mid grey silty clay alluvial deposit 107 which was encountered at 4.60m BGL (6.07m AOD). Above this was brown sandy clay 106 that contained rounded pebbles; the top of which was recorded at 4.20m BGL.



Plate 1 Core 4m–5m, top to the right, showing contexts (l–r) 107 & 106. 0.5m scale

Phase 2 Potential Roman deposits

Deposits 104 and 105, encountered between 3.50m BGL (7.17m AOD) and 4m BGL (6.67m AOD) comprised of light and dark grey silty clays. Although no obvious evidence of human activity was recovered from these layers they are comparable with silty and sandy clay layers recorded during a borehole survey at Foxton's Garage (YAT 1998.1), a site to the immediate west of WS01. Brick, tile and pottery dating to the Roman period were recovered from the Foxton Garage clays and it was concluded the layers were the result of human activity, not natural processes.



Plate 2 Core 3m–4m, top to the right, showing contexts (l–r) 105 & 104. 0.5m scale

Phase 6 19th century levelling and made-ground

Redeposited clays and made ground deposits relating to the construction of the Coal Depot of the York and North Midland Railway were encountered between 1.37m (9.30m AOD) and 3.50m BGL (7.17m AOD). Redeposited mid-brown sandy clay 103 with occasional charcoal flecks was recorded at 1.85m BGL (8.82m AOD), whilst dark brown grey clayey silt 102, was encountered at 1.52m BGL (9.15m AOD) and contained occasional charcoal and CBM flecks, and fragments of animal bone. Sample 14 was taken from this deposit. A levelling deposit consisting of light brownish grey clay (101) with occasional lime mortar inclusions was recorded at 1.37m BGL (9.30m AOD).



Plate 3 Core 1m–2m, top to the right, showing contexts (l–r) 103, 102 & 101. 0.5m scale

Phase 7 Modern garden soil

Modern garden soil of mid grey brown clayey silt (100) was seen from the ground surface to 1.37m BGL.

Windowless Sample Borehole WS02B

Windowless sample WS02B (Figures 1, 6, and 19; Plates 4–5) was monitored on 8th May 2018. There was no recovery in the final 1m core. Ground level on the garden's grass was 10.11m AOD.

Phase 6 19th–20th century levelling and made-ground

Redeposited clays and made ground deposits relating to the construction of the Coal Depot of the York and North Midland Railway were encountered between 1.20m (8.91m AOD) and 3.60m BGL (6.51m AOD). Redeposited clays 208, 207, 206 & 209 comprised of greyish brown sandy and silty clays which contained fragments of CBM, mortar and occasional flecks of charcoal.

Made ground deposits 205, 203, 202 and 201 comprised of lime mortar and CBM fragments (205 & 203) and dark grey brown silts with charcoal, mortar and CBM inclusions (202 & 201). A peaty lens was also recorded (204) between 1.80m (8.31m AOD) and 2.10m BGL (8.01m AOD).



Plate 4 Core 3m–4m, top to the right, showing contexts (l–r) 208, 207 & 206. 0.5m scale



Plate 5 Core 1m–2m, top to the right, showing contexts (l–r) 209, 205, 204, 203, 202 & 201. 0.5m scale

Phase 7 Modern garden soil

Modern garden soil of mid grey brown clayey silt (200) was seen from the ground surface to 1.20m BGL (8.91m AOD).

Windowless Sample Borehole WS03B

Windowless sample WS03B (Figures 1, 6, and 19; Plates 7–11) was monitored on 9th May 2018. Ground level on the garden turf was 9.73m AOD.

Phase 3 Alluvial deposit of unknown date

Naturally lain mid-brown sand and clay (315) was recorded at 4.77m BGL (4.96m AOD). No finds were recovered from the deposit, however deposits dated to the 11th century were recovered at a similar depth at North Street Pumping Station (YAT 1993.1).

Phase 4 10th–11th century land management

This phase of deposition was characterised by a series of organic rich deposits containing fragments of degraded wood, including a vertically driven stake, fragments of CBM and a small amount of pottery dating to this period. These deposits have been interpreted as evidence of land management during the 10th–11th centuries and resemble deposits recorded at North Street Pumping Station (YAT 1993.1) at a similar depth. Collectively the deposits measure 1.07m in thickness. Environmental samples 18–20 were taken from contexts 311, 312 and 314 respectively.

Black, organic rich clay deposit 314 was recorded at 4.41m BGL (5.32m AOD) and contained small fragments of residual Roman brick and animal bone. Driven into 314 and protruding approximately 70mm from the upper deposit surface was a small, very degraded, wooden stake. Overlaying the stake was a thin, dark grey, soft clay layer (313) only 0.07m thick recorded at around 4.34m BGL (5.39m AOD).



Plate 6 Core 4m–5m, top to the left, showing wooden stake and contexts (l–r) 312, 313 & 314. 0.5m scale

A highly organic mid-brown soft damp clay (312) with degraded wood and fine sand inclusions was recorded at 4.26m BGL (5.47m AOD) which in turn was overlain by dark brown grey, moderately condensed dry silt 311, observed at 3.70m BGL (6.03m AOD). The silt deposit contained degraded wood inclusions, along with minute round to subangular pebbles. Two sherds of 10th–11th century York ware were recovered from the layer.



Plate 7 Core 4m–5m, top to the left, showing contexts (l–r) 311–314. 0.5m scale

Phase 5 Medieval dumping and levelling

The deposits from this phase have been interpreted as a continuation of domestic dumping and/or levelling. Comparable medieval dump layers have been recorded at North Street (YAT 1993.1) and during a borehole survey on Memorial Park (YAT 1992.1) at depths between 2.20m and 3.80m BGL. The total thickness of the dumped deposits was 1.09m and environmental samples 15–17 were taken from contexts 306, 309 and 310 respectively.

Dark brown to black clay 310 was recorded at 3.44m BGL (6.29m AOD) and contained frequent organic inclusions, as well as fine to medium sized subangular pebbles. It is probable that the layer was formed by alluvial deposition during an episode of flooding in the medieval period. Above the alluvial clay was an olive green, mottled, light grey, soft clay (309), the top of which was recorded at 3.22m BGL (6.51m AOD). A soft and damp mid-grey clay (308) overlay 309 and contained small mortar and CBM fragments. This layer, encountered at 3.16m BGL (6.57m AOD) seems to represent dumping of domestic refuse.



Plate 8 Core 3m–4m, top to left, showing contexts (l–r) 308–310. 0.5m scale

A 0.06m thick layer of light brown soft sandy clay (307) was recorded at 2.94m BGL (6.79m AOD). Above 307 was a dark grey to black damp clay (306) with inclusions of fine sand and small CBM fragments. A small sherd of medieval shelly ware was recovered from 306. The top of 306 was encountered at 2.63m BGL (7.10m AOD).



Plate 9 Core 2m–3m, top to the left, showing contexts (l–r) 303–307. 0.5m scale

Phase 6 19th–20th century levelling and made-ground

Over a metre of levelling and made ground deposits were recorded beneath the modern topsoil. The deposits relate to warehouse and industrial works that were established along this section of the River Ouse in the 19th century.

A thin deposit of creamy white clay and crushed mortar (305) was encountered at 2.61m BGL (7.12m AOD) and only measured 0.02m thick. Immediately above this was deposit 304, a mid grey soft clay with charcoal fleck inclusions, which was recorded at 2.54m BGL (7.19m AOD). This was in turn sealed by mid grey sand (303) which contained a lens of mortar, recorded at a depth of 2.45m BGL (7.28m AOD).

Above these levelling deposits was a thick layer of demolition material, probably originating from the demolition of warehouse buildings in the area before the creation of the park in the mid-20th century. Layer 302 comprised of very loose mid grey brown silt mixed with fragments of CBM, including Roman brick, and mortar and was recorded at a depth of 1.83m BGL (7.90m AOD).



Plate 10 Core 2m–3m, top to left, showing context 302 to the left. 0.5m scale

Sealing the layer of demolition material was a thick deposit of light grey brown stiff clay (301) which contained a lens of limestone chips. The clay was sterile and recorded at a depth of 1.30m BGL (8.43m AOD).



Plate 11 Core 1m–2m, top to the left, showing contexts (l–r) 301 & 302. 0.5m scale

Phase 7 Modern garden soil

Modern garden soil of mid grey brown clayey silt (300) was seen from the ground surface to 1.30m BGL.

Cable Percussion Borehole BH03

Cable percussion borehole BH03 (Figures 1, 6, and 11) was monitored on 27th April 2018. Ground level on the paving stones was 9.23m AOD.

Phase 7 Modern made ground

Two layers of made ground deposits were recorded below the modern paving slabs; the earliest (3002) comprised of dark greyish brown clayey silt which contained frequent charcoal and CBM flecked inclusions. The top of the deposit was recorded at 0.80m BGL (8.43m AOD). Above this was loose dark grey sandy silt 3001 which contained frequent charcoal and CBM fragments and was encountered at 0.50m BGL (8.73m AOD).

Bedding for the paving slabs (3000) comprised of tarmac fragments and crushed mortar and measured 0.43m thick.

Trial Pit TP05

Trial pit TP05 (Figures 1, 6 and 11; Plate 12) was monitored on 16th April 2018. Ground level was 10.24m AOD.

Phase 7 Modern made ground

Beneath the topsoil (52) was a 20mm thick layer of modern concrete (54) and hardcore (53), also 20mm thick.



Plate 12 Trial pit TP05 with 0.5m scale, view east

5.2 Flood Cell B7

Windowless Sample Borehole WS01

WS borehole WS01 (Figures 2, 7, 14 and 20; Plates 13–14) was monitored on the 26th April 2018 and the ground level was given as 9.26m AOD.

Phase 1 Undated made ground deposits

Up to the medieval period the River Ouse was only 3m from Skeldergate street front; by the 15th century the riverfront had been pushed back to its present location through a series of reclamation campaigns. The earliest deposit (109) from this phase, a dark brownish grey gravelly silt with charcoal and CBM flecks and some organic content, possibly relates to the early river front edge. However, it is possible it dates from the formation of a Roman quay, evidence of which was encountered during investigations at 26–34 Skeldergate (YAT 1991) at 4.15m AOD. The top of 109 was recorded at 4.50m BGL (4.76m AOD).

Above this, from 3.50m BGL (5.76m AOD) was a very loose, wet, mid-brown, clayey sand with crushed sandstone inclusions (108). A similar thick layer of dredged silts and sands dating to the late 14th/early 15th centuries was encountered at 26–34 Skeldergate (*ibid.*) recorded at around 5.77m AOD.

Phase 2 Undated surface layer

This phase is characterised by two deposits of crushed building material; the crushing was the result of the machinations of the borehole penetration. The earliest deposit was a grey sandstone (107), recorded at 2.90m BGL (6.36m AOD), overlain by a thin layer of brick or tile (106) at 2.80m BGL (6.46m AOD). It is possible that these surfaces were the remains of an 18th–19th century cellar floor.



Plate 13 Core 2m–3m, top to the right, showing (l–r) 107–104. Scale 0.5m

Phase 3 Nineteenth century ground build-up/demolition layers/cellar infill

This phase is characterised by a series of made ground deposits, likely cellar infill, the majority of which contained demolition material used to raise the ground level in the 19th and 20th centuries. The deposits were observed from 0.40m BGL (8.86m AOD) to 2.80m BGL (6.46m AOD).

The earliest deposit in this phase comprised of mid greyish brown silty clay (105) with occasional charcoal and mortar inclusions. The deposit was recorded at 2.30m BGL (6.96m AOD) and was likely a made ground deposit. Above this was a light brownish grey silty clay with frequent mortar, charcoal, CBM and grey sandstone fragment inclusions (104); probably a levelling deposit formed from demolition material.

A mid brown silty clay (103) containing occasional charcoal, CBM and mortar flecks was observed above 104 at 1.40m BGL (7.86m AOD), whilst above that was another deposit of grey sandstone and light grey mortar (102), recorded at 1.30m BGL (7.96m AOD) and was possibly the remains of a surface, with deposit 103 as its bedding layer.

Lying just under the present ground surface at 0.40m BGL (8.86m AOD) was a thick build up deposit of mid greyish brown clayey silt (101) containing moderate inclusions of CBM fragments and charcoal flecks.



Plate 14 Core 1m–2m, top to the right, showing (l–r) contexts 104–102. Scale 0.5m

Phase 4 Modern activity

This phase was characterised by the modern paving sets and associated make-up layers (100) that formed the current ground surface.

Trial Pit TP01

Trial pit TP01 (Figures 2, 7, and 16; Plate 15) was monitored on the 3rd April 2018 and the ground level was 9.21m AOD on the tarmac ground surface.

Phase 4 Modern activity

The base of the trial pit was covered by the concrete footing (12) associated with the adjacent modern building at the corner of Skeldergate and Queen's Staith Road, and was recorded at 0.50m BGL (8.71m AOD). Above this was the yellow grey stone and sand bedding (11) for the tarmac surface (10); measuring 0.20m thick and recorded 0.10m BGL (9.11m AOD).



Plate 15 TP01, view northeast, scale 0.5m

Trial Pit TP02

Trial pit TP02 (Figures 2, 7, and 16; Plate 16) was monitored on the 3rd April 2018 and the ground level was 9.20m AOD on the tarmac ground surface.

Phase 4 modern activity

In the base of the trial pit, at 0.73m BGL (8.47m AOD) was the concrete footing for the adjacent building on the corner of Skeldergate and Queen's Staith Road. Above this was a made ground layer of dark grey sandy silt with frequent CBM fragment inclusions (24), the top of which was recorded at 0.33m BGL (8.87m AOD). Cutting through this layer was a concrete service surround (23) and part of the concrete foundation for the adjacent building (22) was recorded on top of the made ground 24 at 0.30m BGL (8.90m AOD). A stone and sand bedding (21) for the tarmac ground surface (20) was observed at 0.10m BGL (9.10m AOD).



Plate 16 TP02, view south, scale 0.5m

Trial Pit TP10

Trial pit TP10 (Figures 2, 7, and 16; Plate 17) was monitored on the 21st March 2018 and the ground level was 9.37m AOD on the turf ground surface.

Phase 3 Post medieval build-up

Prior to the 19th-century expansion of York beyond the medieval city walls the area in which the trial pit was located was open fields; 17th–late 18th century maps show an area of open land with trees. The earliest deposit recorded in TP10 was a light to mid brown sandy silt (106), observed from 1.00m BGL (8.37m AOD), and was likely the former topsoil of this land, up to the early 19th century.

Phase 4 Modern activity

The remaining contexts within this trial pit were concerned with the construction, backfilling and build-up associated with the adjacent 19th-century wall. The earliest phase of construction was a footing sub-base, recorded at 0.80m BGL (8.57m AOD), formed from loose, light brown sand and pebbles and medium sized CBM fragments (105). Sitting on top of footing 105 was a 0.45m deep concrete footing (104), the top of which was recorded at 0.35m BGL (9.02m AOD). The 19th-century limestone wall 103 sat on top of the concrete footing. The construction backfill 102 was next in the stratigraphic sequence, and was composed of light brown clay with moderate fragments of CBM. The top of the deposit was observed from 0.30m BGL (9.07m AOD).

Sealing 102 was a made ground layer comprised of mid grey brown sand with occasional brick and limestone fragment inclusions (101). The current ground surface was a dark brown sandy silt (100) topsoil and turf.



Plate 17 TP10, view west, scale 0.5m

5.3 Flood Cell B11

CP borehole BH06 (Figures 3, 8, 12 and 17) was monitored on the 28th March 2018 and the ground level was given as 10.74m AOD.

Phase 1 Alluvial clays

This phase is characterised by a substantial build up of alluvial clay deposits; comprising of mid to dark blue grey silty (6002) or sandy (6003) clays with occasional sandstone fragments in deposit 6002 and occasional lenses of sand in deposit 6004. The top of this phase of deposits

was recorded at 2.30m BGL (8.44m AOD) and was observed until 7.20m BGL (3.54m AOD). This deep build-up of deposits could originate from the River Ouse, whose current location is about 120m to the south-east of the borehole location. However, a more likely source is the former 'Bur Dike' that can be seen on the 1852 OS map running from 'The Green' in Clifton down to the River Ouse, almost on top of BH06's location.

Phase 2 Modern activity

The earliest deposit in this phase is from the clay flood defence bund, constructed in the 20th century; mid grey brown clay with occasional CBM fragments (6001) was recorded from 0.20m BGL (10.54m AOD). Above this was the dark brown clayey silt topsoil and turf (6000).

5.4 Flood Cell C1

The windowless sample boreholes WS02, WS03, WS04 and WS05 (Figures 4, 9, 15, 21 and 23; Plates 18–22) were monitored on the 3rd May 2018 and the ground levels on the topsoil were given as between 9.43m AOD and 9.16m AOD.

Phase 1 Natural deposits

This majority of deposits recovered from this phase were clearly alluvial in origin; bands of clays (202– 204, 206, 207, 404 and 502) were interspersed with bands of orange brown sand (205, 209, 305, 306, 401–403, 501, & 503) and laminations of sand and clay (208). The top of the deposits were observed between 0.80m BGL in WS02 (8.63m AOD) and 3.50m BGL in WS03 (5.92m AOD).



Plate 18 WS02 core 2m–3m, top to the right, showing the laminations in Context 208



Plate 19 WS02 core 1m–2m, top to the left, showing (l–r) contexts 202–204. Iron pan can be seen on context 202 and 203. Scale 0.5m



Plate 20 WS04, core 4m–5m, top to the left, showing (l–r) contexts 403 and 404. Scale 0.5m



Plate 21 WS05, core 3m–4m, top to the left, showing (l–r) Contexts 501 and 502. Scale 0.5m

Phase 2 Undated possible made ground

In borehole WS03 there was evidence for a thin, but distinct layer of concentrated subangular iron manganese pebbles (304) at 2.85m BGL (6.57m AOD). There was a clear, sharp horizon between 304 and the coarse yellow sand (303) deposit above. It is likely this layer represents a naturally-occurring manganese deposit, but it could be caused by redeposition of natural as part of land-reclamation. Because the make-up of the deposit is very similar to other layers recorded as natural in the other boreholes it is almost impossible, without seeing a larger sample of the deposit, to determine its origin and make any meaningful interpretation



Plate 22 WS03 core 2m–3m, top to the left, showing (l–r) contexts 303 and 304

Phase 3 Modern activity

Modern made ground lay immediately below the dark brown sandy clayey silt topsoil (200 and 300) in WS02 and WS03 and was comprised of dark grey silt containing inclusions of limestone and tarmac fragments (201) and frequent crushed mortar (301). The deposits were recorded at 0.26m and 0.30m BGL (9.17m AOD and 9.12m AOD) respectively.

5.5 Flood Cell C3

The CP boreholes (Figures 5, 10, 13, 18 and 22) within this flood cell were monitored on the 3rd April (BH05), 5th April (BH06) and 21st April (BH07) 2018. The ground levels were recorded at 7.34m AOD (BH05), 7.09m AOD (BH06) and 8.73m AOD (BH07).

Phase 1 Alluvial deposits

Alluvial clays (5003, 5004, 7003 and 7004) were observed in boreholes BH05 and BH07, from 2.50m BGL (4.84m AOD) and 0.60m BGL (8.13m AOD) respectively. The clays were mid grey and brown with occasional rounded cobbles and small pebbles.

Phase 2 Post-medieval to modern ground build-up

Above the natural clays were deposits of ground build-up comprised of mid greyish brown and yellow brown silty/sandy clay (5001, 5002, 6001 and 7001) with moderate CBM and sandstone fragments present (7002). The top of the deposits were recorded between 0.20m and 0.50m BGL (8.53m AOD and 6.59m AOD). It is likely these deposits were associated with the expansion of the settlement of Naburn beyond the main street during the late post-medieval period, into the modern.

A mid grey brown sandy/clayey silt topsoil (5000, 6000 and 7000) formed the current ground surface.

6 DISCUSSION

Flood Cell B4

Natural alluvial deposits were reached in borehole B4-WS01, within York's Memorial Gardens, at 6.47m AOD. Similar deposits were recorded at Foxton's Garage (YAT 1998.1), a borehole survey site located to the immediate west of the memorial gardens. A series of clayey and sandy silts were recorded around 6.00m AOD and measured around 0.3m thick.

There was no evidence of Roman activity in any of the boreholes monitored; however deposits recorded in borehole B4-WS01 between 6.67m AOD and 7.17m AOD are comparable to a series of humic silts and clayey silts recorded at 7.28m AOD during the borehole survey at Foxton's Garage (*ibid.*). A small amount of brick, tile and pottery fragments recovered from the deposits at the Garage led to the conclusion that they were laid down during the Roman period.

Evidence from the two windowless sample boreholes located in the memorial gardens (B4-WS01 and B4-WS02A) suggests that archaeological remains in this area may have been removed during the construction of the Railway and associated works during the 19th century. Redeposited clays and made ground deposits were recorded between 3.60m AOD and 7.17m AOD, again corresponding with the results from Foxton's Garage.

Modern garden soil was present up to 1.20m BGL in the Memorial Gardens, and a similar depth of modern make-up was recorded in borehole B4-BH03, located along the river front on Wellington Row.

Within Memorial Park borehole B4-WS03B revealed archaeological deposits up to 2.5m thick, with the top of medieval dumping and levelling deposits recorded at 7.10m AOD and deposits relating to 10th–11th century land management recorded from 6.30m AOD. Small fragments of animal bone, CBM and pottery were recovered from the medieval and early medieval layers, as well as a small, vertically aligned wooden stake. These deposits correspond with the findings of an excavation done at the North Street Pumping Station, located to the immediate east of the borehole (YAT 1993.1). During that excavation highly organic deposits representing periodic episodes of dumping and flooding relating to deliberate attempts at land reclamation and ground build-up were recorded from around 2.50m AOD–6.00m AOD. Evidence from borehole B4-WS03B suggests it is highly likely that this type of deposition, characterised by high levels of organic preservation, is extant across the area currently occupied by Memorial Park.

Nineteenth and twentieth century demolition and levelling layers measuring up to 1.66m thick sealed the medieval and early medieval layers in borehole B4-WS03B and relate to the period of commercial expansion along the river front in the 19th century, and the subsequent demolition of some of the buildings to create the Park in the 20th century.

The results of the interventions in this flood cell correspond with the known archaeology of this area of York, with a high potential for significant archaeological remains located within Memorial Park. Unfortunately due to the presence of services in borehole B4-BH08, it is unknown whether this level of archaeology is still present along the river front, close to Lendal Bridge, however excavations conducted at Wellington Row in the 1980's (YAT 1988–9) suggests this is highly possible.

Analysis of the potential of any organic remains cannot be done at this time, as further work is required on the environmental samples taken from relevant contexts. Environmental samples were collected from a range of deposits within borehole WS03 and it is recommended that samples are processed across this range. The following candidates for environmental processing have been identified; SN.15 from context 306, SN.16 from context 309, SN.18 from context 311 and SN.20 from context 314. The formation of the deposits from which these

samples were retrieved, through land build-up and rubbish dumping from the early to later medieval periods, and the rich organic content, means they have a high potential for datable material and environmental remains pertaining to the types of activity happening within this area during the early medieval and medieval periods.

Flood Cell B7

No natural deposits were encountered during the monitoring of interventions in Flood Cell B7; the earliest deposits recorded were clays and gravelly silts recorded in borehole B7-WS01, located to the south of Queen's Staith. The deposits contained traces of crushed CBM and limestone and flecks of charcoal, and were tentatively dated to somewhere between the Roman period when a quay may have been established and the medieval period when deliberate land reclamation was ongoing. Up to 0.5m of deposits were seen and were recorded from 4.76m AOD, comparable with those seen at 26–34 Skeldergate (YAT 1991) recorded from 4.77m AOD at the street frontage.

Extensive cellar construction was undertaken along Skeldergate during the 18th–19th centuries, cellars to a depth of 6.25m AOD have been recorded during YAT excavations along Skeldergate. A possible brick floor surface was recorded in borehole WS01 at 6.46m AOD, with subsequent 19th–20th century cellar infill and demolition layers recorded up to a depth of 8.56m AOD.

The area around TP10 was formerly open fields, before the 19th-century expansion of York beyond the medieval city walls. Evidence of the pre-19th century ground soil was encountered within the trial pit from 8.37m AOD. Sealing the soil was a 1m thick series of modern deposits relating to the adjacent 19th century wall.

Two trial pits (WS01 and WS02) monitored along Queen Staiths Road encountered modern deposits up to 0.73m BGL, whilst in borehole WS01 modern made ground relating to the current ground surface was present up to 0.40m BGL.

Extensive archaeological investigations during the 1970s to 1990s along Skeldergate have found between 7–10m of well-preserved archaeological deposits surviving around a metre below the current ground surface. The borehole intervention monitored during these works found evidence of archaeological survival from 3.5m BGL, and has shown the extensive impact of 18th–19th century cellars in the area.

Flood Cell B11

Natural alluvial deposits were recorded in this flood cell from 8.44m AOD and were likely related to 'Bur Dyke', a water course that can be seen on the 1852 OS map extending from Clifton in the north to the River Ouse, bypassing borehole BH06. No archaeological remains were encountered within this cell; sealing the alluvial deposits was a 2.10m thick layer of clay which formed a 20th-century flood defence bund.

Flood Cell C1

Natural deposits were encountered in WS boreholes WS02-05 from 5.92m AOD to 8.63m AOD. The presence of interspersed alluvial silts, with clear episodes of laminations, provides evidence of extensive and numerous episodes of flooding along Chantry Lane. These results

are supported by historical accounts of floods occurring in this part of Bishopthorpe, most notably in 1892 when access to St Andrews Church, at this time located to just the east of the boreholes by the edge of the river, was only possible by boat. Such was the damage caused by this flood, the church was relocated to further in land, to the north of Bishopthorpe.

In borehole WS03 evidence of possible attempts to raise ground levels was seen from 9.00m AOD in the form of a around 3m of multiple sand layers and a thin layer of pebbly gravel. This was the only borehole where there was some ambiguity as to whether the deposition represents natural alluvial deposition or intentional redeposition for land reclamation purposes.

Nothing of archaeological interest was encountered during the monitoring of boreholes in FC C1.

Flood Cell C3

Alluvial deposition was identified in CP boreholes BH05 and BH07 and recorded between 4.84m AOD and 8.13m AOD. Sealing these deposits were made ground deposits, up to 2m thick, relating to late post-medieval housing construction in this part of Naburn.

No evidence was found of structures relating to the Naburn Ferry; however the probable location of a jetty for the ferry was in the vicinity of BH06, but this was not fully excavated due to the presence of a service cable. There have been no archaeological investigations in the close vicinity with which to compare the deposition seen in these boreholes; however it seems there has been little activity in the area from before this part of the village was established.

LIST OF SOURCES

YAT 1993.1 Pumping Station on North Street site archive

YAT 1992.1. Boreholes on North Street site archive

History of St Andrews Church in Bishopthorpe (www.standrewsbishopthorpe.weebly.com)

British Geological Survey webpage (www.bgs.ac.uk)

REFERENCES

VCH. 1976. *A History of the County of York East Riding: Volume 3, Ouse and Derwent Wapentake, and Part of Harthill Wapentake*. London. pp74–82

Carver, M.O.H., Donaghey, S. & Sumpter, A.B. 1978. *Riverside Structures and a well in Skeldergate and Buildings in Bishophill*. In **AY 4/1** 'The Archaeology of York, The Colonia'.

Capita AECOM. 2018. *York Five Year Flood Management, Plan Ground Investigations, Archaeological Monitoring Project Design*

Evans, D. T., 2010. *St Peter's School, Clifton, York*. YAT report no. 2010/82

FAS. 2008. *Archaeological Investigation at Bishopthorpe Palace, Bishopthorpe, York*. Report: FAS2008 397

MAP. 1996. *Germany Beck-Fulford; Archaeological Sample Excavations*. Museum Accession no. YORM 1996.352

McComish, J., 2015. *Excavations by York Archaeological Trust within the Walled Area to the South-West of the River Ouse, York*. YAT report no. 2015/48

OSA. 2006. *18 Bootham Terrace, York. Report on an Archaeological Watching Brief*. OSA report no. OSA06WB19

Ottaway, P., 2011. *Archaeology in the Environs of Roman York: Excavations 1976–2005*. The Archaeology of York. Volume 6: Roman Extra-Mural Settlement and Roads

RCHME. 1962. *Royal Commission on Historical Monuments. Eboracum, Roman York, Vol.1*

YAT. 1972.19. *Pawson's Warehouse, Skeldergate, York*

YAT. 1983.2. *City Mills, Skeldergate, York*

YAT. 1983.25. *Pawsons Warehouse, Skeldergate, York*

YAT. 1983–1984.32. *General Accident, 22–30 Tanner Row, York*

YAT. 1988–1989.24. *Stakis, Leedhams Garage, Wellington Row*

YAT. 1989. *Post-medieval Skeldergate. Riverside Developments at City Mills, Skeldergate*

YAT. 1989.1. *Albion Wharf 23–28 Skeldergate*

YAT. 1989.9. *29–31 Skeldergate, York*

YAT 1991. *Report on an Archaeological Evaluation at 26–34 Skeldergate, York*.

YAT. 1998.1 *Former Foxton's Garage, Leeman Road, York: Report on Archaeological Evaluation*. Report no. 4

YAT. 2015. *Archaeology Live! 2015 All Saints North Street York; Interim Assessment Report*. YAT report no. 2015/53

YAT. 2018. *Written Scheme of Investigation for the York Five Year Flood Management Plan Archaeological Watching Brief*. Report no. 2018/20

ACKNOWLEDGEMENTS

The author would like to thank Ben Savine and George Loffman of YAT for their work on site, the Geotechnic and Capita AECOM site team for their help and diligence, and Dave Aspden of Capital Aecom for his support.

APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Borehole log sheets	18
Sample register	1
Digital photographs	110
Written Scheme of Investigation	2
Report	1

Table 3 Index to archive

APPENDIX 2 – CONTEXT LIST

Context Number	Depth of deposit (AOD)	Description
Flood Cell B4		
WS01		
4.100	10.67m	Garden topsoil. Loose mid grey brown clayey silt with occasional charcoal and mortar flecks
4.101	9.30m	Made ground/levelling. Friable to firm light brown grey clay with occasional mortar flecks
4.102	9.15m	Made ground/levelling. Friable dark brown grey clayey silt with moderate charcoal and CBM flecks and occasional bone fragments
4.103	8.82m	Made ground/levelling. Soft mid brown sandy clay with occasional charcoal flecks
4.104	7.17m	Dumped deposit? Soft light grey brown silty clay
4.105	6.67m	Dumped deposit? Soft dark grey silty clay
4.106	6.47m	Alluvial deposit. Very soft mid brown sandy clay with occasional rounded pebbles
4.107	6.07m	Alluvial deposit. Soft mid grey silty clay with occasional small stones
WS02B		
4.200	10.11m	Topsoil. Friable mid brown clayey silt with occasional charcoal and mortar flecks and CBM fragments
4.201	8.91m	Made ground/levelling. Friable mid brown sandy silt with frequent mortar flecks and occasional charcoal flecks
4.202	8.71m	Made ground/levelling. Friable dark brownish grey to light grey clayey silt with moderate charcoal flecks and occasional mortar flecks
4.203	8.41m	Made ground/levelling. Friable lime mortar with occasional CBM fragments
4.204	8.31m	Made ground/levelling. Friable to firm dark greenish black sandy clay
4.205	8.01m	Made ground/levelling. Friable lime mortar with occasional CBM fragments
4.206	7.91m	Made ground/levelling. Friable light brown grey silty clay with moderate charcoal and CBM flecks
4.207	6.67m	Made ground/levelling. Soft mid grey brown sandy clay with occasional charcoal and CBM flecks
4.208	6.57m	Made ground/levelling. Soft dark brown grey silty clay with moderate CBM fragments and occasional charcoal flecks
WS03B		
4.300	9.73m	Garden soil. Dark grey brown to black sandy silt with very occasional CBM fragments
4.301	8.43m	Made ground/levelling. Light grey brown stiff clay with a lens of limestone chips
4.302	7.90m	Made ground/levelling. Very loose mid grey brown silt mixed with CBM and mortar rubble. Lenses of fine sand were also present.
4.303	7.28m	Made ground/levelling. Mid grey sand with lenses of mortar
4.304	7.19m	Made ground/levelling. Mid grey soft clay with charcoal flecks
4.305	7.12m	Made ground/levelling. Creamy white soft clay and lime mortar with small fragments of CBM

Context Number	Depth of deposit (AOD)	Description
4.306	7.10m	Dump deposit. Dark grey to black damp clay with inclusions of fine sand and small fragments of CBM and pottery
4.307	6.79m	Dump deposit. Soft light brown sandy clay
4.308	6.57m	Dump deposit. Mid grey soft and damp clay with occasional very small mortar and CBM fragments
4.309	6.51m	Dump deposit. Olive green mottled with mid grey soft clay with small pebble inclusions
4.310	6.29m	Alluvial deposit? Dark brown to black clay rich in organics and with minute to medium rounded and angular pebble inclusions
4.311	6.03m	Dump deposit. Dark brown grey moderately condensed and dry silt with degraded wood and small rounded to angular pebbles present
4.312	5.47m	Dump deposit. Mid brown soft and damp clay with degraded wood and very fine sand inclusions.
4.313	5.39m	Alluvial deposit? Dark grey soft clay
4.314	5.32m	Dump deposit. Dark grey to black soft clay with charcoal inclusions and a degraded and crumbly wooden stake. CBM and bone fragments were also present.
4.315	4.96m	Alluvial deposit. Mid brown wet sand and clay
BH03		
4.3000	9.23m	Ground surface. Paving stone and tarmac/stone
4.3001	8.73m	Made ground. Loose dark grey sandy silt with frequent charcoal and CBM flecks and coal fragments. 19 th century pottery sherds were also recorded
4.3002	8.43m	Made ground. Friable dark brown grey clayey silt with frequent charcoal and CBM fleck inclusions
TP05A		
50	10.24m	Ground surface. Tarmac
51	10.04m	Wall footing. Concrete
TP05B		
52	10.24m	Topsoil. Dark grey brown sandy silt
53	10.04m	Made ground. Concrete, rubble and hardcore
54	9.84m	Foundation. Concrete
Flood Cell B7		
WS01		
7.100	9.26m	Paving slabs and make-up. Light yellow brown sandy gravel
7.101	8.86m	Build-up. Friable mid brownish grey clayey silt
7.102	7.96m	Surface? Creamy white mortar with grey sandstone fragments
7.103	7.86m	Levelling. Friable mid brown silty clay with occasional charcoal, CBM and mortar flecks
7.104	7.56m	Levelling? Creamy white mortar with light-mid grey silty clay with frequent charcoal and CBM fleck and grey sandstone fragments
7.105	6.96m	Levelling. Friable mid greyish brown silty clay with occasional charcoal and mortar flecks
7.106	6.46m	Surface? Layer of CBM crushed by the sampler

Context Number	Depth of deposit (AOD)	Description
7.107	6.36m	Surface? Layer of grey sandstone
7.108	5.76m	Alluvial deposit. Very loose mid brown clayey sand with occasional crushed sandstone
7.109	4.76m	Alluvial deposit. Loose dark brownish grey gravelly silt with moderate charcoal and occasional CBM flecks
TP01		
7.10	9.21m	Surface. Tarmac
7.11	9.11m	Pavement bedding. Firm yellowish grey stone and sand
7.12	8.71m	Concrete footing.
TP02		
7.20	9.20m	Surface. Tarmac
7.21	9.10m	Pavement bedding. Firm yellowish grey stone and sand
7.22	8.90m	Building foundation. Concrete
7.23	8.87m	Service surround. Concrete
7.24	8.87m	Made ground. Friable dark brownish grey sandy silt with frequent CBM.
TP10		
7.100T	9.37m	Topsoil and turf. Firm dark brown sandy silt with frequent roots, moderate pebbles and occasional CBM
7.101T	N/A	Make-up. Friable mid grey/brown sand with moderate small stones, occasional CBM and limestone fragments
7.102T	9.07m	Make-up. Firm light brown clay with moderate pebbles and CBM fragments
7.103T	N/A	19 th century stone wall
7.104T	9.02m	Footing. Coarse concrete fragments, mortared brick and cobbles
7.105T	8.51m	Sub base of footing. Loose light brown sand and pebbles with medium sized CBM fragments (c.25%)
7.106T	8.37m	Build-up. Friable to firm, light to mid brown sandy silt with occasional pebbles
Flood Cell B11		
BH06		
11.6000	10.74m	Topsoil and turf. Friable dark brown grey clayey silt
11.6001	10.54m	Flood defence bund make-up. Friable to firm mid grey brown sandy silty clay
11.6002	8.44m	Alluvial deposit. Soft dark blue grey silty clay with occasional sandstone fragments and charcoal flecks
11.6003	8.14m	Alluvial deposit. Soft mid blue grey sandy clay with occasional small rounded pebbles

Context Number	Depth of deposit (AOD)	Description
11.6004	6.34m	Alluvial deposit. Friable blue grey with brown mottling clay with occasional lenses of sand
Flood Cell C1		
WS02		
1.200	9.43m	Topsoil and turf. Dark brown sandy clayey silt
1.201	9.17m	Made ground. Dark grey silt with occasional stone and tarmac
1.202	8.63m	Alluvial deposit. Mid blue grey silty clay with evidence of rooting and iron pan
1.203	8.01m	Alluvial deposit. Light slightly purple blue grey silty clay with evidence of rooting and charcoal flecks.
1.204	7.73m	Alluvial deposit. Mid grey brown stiff sandy silty clay
1.205	7.53m	Alluvial deposit. Soft orange brown sand – damp.
1.206	7.20m	Alluvial deposit. Light-mid brown clay
1.207	6.97m	Alluvial deposit. Very soft and plastic mid blue grey clay
1.208	6.60m	Alluvial deposit. Laminations of brown and grey sand and clays
1.209	5.43m	Alluvial deposit. Mid grey brown to dark orange brown sand.
WS03		
1.300	9.42m	Topsoil and turf. Dark brown sandy clayey silt
1.301	9.12m	Made ground. Creamy white crushed mortar
1.302	9.00m	Redeposited natural? Soft orange brown clay and sand
1.303	8.02m	Redeposited natural? Loose and coarse yellow brown sand with evidence of rooting and iron pan
1.304	6.57m	Made ground. Dark grey sandy silt and frequent small angular pebbles.
1.305	5.92m	Alluvial deposit. Loose damp coarse yellow brown sand
1.306	5.42m	Alluvial deposit. Mottled orange brown and grey brown wet sand
1.307	4.52m	Alluvial deposit. Coarse grey sand interspersed with very clearly defined lenses of gravel.
WS04		
1.400	9.23m	Topsoil and turf. Dark brown sandy clayey silt
1.401	8.68m	Natural. Sterile mid brown sandy clay
1.402	7.85m	Alluvial deposit. Mid brown soft sand with evidence of rooting and iron pan, increasingly wet from c.2.40m onwards
1.403	5.66m	Natural. Coarse grey brown sand with subangular pebbles
1.404	4.28m	Alluvial deposit. Mid purple grey sandy clay
WS05		

Context Number	Depth of deposit (AOD)	Description
1.500	9.16m	Topsoil and turf. Dark grey brown silt from which a plastic bag and a sherd of plant pot was recovered
1.501	8.50m	Natural. Soft and coarse orange brown sand. Turning wet from c.2m BGL onwards
1.502	5.66m	Alluvial deposit. Stiff blue grey clay
1.503	4.81m	Alluvial deposit. Coarse orange brown sand
Flood Cell C3		
BH05		
3.5000	7.34m	Topsoil. Friable mid greyish brown clayey silt
3.5001	6.94m	Made ground. Friable mid greyish brown sandy clay
3.5002	5.34m	Made ground. Friable mid brownish grey silty clay with moderate CBM and sandstone fragments.
3.5003	4.84m	Natural. Friable mid brownish grey sandy clay
3.5004	4.44m	Natural. Firm mid grey brown clay with occasional stones
BH06		
3.6000	7.09m	Topsoil. Mid grey brown clayey silt with occasional CBM flecks and concrete fragments
3.6001	6.59m	Made ground. Friable mid yellow brown sandy clay
BH07		
3.7000	8.73m	Topsoil. Friable mid grey brown sandy silt with occasional small stones, CBM fragments and mortar flecks
3.7001	8.53m	Made ground. Friable to loose light grey brown clayey silt with occasional subangular stones
3.7002	8.33m	Friable light grey, with yellow mottling, sandy clay with occasional CBM fragments
3.7003	8.13m	Natural. Friable mid grey, with light brown mottling, silty clay with occasional cobbles and mudstone fragments
3.7004	7.53m	Natural. Firm mid brown clay with occasional small stones

Table 4 Context list

APPENDIX 3 – WRITTEN SCHEME OF INVESTIGATION

WRITTEN SCHEME OF INVESTIGATION FOR THE YORK FIVE YEAR FLOOD MANAGEMENT PLAN ARCHAEOLOGICAL WATCHING BRIEF

Site Location: York

Proposal: Five Year Flood Management Plan

Prepared for: Capita AECOM

Document Number: 2018/20

1 SUMMARY

1.1 YAT has been commissioned by Capita AECOM on behalf of the Environment Agency to undertake archaeological monitoring of site investigations for the Five Year Flood Management Plan for York (FMP). The scheme is being undertaken in response to the severe flooding experienced 26th–28th December 2015. As part of the FMP, the risk of flooding and the performance of the existing flood defences through York are being reviewed.

1.2 For the purposes of the York FMP, ten communities have been identified across York and these communities are further sub-divided on the basis of ‘flood cells’ (Figure 1). A flood cell is defined as an area where the flood risk can be addressed independently of the areas up- and downstream. The Environment Agency is exploring a range of potential flood management options for each cell.

1.3 As part of the options assessment process a programme of geotechnical Ground Investigations (GI) which will be carried out within each cell by a geotechnical Ground Investigation Contractor (‘the GI Contractor’). The GI interventions are to be undertaken to investigate ground conditions and structural foundations relating to flood defence features within each flood cell, in order to inform the selection of the preferred flood defence options.

1.4 This Written Scheme of Investigation (WSI) provides a detailed methodology for the archaeological monitoring of the GI works to be undertaken as part of the York FMP options appraisal. It has been developed from the Project Design prepared on behalf of the Environment Agency by Capita AECOM (‘the Consultant’) and two site-specific Written Schemes of Investigation, also produced by Capita AECOM in support of Scheduled Monument Consents for works at the Museum Gardens and St Mary’s Abbey Precinct Wall, and the former friary wall that forms the western boundary of Tower Gardens.

1.5 The PD and this WSI have been prepared in accordance with the Chartered Institute for Archaeologist Code of Conduct (CIfA, 2014), Standard and Guidance for an Archaeological Watching Brief (CIfA, 2014) and standards and guidance published by Historic England (Appendix 1) and has been approved by John Oxley, City of York Archaeologist. Andy Hammon, Regional Science Advisor for Historic England has been consulted on the approach and methodology.

2 SITE LOCATIONS

2.1 The York FMP has been divided into two areas for the purposes of the GI investigations:

- the Inner Ouse comprising the banks of the Ouse as it runs from Government House to the A64 at Fulford
- the Outer Ouse running from Bishopthorpe to Naburn

2.2 The flood cells within the Inner Ouse that will be subject to geotechnical investigations are:

- Government House to Scarborough Bridge (FC B11)
- Scarborough Bridge to Lendal Bridge left bank (FC B12)
- King's Staith (FC B15)
- Scarborough Bridge to Ouse Bridge right bank (FC B4)
- Queens Staith and Skeldergate (FC B7)
- Germany Beck and Fulford (FC B9)

The flood cells within the Outer Ouse that will be subject to geotechnical investigations are:

- Bishopthorpe (FC C1)
- Naburn (FC C2)
- Acaster Malbis (FC C3)

2.3 A selection of the interventions in several of the above flood cells are subject to Archaeological monitoring. These are listed in detail in Table 1.

3 DESIGNATIONS & CONSTRAINTS

3.1 Designations and constraints apply within Flood Cells B4, B12 and B15. Some flexibility will be needed in the location of the interventions where there are constraints and designations. If significant archaeological remains are discovered, especially burials or significant structures, relocation of the intervention will be considered.

3.2 Flood Cell B4

The trial pit to be excavated in Flood Cell B4 will be close to NHLE: 1004910, the City Walls, gates, posterns (not including the section from Bootham Bar to Monk Bar, N of the Minster), moats, mounds, Bayle (or Baile) Hill, St Leonard's Hospital and Merchant Taylor's Hall, Aldwark.

3.3 Flood Cell B12

Flood Cell B12 includes two Scheduled Monuments:

- St Mary's Abbey (NHLE 1004919)
- St Mary's Abbey precinct walls (NHLE 1004920)

The site also lies within Museum Gardens, a Grade II Registered Park and Garden (NHLE 1000117).

The SI will take place in close proximity to the Hospitium, a Grade II* listed building (NHLE 1257129).

3.4 Flood Cell B15

Trial pits in FC B15 will be excavated against the city wall, which forms part of the Scheduled Monument City Walls, gates, posterns (NHLE: 1004910) (not including the section from Bootham Bar to Monk Bar, N of the Minster), moats, mounds, Bayle (or Baile) Hill, St Leonard's Hospital and Merchant Taylor's Hall, Aldwark. The section of city wall is also grade I listed (1259260).

Number 9 Tower Place, which abuts the south-western end of the city wall is a Grade II* Listed Building. The wall that runs along the northern edge of Tower Gardens fronting onto Tower Street is curtilage listed at Grade II as it forms part of Skeldergate Bridge a Grade II Listed structure.

4 ARCHAEOLOGICAL INTEREST

4.1 A summary of the archaeology and history of York is provided in the AECOM Project Design (PD) January 2018 (AECOM, 2018a) and the AECOM WSIs for Flood Cell B4, Scarborough Bridge to Ouse Bridge (AECOM, 2018b), Flood Cell B12, Scarborough Bridge to Lendal Bridge (AECOM, 2018c) and Flood Cell B15, King's Staith (AECOM, 2018d).

4.2 The GI interventions offer the opportunity to investigate deposit sequences along the banks of the Ouse within the city centre.

The aims of the archaeological monitoring are to:

- To record the sequence of archaeological deposition observed in each GI intervention to characterise the archaeology in each flood cell.
- To understand and assess the preservation of organic remains and palaeo-environmental evidence.
- To collect dating evidence for deposits where possible.
- To minimise disturbance to significant archaeological remains if encountered or if this is unavoidable to ensure that the remains are investigated and recorded in a controlled archaeological manner.
- To assess the extent to which modern activity may have affected deposits in the immediate area of each intervention.

5 SCOPE OF WORKS

5.1 Due to the potential for significant archaeological deposits to be present within the Inner Ouse area and in line with archaeological requirements for the Area of Archaeological Importance for York a sample of the geotechnical interventions will be subject to archaeological monitoring in order to identify and record the deposit sequence revealed. The GI investigations comprise a variety of types of investigation including percussive boreholes, window samples and hand dug trial pits.

5.2 The scope of the monitoring and sampling has been determined in consultation with the City of York Archaeologist. The GI interventions to be monitored comprise a sample of the hand-dug trial pits, percussion boreholes and window samples as detailed in Table 1.

5.3 A targeted selection of the window samples may also be subject to palaeoenvironmental sampling and installation of stand pipes to facilitate water level monitoring as appropriate in

order to assess the character of deep deposits and their potential for organic remains and the depositional environment within which they lie in relation to ground water levels.

5.4 Archaeological monitoring of GI investigations within the Outer Ouse will also be carried out, although on a more limited scale, as part of the programme of archaeological works.

5.5 All archaeological works will be carried out in accordance with the methodologies detailed in this WSI and with the Standard and Guidance for an Archaeological Watching Brief (ClfA 2014), the ClfA Code of Conduct (ClfA 2014) and other current and relevant good practice and standards and guidance (Appendix 1).

5.6 It may be necessary to relocate interventions due to localised obstructions or constraints. Actual locations of interventions will be mapped by the GI Contractor and this information supplied to the Archaeological Contractor.

6 HEALTH AND SAFETY

6.1 A detailed risk assessment and method statement will be prepared by YAT as an accompanying RAMS document.

6.2 Health and safety issues will take priority over archaeological matters and all YAT staff will comply with relevant Health and Safety Legislation. The works shall be carried out under The Construction (Design & Management) (CDM) Regulations 2015 with the Archaeological Contractor being part of a wider team under the GI Contractor (whilst on-site). The Contractor's Health & Safety Plan, Health & Safety Policies and Risk Assessments will be adhered to at all times.

6.3 The Archaeological Contractor will not be permitted to start on site until the GI Contractor has confirmed that the Plan is acceptable for the proposed works. If amendments are required to these reports during the works, the Archaeological Consultant and any other interested party must be provided with the revised document at the earliest opportunity.

6.4 The Archaeological Contractor shall liaise with the GI Contractor and the Consultant to ensure that the archaeological work is undertaken in an organised and professional manner. All parties shall have full regard for the safety of all personnel on site, including measures to ensure the safety of all. The GI Contractor shall supply welfare facilities for the archaeologist(s) to make use of as needed. YAT staff will follow the instructions of the GI Contractor and liaise closely with the GI Contractor to ensure compliance with site rules.

6.5 All equipment used must be 'fit for purpose' and maintained in a sound working condition in compliance with all relevant Health and Safety regulations and recommendations.

6.6 All site personnel will familiarise themselves with the following:

- site emergency and evacuation procedures
- the site's health and safety coordinator
- the first aider
- the location of the nearest hospital and doctor's surgery

6.7 Upcast resulting from the investigation of any archaeological remains shall be stored at a safe distance from the trial pit.

6.8 Where required, appropriate barrier fencing will be supplied by the GI Contractor to secure the worksite, and at the end of the investigation, the GI Contractor shall be responsible for the backfilling and reinstatement of the hole

6.9 YAT staff will not enter deep trenches and will only enter trenches when absolutely necessary for recording or sampling purposes and if they consider it safe to do so and the intervention is no more than 1.2m in depth.

7 FIELDWORK RESOURCES AND LIMITATIONS

7.1 Confidentiality and Publicity

Any inquiries by the public and press will be directed to the Consultant. No information or images associated with the project will be disseminated without the prior written consent of the Consultant and the Environment Agency.

7.2 Access

Access to the site will be arranged through the GI Contractor and is restricted to authorised personnel only. Access for the archaeological monitoring will be arranged and organised through the GI Contractor. The location of welfare facilities, site offices and first aiders, will be communicated to the on-site archaeologist by the GI Contractor on first arrival on site, through site induction procedures.

7.3 General Provisions

The Archaeological Contractor will undertake the works according to the approved WSI. No deviation from the WSI will occur without the agreement of the Consultant and the regional curator. All communications on archaeological matters will be directed through the Archaeological Consultant. The Archaeological Contractor shall make the minimum of disturbance during the survey and will avoid any unnecessary damage.

7.4 Monitoring requirements

All earth-moving machinery must be operated at an appropriate speed to allow the archaeologist to recognise, record and retrieve any archaeological deposits and material.

7.5 Before works commence the Archaeological Contractor will identify any other records or information that are relevant to the GI monitoring work.

7.6 The GI Contractor will agree the following with the Consultant and the Archaeological Contractor and facilitate the Archaeological Contractor to carry out monitoring with the provision of:

- a programme and timetable for the ground investigations ahead of the investigation.
- provide sufficient notification of the start of each trial pit to allow the Archaeological Contractor time to mobilise to ensure that the GI works are carried out under the supervision of the Archaeological Contractor;
- a Method Statement describing how the GI works will be undertaken;
- all machinery necessary for the boreholes and window samples
- Provide information regarding the level (above Ordnance Datum) of the top of the ground surface at each hole where archaeological monitoring is required

- Undertaking operations at an appropriate speed to allow the archaeologist time observe and record. They must also be allowed when necessary to excavate by hand, sample, record and recover evidenced in order to fulfil the aims and objectives of the PD and this WSI.
- Secure the worksite and supply appropriate barrier fencing where required
- make arrangements to allow the Archaeological Contractor sufficient time to examine, record and remove, if necessary, the revealed and discovered archaeological remains;
- arrangements to protect archaeological remains to be left in situ.
- be responsible for protecting and covering any archaeological features under the direction of the Archaeological Contractor.
- be responsible for providing any protective covering (such as geotextile) as specified by the Archaeological Contractor
- protecting revealed or discovered archaeological remains to be left in situ to the satisfaction of the Archaeological Contractor.
- Protecting any archaeological remains to the satisfaction of the Archaeological Contractor
- Backfilling and reinstating

7.7 The Archaeological Contractor will make every reasonable effort to complete any essential investigation and recording works without unduly impacting upon the GI programme and will not investigate any area outside the approved GI interventions

7.8 Operations may only recommence in an intervention where a stoppage has been required once appropriate recording has been completed and the archaeologist on site has given explicit permission.

7.9 Upcast from archaeological investigations will be placed at a safe distance from the trial pit.

7.10 The Archaeological Contractor shall record the date, time and duration of all archaeological monitoring site visits until the work is completed.

7.11 The Archaeological Contractor shall ensure that all site records and finds are kept secure at all times, and then conserved and archived to the required standards.

8 TRIAL PIT METHODOLOGY

8.1 All trial pits will be hand dug by the GI Contractor and will typically be 1 x 1m in plan and excavated to a maximum of 1.2m BGL.

8.2 The GI Contractor shall provide a suitable and safe position from which the Archaeological Contractor can effectively view the excavation of the trial pits.

8.3 The Archaeological Contractor shall ensure that disturbance to archaeological deposits/features is minimised and that the location of any deposits/features is recorded. If archaeological remains are encountered excavation will cease to allow the remains to be assessed and described.

8.4 Non Archaeological Remains

Where no archaeological remains are encountered, a photographic record will be taken of the trial pit and a written description with sketch section will be produced

8.5 General archaeological recording

Where archaeological deposits are present standard recording will consist of:

- limited hand cleaning of archaeological sections and surfaces sufficient to establish the stratigraphic sequence exposed;
- the collection of dating evidence from in situ deposits and visual scanning of spoil heaps for dateable artefacts;
- a scaled, drawn record of representative exposed sections and surfaces;
- photographs of exposed deposits within the trial pits, with an appropriate scale, and sufficient further photographs to establish the setting of the groundworks undertaken;
- a record of the datum (either AOD or m bgl) levels of the archaeological deposits.

8.6 Significant Remains

If in the professional judgement of the on-site archaeologist significant archaeological deposits are encountered work will cease and the Consultant will be contacted immediately. The Consultant will liaise with the Environment Agency and City of York Archaeologist in order to agree whether the GI intervention will be moved, or where this is not practicable, controlled archaeological excavation of the deposits should proceed. A decision will consider the need for geotechnical information from the location of the GI intervention against the apparent significance and complexity of the archaeological remains. Where the decision is taken to relocate the intervention the Consultant will instruct the GI Contractor to do so. Should excavation be the preferred option, either because relocating the intervention is unavoidable or excavation is determined to contribute to the aims and objectives of the wider options appraisal project the Archaeological Contractor will follow the detailed methodology for single context investigation and recording provided detailed in Sections 8.7–8.18.

8.7 YAT excavation recording methodology

Unique context numbers will only be assigned if artefacts are retrieved, or stratigraphic relationships between archaeological deposits are discernible. In archaeologically 'sterile' areas, deposit layers will be described, but no context numbers will be assigned. Where assigned, each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions.

8.8 Archaeological deposits will be planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-sections of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to the Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation. All drawings will be drawn on inert materials. All drawings will adhere to accepted drawing conventions.

8.9 Digital photographs of archaeological deposits and features will be taken. This will include general views of entire features and of details such as sections as considered necessary. All site photography will adhere to accepted photographic record guidelines.

8.10 Areas which are inaccessible (e.g. for health and safety reasons) will be recorded as thoroughly as possible within the site constraints. In these instances, recording may be entirely photographic, with sketch drawings only.

8.11 All finds will be collected and handled following the guidance set out in the CfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

8.12 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

8.13 A sampling programme will be undertaken for the recovery and identification of charred and waterlogged remains where suitable deposits are identified. The collection and processing of environmental samples will be undertaken in accordance with Historic England guidelines (Campbell, Moffatt and Straker 2011). Specialists will be consulted during the course of the monitoring with regard to the implementation of this sampling programme (see Sections 9.10–9.16). Deposit samples of approximately 30 litres for flotation (or 100% of the features if less than this volume) will be removed from selected contexts, using a combination of the judgement and systematic methodologies.

- Judgement sampling will involve the removal of samples from secure contexts which appear to present either good conditions for preservation (e.g. burning or waterlogging) or which are significant in terms of archaeological interpretation or stratigraphy. (Given the nature of an archaeological watching brief, it is anticipated that the implementation of a systematic sampling methodology will not be possible).

8.14 Industrial samples and process residues will be collected. Separate samples (approx. 10ml) will be collected for micro-slags (hammer-scale and spherical droplets) (Historic England 2015).

8.15 Other samples will be taken, as appropriate, in consultation with YAT specialists and the Historic England Regional Science Advisor, as appropriate (e.g. dendrochronology, micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments.

8.16 Human Remains

If human remains are discovered work will cease and the Archaeological Contractor will notify the Archaeological Consultant immediately. The Consultant will liaise with the Environment Agency and City of York Archaeologist in order to agree whether the GI intervention should be moved. In the first instance it should be assumed that the GI intervention will be moved to

avoid disturbing human remains which will be left in situ and the GI intervention backfilled. The Consultant will be responsible for instructing the GI Contractor to relocate the GI intervention. The removal of human remains will only take place in accordance with a licence obtained from the Ministry of Justice, the Burial Act 1857 and under the appropriate Environmental Health regulations. The Consultant will be responsible for the burial licence application.

8.17 In the event of human remains being discovered during the evaluation these will be left in-situ, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately. An osteoarchaeologist will be available to give advice on site.

- If disarticulated remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for immediate reburial by the Church.
- If articulated remains are encountered, these will be excavated in accordance with recognised guidelines (see 7.12) and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

8.18 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, ClfA Technical Paper 13 (1993) and Historic England guidance (2005).

8.19 Treasure

Any recovered artefacts which are considered Treasure according to the Treasure Act 1996 and Treasure (Designation) Order 2002 will be reported to the Archaeological Consultant immediately. The Archaeological Consultant will contact H.M. Coroner, ensure that the Treasure regulations are enforced and that all the relevant parties are kept informed. A list of finds determined Treasure will be included in the fieldwork report.

9 YAT WINDOW SAMPLE BOREHOLE RECORDING METHODOLOGY

9.1 Boreholes

Starter pits for the window samples and boreholes will be hand excavated by the GI Contractor who will also be responsible for identifying the presence of services and ensuring it is safe to excavate. If archaeological remains are encountered excavation will cease to allow the remains to be assessed and recorded according to the detailed methodology given in Section 8 above.

9.2 The GI Contractor will be responsible for drilling the boreholes and recording their actual locations; it is likely that below-ground constraints may result in the final location of boreholes varying from that proposed.

9.3 The GI contractor will allow the Archaeological Contractor sufficient time to inspect and record the window sample and borehole cores and arisings on site.

9.4 Window sample cores will be examined to record stratigraphic information and sample deposit sequences using the standard YAT recording methodology. The depth of the strata identified in the borehole and window sample cores will be recorded as accurately as is practicable.

9.5 All boreholes will be recorded using standardised pro forma record sheets and related to Ordnance Datum based on information provided by the GI Contractor. Borehole cores will be examined in the field by an archaeologist suitably experienced in the deep stratigraphic nature of York's archaeological deposits.

9.6 Each context will be described in full on the pro forma borehole record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.

9.7 Photographs of work in progress and recovered cores will be taken. The photographic record will comprise of digital photographs of not less than 10 mega-pixels. All site photography will adhere to accepted photographic record guidelines.

9.8 All finds will be collected and handled following the guidance set out in the ClfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type.

9.9 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

9.10 Sampling and analysis of waterlogged and/or organic deposition

Recently published Historic England guidance on Preserving Archaeological Remains (Historic England 2016) has informed the City of York's approach to the evaluation of potential deeply buried, water-logged and organic deposits using boreholes.

9.11 In consideration of this procedure the PD has identified that window samples B15-WS02, B15-WS04 and B7-WS01 may be subject to a series of samples and tests along with water level monitoring. Palaeoenvironmental sampling and installation of stand pipes may therefore be required in these interventions for the characterisation and analysis of deposits to understand their organic content, depositional environment, preservation in relation to hydrological recharge.

9.12 In addition to conventional General Biological Analysis environmental sampling, specialist samples will be taken to assess the potential and condition of these deposits. The sampling strategy is detailed in Section 9.16 below.

9.13 A programme of on-going water monitoring using an audible dip-meter will be undertaken to understand the site hydrology.

9.14 These analyses will only be undertaken if the flood management option for which that GI intervention relates is to be taken forward as the preferred option unless otherwise instructed by the consultant.

9.15 The evaluation will comprise the following elements:

- AMS dating of waterlogged deposits if suitable material is recovered (SUERC)
- Specialist assessment for environmental character and potential (YAT)
- Specialist assessment for environmental condition (GEOLABS)
- Monitoring of water levels (YAT)

9.16 Should suitable organic deposits be identified in the boreholes earmarked for dipwell installation, consultation will be initiated with the Consultant and local authority curator. With their agreement a set of samples can be taken for two separate purposes: firstly, to understand the bioarchaeological content, and secondly, to assess the permeability and condition of the organic deposits. The aims are outlined briefly below and are described in further detail in sections 8 and 10.

- General Biological Analysis samples will be taken from the core where organic deposits are identified. These samples will be processed and assessed for the recovery of archaeological plant macrofossil and insect remains, charcoal, bones etc and for the presence, abundance and condition of diatoms. If suitable material is present for AMS dating this will be sent to SUERC (see Section 9).
- Two 300mm long Class 1 undisturbed samples will be recovered from the organic waterlogged deposits for specialist assessment by Geolabs (Section 9) for: triaxial permeability testing, porosity/bulk density/moisture content testing, particle size distribution analysis and chemical redox potential testing.
- The Class 1 samples will be cut from the window sample casings using a saw and sealed using plastic and tape to prevent them from drying.
- The samples will be taken to YAT conservation Laboratory for preparation and packaging before being dispatched for analysis.

9.17 WATER LEVEL MONITORING

The following methodology for water level monitoring is provided should this be required and would only be undertaken with prior approval

9.18 60mm diameter standpipes will be inserted into each borehole, surrounded by gravel and Bentonite surrounds and capped with a lockable cover. If practicable, in-situ data loggers will be installed in the dip-wells. If this is not possible then monitoring will be conducted using a dip-meter.

9.19 Monitoring of the water levels will be undertaken by YAT staff for a period of 6 months, when there will be an assessment of the results and a report will be made to the client and the City of York Archaeologist, John Oxley.

9.20 Dipwells will be monitored and recorded on a weekly basis by appropriately trained YAT staff and water levels recorded using an audible dipmeter.

9.21 Groundwater levels will be plotted, along with rainfall levels recorded by the University of York at Heslington to determine changes in water level in relation to local rainfall.

9.22 Physical testing will then be undertaken as part of an investigation into the rate at which groundwater may flow through sediments in order to gauge what may happen if the existing water table fluctuates, or is impacted upon by development.

9.23 Analysis will be undertaken on sediment compositions (proportions of clay, silt and gravel), the permeability of the sediments (measured by the hydraulic conductivity) and the porosity of the sediments (the measured portion of a deposit occupied by pore spaces).

9.24 Analysis of a combination of hydraulic conductivity and porosity values will be evaluated in relation to changes in water levels recorded over a period of long-term monitoring in order to assess the archaeological sequence and its hydrology.

10 COMPLETION OF FIELDWORK

10.1 The Archaeological Contractor shall prepare and submit a Completion Statement to the Consultant within one working day of completing the survey. The survey areas will be left in a tidy and workman-like condition and the Archaeological Contractor will ensure that all materials brought onto site are removed.

10.2 An OASIS entry will be completed at the end of the fieldwork, irrespective of whether a formal report is required. The Archaeological Contractor will complete the online form at <http://ads.ahds.ac.uk/project/oasis/> within one month following completion of the fieldwork. Archaeological contractors are advised to contact OASIS (oasis@ads.ahds.ac.uk) for technical advice. The GI Contractor will submit copies of their exploratory hole logs to the Archaeological Contractor at the earliest opportunity.

11 POST-EXCAVATION SPECIALIST ASSESSMENT

11.1 The stratigraphic information, artefacts, deposit samples, and residues will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.

11.2 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilisation of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), ClfA (2007) and Museums and Galleries (1992).

11.3 All finds will be cleaned, marked and labelled as appropriate, prior to assessment. For ceramic assemblages, any recognised local pottery reference collections and relevant fabric Codes will be used.

11.4 Sampling will be carried out in consultation with the City of York Archaeologist, YAT specialists and the English Heritage Regional Science Advisor, as appropriate.

11.5 All sampling for environmental and biological material will take place in accordance with the recommendations contained in the papers: Environmental Archaeology and Archaeological Evaluations, (Association for Environmental Archaeology, 1995), Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post -Excavation (English Heritage 2011, 2nd Edition), and Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (English Heritage 2004).

11.6 General Biological Analysis (GBA) samples from the potential waterlogged organic deposits will be processed and assessed by specialist staff at Palaeoecology Research Services (PRS). The purpose of these samples is to establish baseline conditions regarding preservation of organic remains, by characterising the potential organic deposits via the recovery of charcoal, burnt seeds, bone, artefacts, macrofossils and microscopic remains such as pollen and insects.

11.7 If suitable material is identified within the GBA samples then it will assessed and submitted for AMS dating. This will be conducted by SUERC and will aim to date samples from the top and bottom of the sequence of potential waterlogged organic deposits, with at least one intermediate point, to contribute to the understanding of the archaeology.

11.8 Two undisturbed samples of the organic deposits will be collected per borehole for further specialist assessment at Geolabs. These will be tested to ascertain the quality and condition of the waterlogged organic deposits using the following techniques:

- Triaxial permeability testing
- Porosity/bulk density/moisture content testing
- Particle size distribution analysis
- Chemical redox potential testing

12 REPORT & ARCHIVE PREPARATION

12.1 Reporting

YAT will prepare a fieldwork report on the programme of archaeological monitoring within four weeks of the completion of GI monitoring.

12.2 The report will cover the monitoring of all flood cells and be structured on a cell-by-cell basis and will integrate the results of monitoring at Scheduled Monument locations as detailed in:

- 'York Five Year Flood Management Plan: Ground Investigation; Archaeological Monitoring Project Design, January 2018 (AECOM, 2018a)
- 'Written Scheme of Investigation for Archaeological Monitoring Station Avenue Flood Cell B4, Scarborough Bridge to Ouse Bridge, January 2018 (AECOM, 2018b)

- 'Written Scheme of Investigation for Archaeological Monitoring Museum Gardens, Flood Cell B12, Scarborough Bridge to Lendal Bridge, January 2018 (AECOM, 2018c)
- York FMP Written Scheme of Investigation for Archaeological Monitoring City Wall, Tower Gardens Flood Cell B15, King's Staith, January 2018 (AECOM, 2018d)

12.3 A review of historic borehole information and results of other previous archaeological investigations undertaken in the relevant cell will be included in the report if appropriate.

12.4 The archaeological contractor shall detail the methodology for reporting, including processing of finds and samples within the WSI.

12.5 Upon completion of the fieldwork a report incorporating the following will be prepared:

- a site location drawing;
- a brief archaeological and historical background for each cell;
- the methodology employed;
- the aims and objectives of the investigations including cell specific objectives;
- the results of the monitoring and a statement of potential for archaeological remains to exist within each cell; a location plan of the GI interventions, including original and relocated Intervention positions, accurately positioned on an Ordnance Survey base map (at an appropriate and recognised scale);
- plans and sections of all trial pits and deposit sequence for each borehole and window sample, illustrating the stratigraphic sequence of deposits and any noted archaeological features or remains (at an appropriate and recognised scale);
- an interpretive deposit model of each cell within the inner Ouse if appropriate
- where appropriate, a list of all finds recovered and recorded, along with the appropriate trial pit number, context and date;
- where appropriate, a complete list of all finds as submitted as Treasure, if applicable;
- where appropriate, an appendix containing specialist assessment /analysis reports (artefacts; palaeoenvironmental / geoarchaeological data) or their equivalent;
- where appropriate, an appendix illustrating specific finds and portraits of specific features or structures, as appropriate;
- a stratigraphic matrix for each trial pit, if appropriate;
- an assessment /conclusion and a statement of potential with recommendations for post-excavation, analysis and publication, if appropriate;
- a statement of the significance of the results for each cell in their local, regional and national context cross-referenced, if appropriate, to research frameworks;
- the current and proposed arrangements for long term conservation and archive storage (including details of the accredited repository), if appropriate;
- copies of the Project Design, WSI and any other appropriate project documentation such as OASIS documentation records;
- digital photographs illustrating the site setting, work in progress and archaeological discoveries.

12.6 The report will be submitted to the Consultant for review. Any comments from the Consultant will be addressed and taken into account within a revised final version. The report

will then be submitted to the National Environmental Assessment Service (NEAS), before being submitted to the York City Archaeologist.

12.7 A digital copy of the report will be provided to the York HER. The copyright of the report and associated images belongs to the Environment Agency.

12.8 Material copied or cited in reports will be duly acknowledged; all copyright conditions (such as those for Ordnance Survey maps or the National Grid) will be observed. The Archaeological Contractor will submit a digital version of the finalised report within 2 weeks of the receipt of comments on the draft report.

12.9 Copies of the report will be submitted to the commissioning body and the HER/SMR (also in PDF format).

12.10 Archiving

The requirements for archive preparation and deposition will be addressed and undertaken in a manner agreed with the recipient museum. In this instance the Yorkshire Museum is recommended and an agreed allowance should be made for the curation and storage of this material.

12.11 Provision for the publication of results, as outlined in the Brief, will be made.

12.12 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the County Council and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

12.13 Before fieldwork begins the Archaeological Contractor will liaise with the Yorkshire Museum to obtain agreement in principle to accept the documentary, digital and photographic archive for long-term storage. The Archaeological Contractor will be responsible for identifying at the initial project set-up stage any specific requirements or policies of the museum in respect of the archive (for example, the discard policy for retained finds), and for adhering to those requirements. Any charges levied by the repository for the long term storage of the archive will be met by the Archaeological Contractor.

12.14 The archive will contain a site matrix, a summary of key findings and descriptions of artefactual and environmental assemblages. Arrangements should be made for the proper cataloguing and storage of the archive during the project life-cycle. The archive of finds and records generated during the fieldwork will be removed from site at the end of each day and kept secure at all stages of the project until it is deposited in the agreed repository. The archive will be produced to current national standards. Prior to deposition of the archive a retention and discard policy for each category of find or sample will be developed in consultation with appropriate specialists. The Archaeological Contractor will agree the retention and discard policy for the archive with the Consultant and the Yorkshire Museum.

12.15 The deposition of the archive forms the final stage of this project. The Archaeological Contractor shall provide Consultant with copies of communication with the accredited repository and written confirmation of the deposition of the archive. The Consultant will deal with the transfer of ownership and copyright issues and will inform York City Council once the archive has been transferred to the recipient repository.

13 TIMETABLE & STAFFING

The timetable will be as agreed with the GI Contractor and the Consultant

Specialist staff available for this work are as follows:

- Human Remains – Malin Holst (York Osteoarchaeology Ltd)
- Palaeoenvironmental remains – John Carrot (PRS)
- Head of Curatorial Services – Christine McDonnell
- Finds Researcher – Nicky Rogers
- Medieval Pottery Researcher – Anne Jenner
- Finds Officers – Nienke Van Doorne
- Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie & Dr Roger Doonan
- Conservation – Ian Panter
- Assessment of recharge and preservation conditions – Ian Panter

14 COPYRIGHT

York Archaeological Trust retain the copyright on this document. It has been prepared expressly for Capita AECOM, and may not be passed to third parties for use or for the purpose of gathering quotations.

15 BIBLIOGRAPHY

AAF 2007. *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation*. Archaeological Archives Forum

AEA, 1995, *Environmental Archaeology and Archaeological Evaluations. Recommendations concerning the environmental archaeology component of archaeological evaluations in England*. Working Papers of the Association for Environmental Archaeology No 2

AECOM, 2018a (January). *York FMP Ground Investigations: Archaeological Monitoring; Project Design*

AECOM, 2018b. *York FMP Written Scheme of Investigation for Archaeological Monitoring: Museum Gardens; Flood Cell B4, Scarborough Bridge to Ouse Bridge*

AECOM, 2018c. *York FMP Written Scheme of Investigation for Archaeological Monitoring: Museum Gardens, Flood Cell B12, Scarborough Bridge to Lendall Bridge*

AECOM, 2018d. *York FMP Written Scheme of Investigation for Archaeological Monitoring: City Wall, Tower Gardens; Flood Cell B15, King's Staith*

AML 1994. *A Strategy for the Care and Investigation of Finds*. Ancient Monuments Laboratory, English Heritage

- Brown, D. H., 2007. *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation*.
- CIfA/AAA Brown, A and Perrin, K 2000 *A Model for the Description of Archaeological Archives. Information Management & Collections*. English Heritage Centre for Archaeology/Institute of Field Archaeologists, Reading <http://www.eng-h.gov.uk/archives/archdesc.pdf>
- Brown, D. H. 2011. *Safeguarding Archaeological Information. Procedures for minimising risk to undeposited archaeological archives*. English Heritage
- Brown, D. H. 2011. *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*. 2nd edition. Institute of Field Archaeologists/Archaeological Archives Forum (Reading)
- Campbell, G., Moffett, L., and Straker, V. (eds.), 2011. *Environmental Archaeology. A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-Excavation (second edition)*. English Heritage (Portsmouth)
- CIfA. 1993. McKinley, J. I., and Roberts, C. (eds.). *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains*. Technical Paper No. 13
- CIfA, 2011. Brown, D.H. *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation* (second edition).
- CIfA, 2014. (December) *Code of Conduct*. Chartered Institute for Archaeologists, Reading
- CIfA. 2014. *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*.
- CIfA., 2014. *Standard and Guidance for Archaeological Field Evaluation*
- CIfA., 2014. December). *Standard and Guidance: Appendices*. Reading
- CIfA., 2014 *Standard and guidance. Archaeological watching brief*. Chartered Institute for Archaeologists, Reading, December 2014
- DCMS., 2008. *Treasure Act 1996 Code of Practice* (2nd Revision) England and Wales. Department for Communities and Local Government, 2012. National Planning Policy Framework.
- FAME, 2006. *Health and Safety in Field Archaeology Manual*
- Historic England, 1995. *A Strategy for the Care and Investigation of Finds*. English Heritage Ancient Monuments Laboratory, London
- Historic England, 2002. *With Alidade and Tape – Graphical and Plane Table Survey or Archaeological Earthworks*.
- Historic England, 2005. *Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England*.
- Historic England, 2006. *Guidelines on the X-Radiography of Archaeological Metalwork*.
- Historic England, 2007. *Understanding the Archaeology of Landscape – a Guide to Good Recording Practice*.

Historic England, 2011. *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation*. Second edition. English Heritage Centre for Archaeology Guidelines, London

Historic England, 2015. *Archaeometallurgy. Guidelines for Best Practice*.

Historic England, 2015. *Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record*.

Historic England, 2015. *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide*.

Historic England, 2015. *Piling and Archaeology. Guidelines and Best Practice*.

Historic England, 2015. *Where on Earth are We? The Role of Global Navigation Satellite Systems (GNSS) in Archaeological Field Survey*.

Historic England, 2016. *Preserving Archaeological Remains. Decision-taking for Sites under Development*.

Historic England, 2008. Investigative Conservation. *Guidelines on How the Detailed Examination of Artefacts from Archaeological Sites can Shed Light on their Manufacture and Use*.

Leigh, D., Neal, V., and Watkinson, D. (eds.), 1998. *First Aid for Finds: Practical Guide for Archaeologists*. United Kingdom Institute for Conservation of Historic & Artistic Works, Archaeology Section; 3rd Revised Edition.

Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections*.

RCHME, 1999. *Recording Archaeological Field Monuments – a Descriptive Specification*.

Standing Conference of Archaeological Unit Managers (SCAUM), 2007. *Health and Safety in Field Archaeology*

UKIC 1983 *Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites*. (United Kingdom Institute for Conservation, Conservation Guidelines No 2)

UKIC 1984 *Environmental Standards for Permanent Storage of Excavated material from Archaeological Sites*. (United Kingdom Institute for Conservation, Conservation Guidelines No 3)

UKIC 1990 *Guidance for Conservation Practice*. United Kingdom Institute for Conservation

UKIC 1990 *Guidelines for the Preparation of Excavation Archives for Long-term Storage*. United Kingdom Institute for Conservation Archaeology Section

UKIC 2001 *Excavated Artefacts and Conservation*. (United Kingdom Institute for Conservation, Conservation Guidelines No 1, revised)

Watkinson, DE and Neal, V 2001 *First Aid for Finds*. RESCUE/United Kingdom Institute for Conservation

For the latest Historic England guidance documents see:

<https://historicengland.org.uk/advice/latest-guidance/>

TABLE 1: GI interventions subject to archaeological monitoring

GI Exploratory hole ref.	Exploratory hole type	Flood cell	National Grid Reference		Estimated depth (m bgl)			Archaeology Monitoring Notes
			Easting	Northing	Drift	Rock	Total	
	sampling							standpipe for water level monitoring
B7-WS01	Dynamic window sampling	B7	460238	451456	5	0	5	Allow for archaeological sampling and install standpipe for water level monitoring
B9-WS01	Dynamic window sampling	B9	461107	448780	5	0	5	
B9-WS02	Dynamic window sampling	B9	461094	448717	5	0	5	
B9-WS03	Dynamic window sampling	B9	461078	448625	5	0	5	
B15-TP01	Hand excavated trial pit	B15	460304	451497	1.2	0	1.2	
B15-TP02	Hand excavated trial pit	B15	460322	451462	1.2	0	1.2	Monitor dependent on the results of B15-TP01
B15-TP03	Hand excavated trial pit	B15	460329	451454	1.2	0	1.2	
B15-TP04	Hand excavated trial pit	B15	460339	451437	1.2	0	1.2	Monitor dependent on results of B15-TP03
B15-TP05	Hand excavated trial pit	B15	460344	451423	1.2	0	1.2	
B15-TP06	Hand excavated trial pit	B15	460353	451408	1.2	0	1.2	Monitor dependent on results of B15-TP05
B15-TP07	Hand excavated trial pit	B15	460359	451396	1.2	0	1.2	
B4-TP01	Hand excavated trial pit	B4	459707	451965	1.2	0	1.2	
B4-TP05	Hand excavated trial pit	B4	459786	451937	1.2	0	1.2	

B4-TP06	Hand excavated trial pit	B4	459789	451898	1.2	0	1.2	
B4-TP08	Hand excavated trial pit	B4	459825	451895	1.2	0	1.2	
B4-TP10	Hand excavated trial pit	B4	459873	451886	1.2	0	1.2	
B4-TP13	Hand excavated trial pit	B4	460039	451847	1.2	0	1.2	
B4-TP15	Hand excavated trial pit	B4	460069	451796	1.2	0	1.2	
B7-TP01	Hand excavated trial pit	B7	460165	451580	1.2	0	1.2	
B7-TP02	Hand excavated trial pit	B7	460168	451574	1.2	0	1.2	Monitor dependent on results of B7-TP01
B7-TP03	Hand excavated trial pit	B7	460212	451501	1.2	0	1.2	
B7-TP04	Hand excavated trial pit	B7	460214	451497	1.2	0	1.2	Monitor dependent on results of B7-TP03
B7-TP05	Hand excavated trial pit	B7	460235	451457	1.2	0	1.2	
B7-TP06	Hand excavated trial pit	B7	460237	451453	1.2	0	1.2	Monitor dependent on results of B7-TP05
B7-TP07	Hand excavated trial pit	B7	460310	451343	1.2	0	1.2	
B7-TP08	Hand excavated trial pit	B7	460312	451341	1.2	0	1.2	Monitor dependent on results of B7-TP07
B7-TP09	Hand excavated trial pit	B7	460315	451318	1.2	0	1.2	
B7-TP10	Hand excavated trial pit	B7	460309	451311	1.2	0	1.2	Monitor dependent on results of B7-TP09

APPENDIX 4 – THE CERAMIC BUILDING MATERIAL

BY J. M. MCCOMISH

June 2018

INTRODUCTION

This assessment relates to 825g of ceramic building material (CBM) recovered from archaeological boreholes on flood defence works (York Archaeological Trust project code 6008). The CBM ranged in date from Roman to medieval.

METHODOLOGY

The collection was recorded to a standard YAT methodology (McComish 2014) whereby each sherd is individually recorded on a pro-forma sheet which details the project code, the context number, the weight in grams, the fabric type, the surviving complete dimensions (length, width, thickness, flange height) and any other relevant information (surface marks, glazes, unusual features etc.). A question mark is placed after the form name if the identification is uncertain, for example 'Imbrex?', while the form of non-standardised sherds is listed as 'Other'. The fabric is determined by comparing the sherd to a York fabric reference collection held by York Archaeological Trust (YAT). The data is stored on YATs internal computer system (IADB) under the project code 6008.

Because IADB does not allow entry of context numbers containing decimal points context 4.302 was entered as 40302 and 4.314 was entered as 40314.

RESULTS

The various forms present are summarised in relation to context on Table 3. There were two sherds of Roman brick, one of which had the partial remains of a signature on the upper surface. All of the forms, fabrics and of dimensions recorded are typical for CBM in York as a whole.

SUMMARY AND RECOMMENDATIONS

The collection of CBM has no potential for further research, mainly being of use to provide dating evidence for the various contexts seen. No further work is recommended. None of the material was worthy of museum display or retention.

Context	Dating	Forms present
4.302	1 st to 4 th century	Rbrick
4.314	1 st to 4 th century	Rbrick

Table 5 CBM in relation to context

APPENDIX 5 – THE ANIMAL BONE

BY NIENKE VAN DOORN

INTRODUCTION

Bore holes on the York FRMP SI Works site have produced a small assemblage of hand collected animal bone. These animal bones were recovered from two contexts. This assemblage has been rapidly assessed focussing primarily on the range of animal taxa present.

METHODOLOGY

The faunal remains were examined and recorded with guidance from Dobney et al. (1999) and O'Connor (2008). Evidence of butchery, gnawing, burning or post depositional damage was recorded where present, with reference to Shipman et al. (1984) and Stiner et al. (1995).

Identification of species was completed using published identification guides (Pales & Lambert 1971). Wherever identification to species could not be achieved, bone fragments were classified using the following categories; unidentified mammal, unidentified bird, or unidentified fish. Mammalian fragments that retained characteristics that enabled estimation of the size of the animal were assigned to one or more of the following categories: large mammal (the size of horse/cow/large cervid [i.e. deer]), medium mammal 1 (the size of sheep/goat/pig/small cervid), medium mammal 2 (the size of dog/cat/hare), small mammal (the size of rodents, mustelidae (badger/otter/polecat family) etc). Very small bone scraps (usually smaller than 10mm) were recorded as unidentifiable and only counted approximately.

DISCUSSION

The results are outlined in table 4.

CONTEXT	QUANTITY AND DESCRIPTION	TAPHONOMY
309	1 fragment of medium (1) mammalian bone (spinous process)	Dark colour, cess and possible iron staining
314	2 fragments of large mammalian	Very dark colour, some vivianite. Broken ends look very eroded

Table 6 Animal Bone

CONCLUSION

The animal bone recovered from York FRMP SI Works contained mostly mammalian bone, and consists of domestic taxa such as cattle and sheep.

Most of the assemblage seems to be consistent with undifferentiated domestic refuse. The preservation of the bones was overall fair, but no complete elements were present. Some bones were heavily stained with vivianite, a hydrated form of iron phosphate. Similar stains, as well as the dark, shiny appearance of the bone from these deposits, have previously been found on bones associated with anoxic conditions in the soil (O'Connor, 1988).

RECOMMENDATIONS FOR FURTHER RESEARCH

The collection of animal bone has limited potential for further research. The animal bone does not reflect any specific activity taking place on the site and while in a fair condition, all elements are incomplete or fragmented.

RECOMMENDATIONS FOR RETENTION/DISCARD

It is recommended that the animal bone collection is discarded after recording according to museum disposal guidelines.

REFERENCES

- Dobney, K., Jacques, D.S., Johnstone, C.J. (1999) Protocol for recording vertebrate assemblages, *Reports from the Environmental archaeology Unit, York*, 99, 15, p. 1–12.
- O'Connor, T.P. (1988). Bones from the General Accident Site, Tanner Row. In: P.V. Addyman (Ed.), *The Archaeology of York*. York Archaeological Trust, AY 15/2, p.73.
- O'Connor, T. (2008). *The Archaeology of Animal Bones* Texas; Texas A&M University Press
- Shipman, P., Foster, G., Schoeninger, M. J. 1984. 'Burnt bones and teeth: an experimental study of colour, morphology, crystal structure and shrinkage', *Journal of Archaeological Science* 11, pp. 307-325.
- Stiner, M. C.; Kuhn, S. L.; Weiner, S.; Bar-Yosef, O. 1995. 'Differential burning, recrystallisation, and fragmentation of archaeological bone', *Journal of Archaeological Science* 22, pp.223-227.

APPENDIX 6 – THE POTTERY

BY ANNE JENNER

INTRODUCTION

Three sherds of domestic pottery were retrieved from two bore holes (see Table 7 below). While they represent activity in the Anglo Scandinavian, they have been retrieved from areas next to the river Ouse where they are most likely to have been part of land reclamation and dumping of refuse.

There are no late 14th/15th century Humber or Hambleton wares, no 16th century Cistercian wares and no 17th and early 18th century earthen wares, tin glazed, slipped or stone wares. Added to this, there are no foreign imports, such as medieval glazed wares from France, or any Dutch earthen wares or German stone wares that one finds in York from the late 14th century, peaking in the 16th century and continuing to be imported during the 17th and 18th centuries and beyond.

Although there appears to be a lack of any late 14th to 17th century pottery that one might expect to find at contemporary locations in York, the samples are too small to make really meaningful assumptions about the activity during the periods that they represent.

Further work in these areas may produce more evidence for activity during the Anglo Scandinavian, medieval and early post medieval periods.

METHODOLOGY

The pottery was quantified and recorded in the standard manner (see Orton, Tyers and Vince 1993, 166; Orton and Hughes 2013, 11). It was sorted into fabric and form groups, based on colour, firing, clay matrix, inclusions and glaze type. Where possible these groups are related to known types from the area. The number of sherds is noted in the Table below.

Although it is generally agreed that weight and number of sherds provide the most useful index of quantity (Brooks 1987, 116), we use only the sherd count for Assessment purposes.

DISCUSSION

The earliest material from the North Street bore holes (C4.311; C4.306) includes material that is similar to York ware (C4.311), a type which is in circulation from the 9th to the 11th century in York. The shelly ware sherd (C4.306) is most probably a North Lincolnshire/South Humberside Shelly ware type (see Mainman, 1993, 580) which was in currency in York from the 9th century through the medieval period, though this will only be confirmed by closer examination and comparison with the Lincoln type series.

RECOMMENDATIONS FOR FURTHER WORK

The Shelly (C40306) could be further examined to ascertain its provenance more thoroughly. Ideally it should be compared with similar material in the Lincoln type series.

Further intervention including making further boreholes may reveal more information about the content and date of land reclamation in this area.

BIBLIOGRAPHY

AY Addyman, P. V. (ed) *The Archaeology of York* (London and York)

16 *The Pottery*

3 C. M. Brooks, 1987 *Medieval and Later Pottery from Aldwark and Other Sites*

6 A. J. Mainman 1993 *Pottery from 46-54 Fishergate*

9 A. Mainman and A. Jenner. 2013 *Medieval Pottery from York*

Orton, C., Tyers, P., and Vince, A. G. 1993 *Pottery in Archaeology*. Cambridge Manuals in Archaeology

Orton, C., and Hughes, M. 2013 *Pottery in Archaeology*. Cambridge Manuals in Archaeology (2nd Edition)

Context	Find	Quantity	Dating	Details
40306	BF4	1	ANGLO SCANDINAVIAN/MEDIEVAL	1 Shelly ware.
40311	BF5	2	ANGLO SCANDINAVIAN	2 York ware type.

Table 7 Pottery quantification

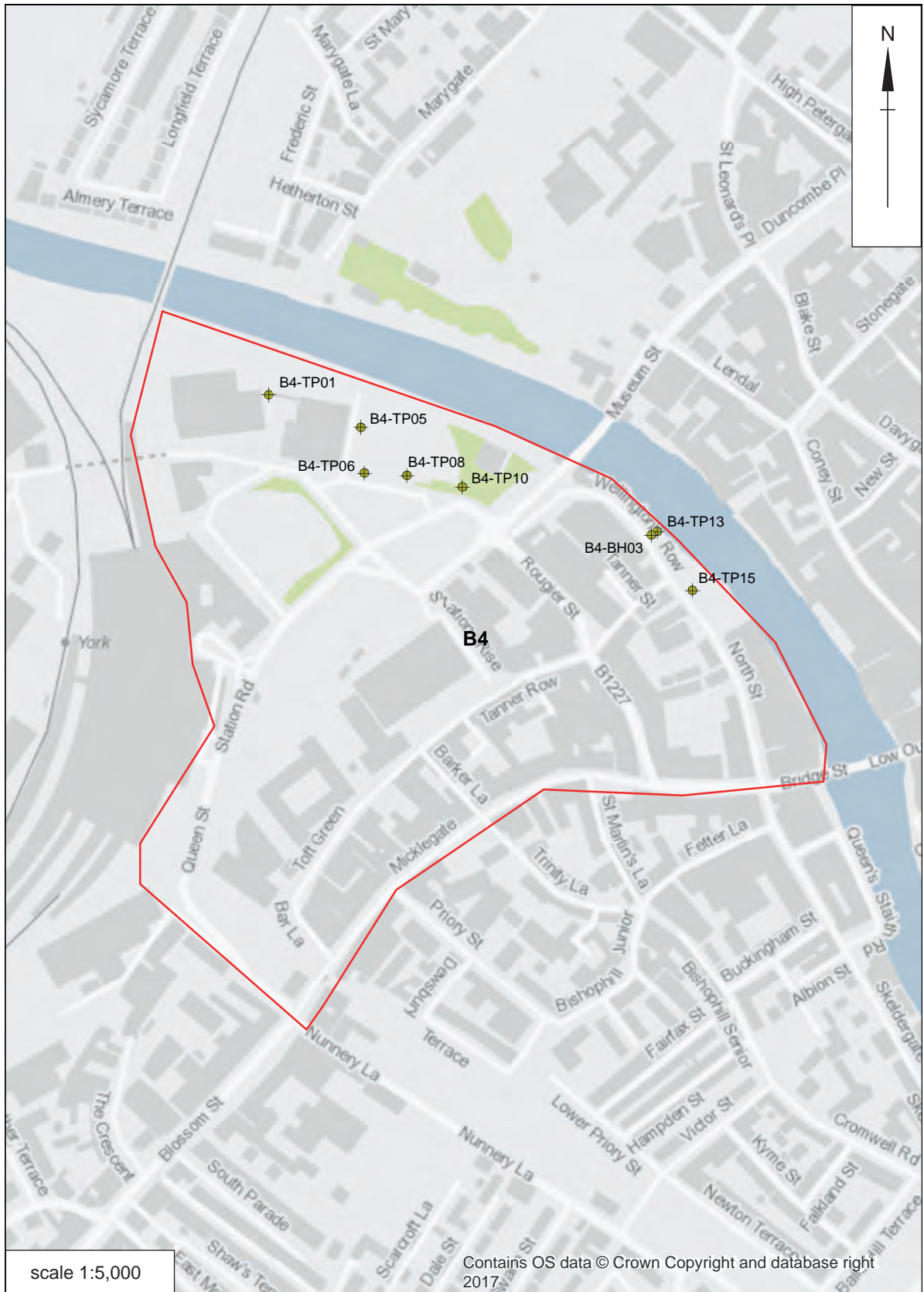


Fig. 1 Original Borehole Locations for FC B4

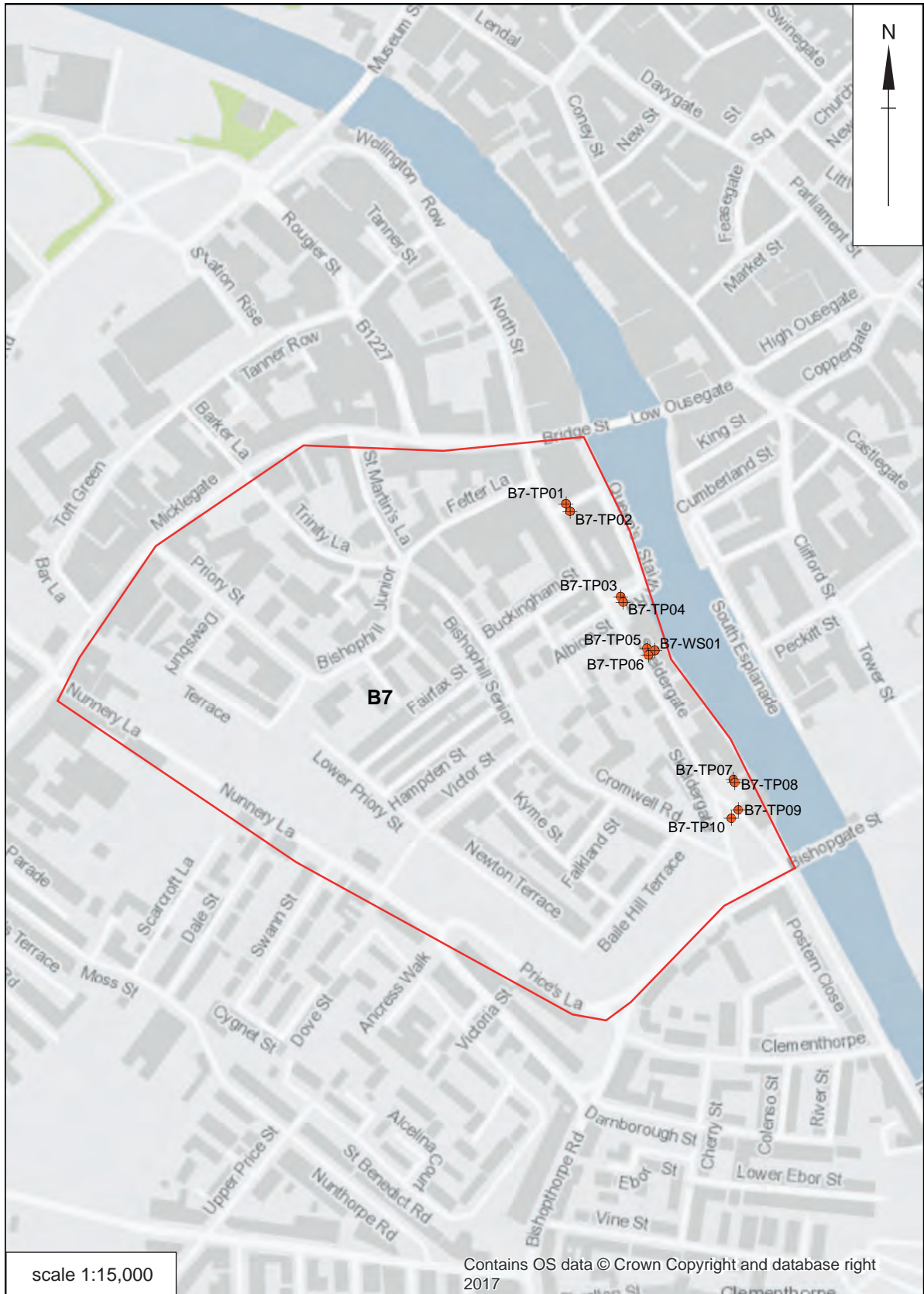


Fig. 2 Original Borehole Locations for FC B7



Fig. 3 Original Borehole Locations for FC B11

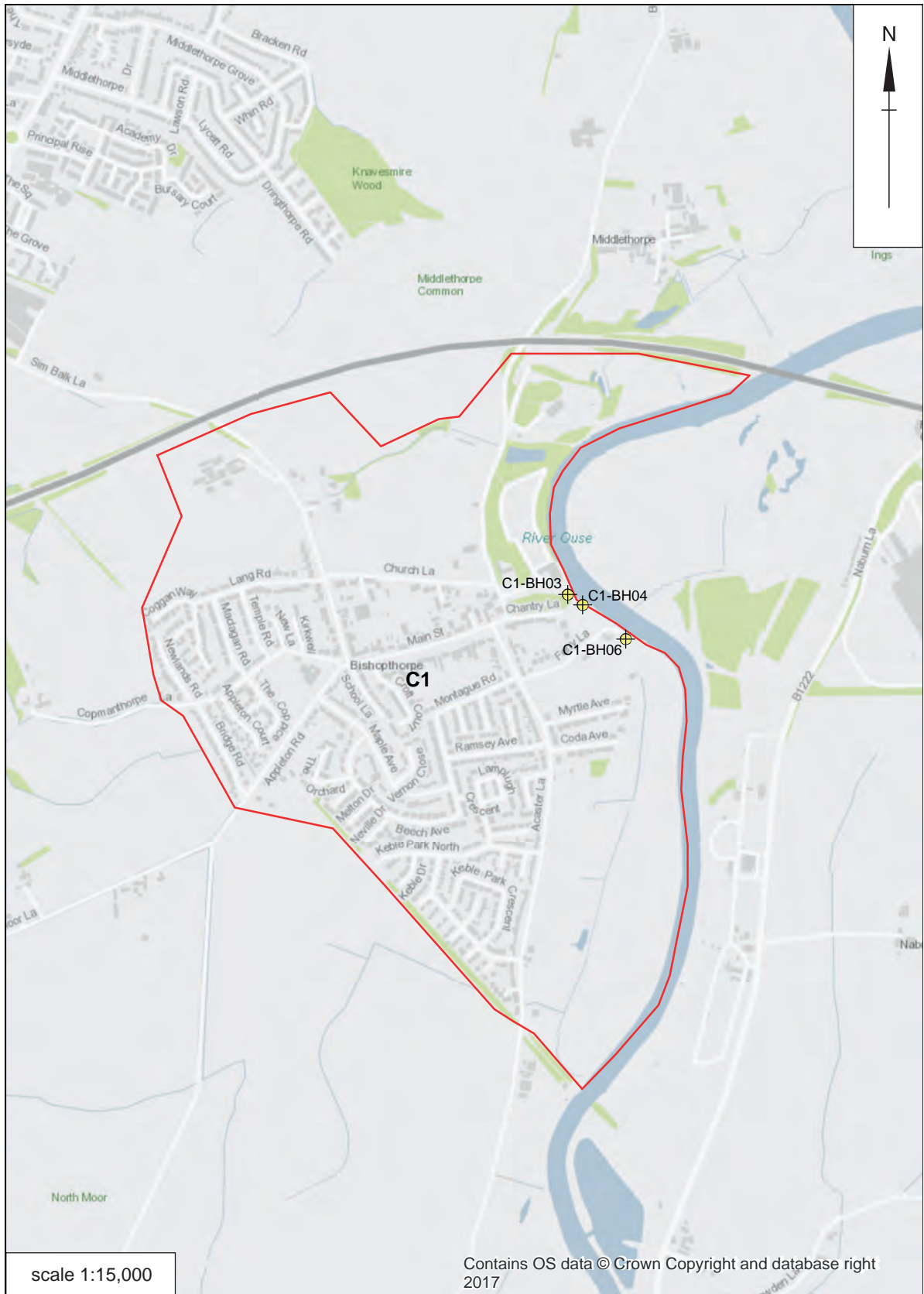


Fig. 4 Original Borehole Locations for FC C1

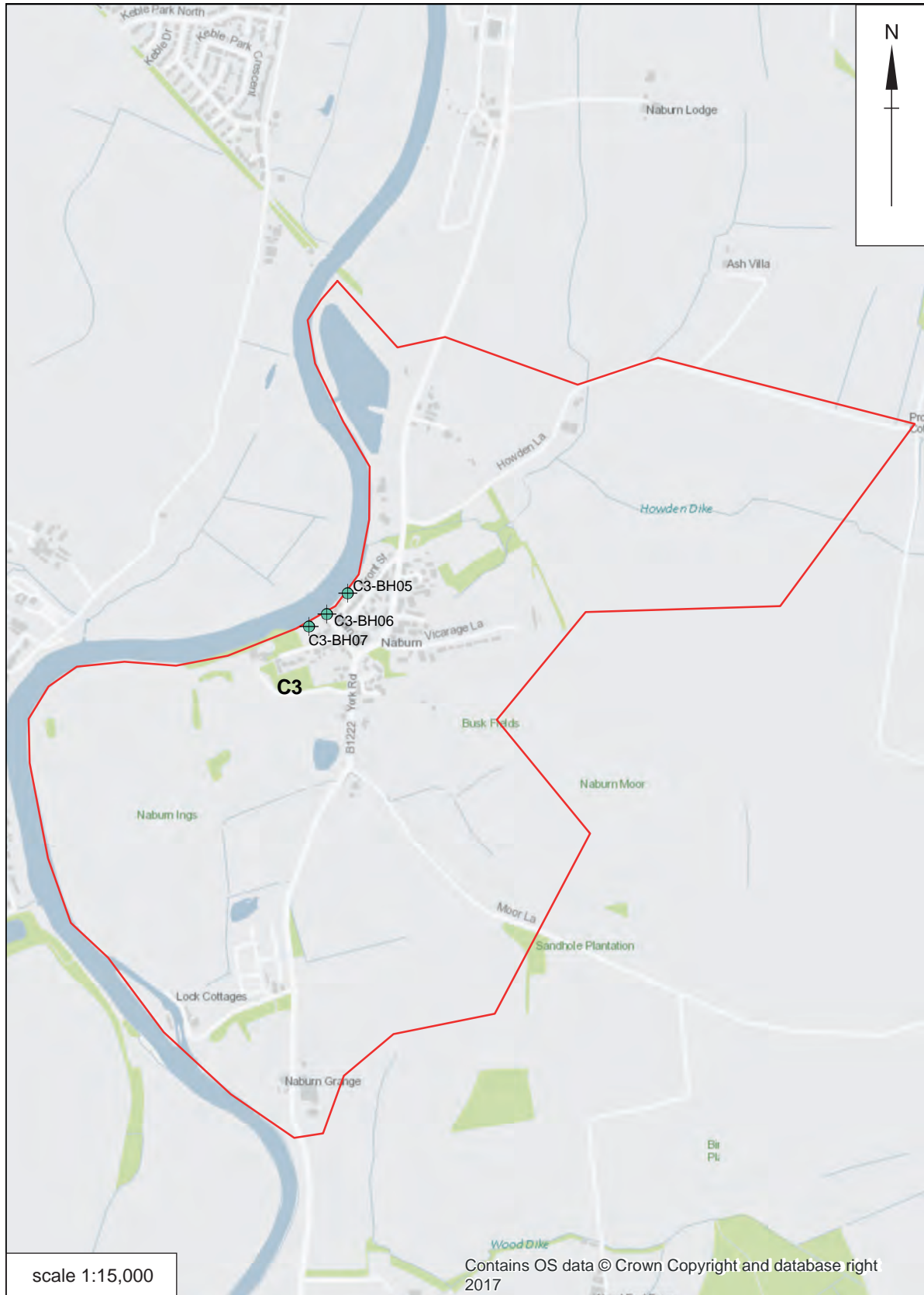


Fig. 5 Original Borehole Locations for FC C3



Fig. 6 Location of Monitored Interventions for FC B4

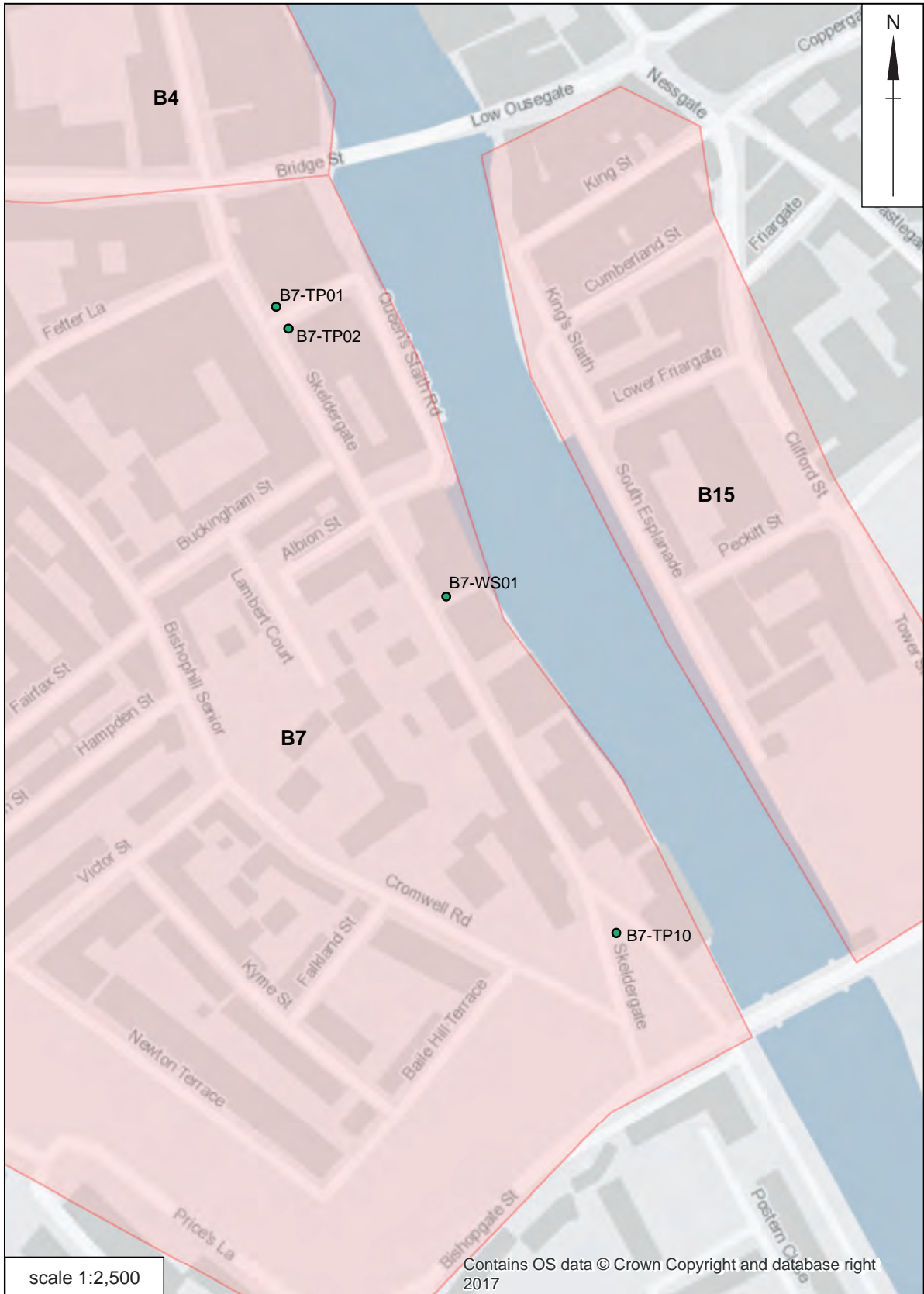


Fig. 7 Monitored Borehole Locations for FC B7

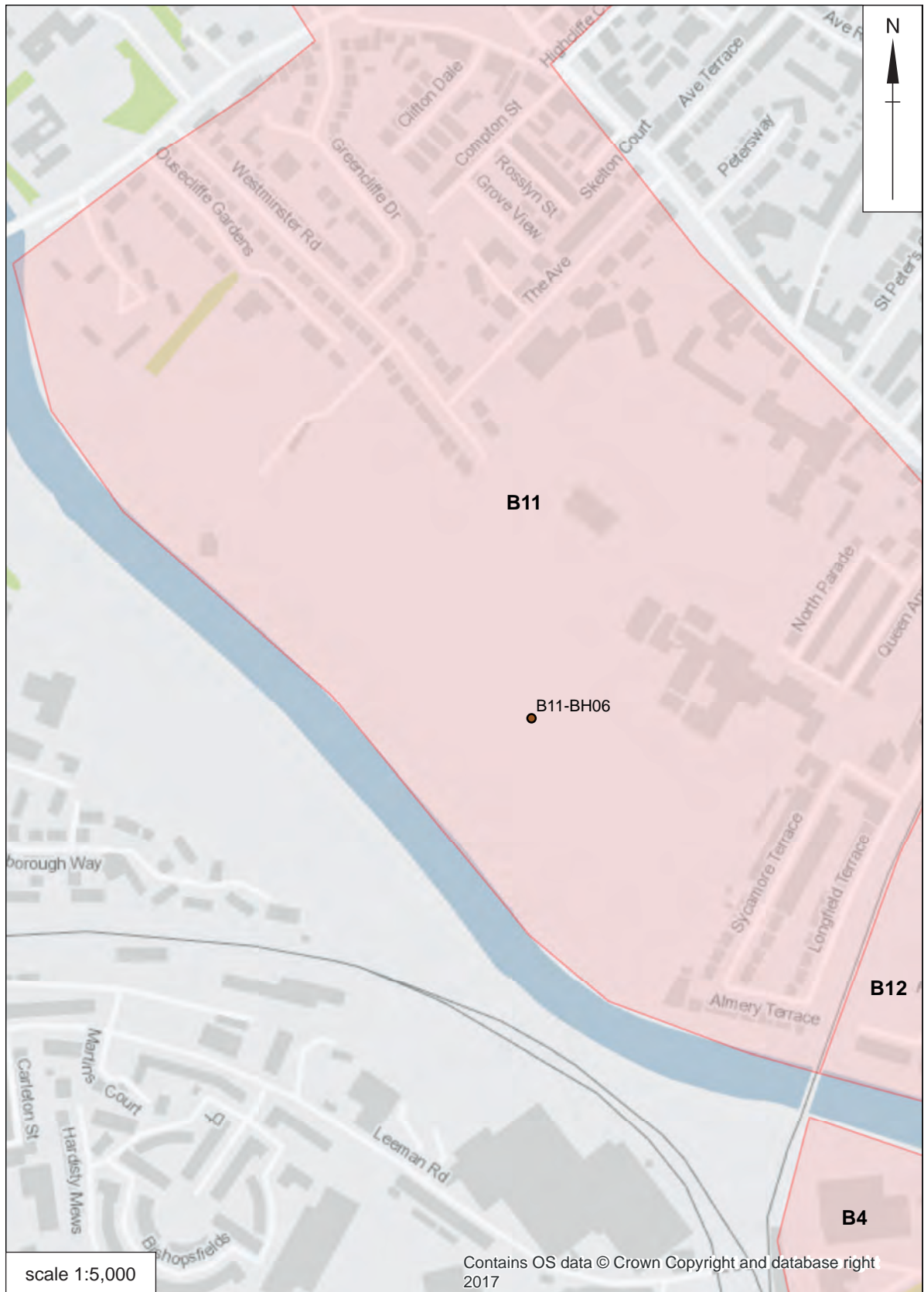


Fig. 8 Monitored Borehole Location for FC B11

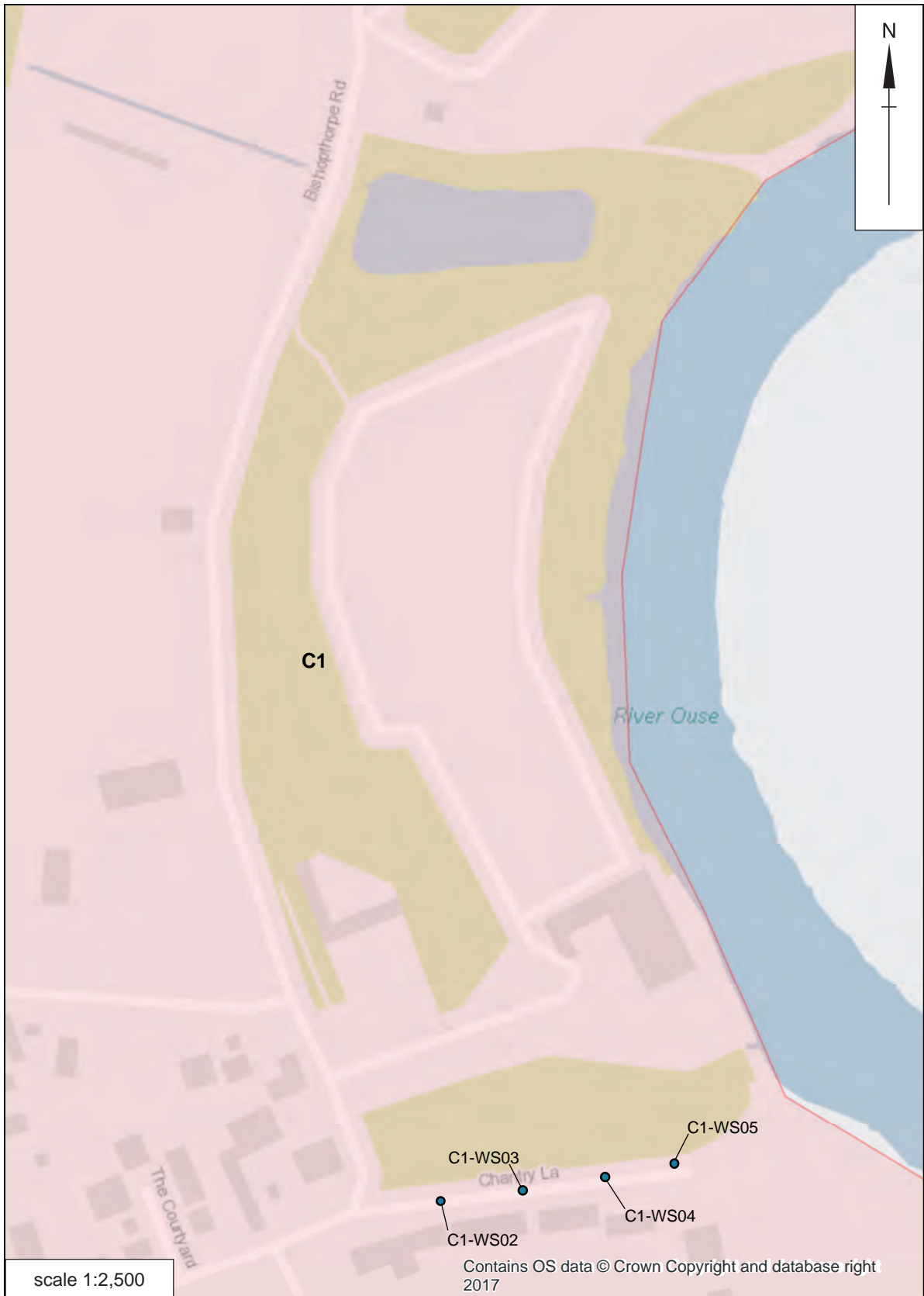


Fig. 9 Monitored Borehole Locations for FC C1



Fig. 10 Monitored Borehole Locations for FC C3

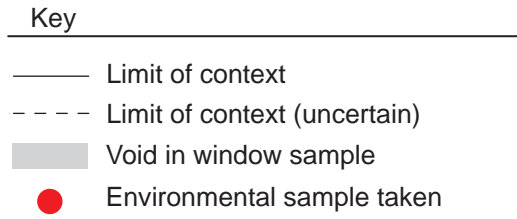
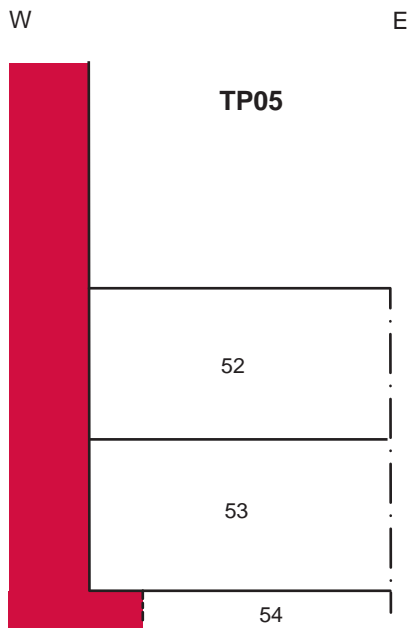
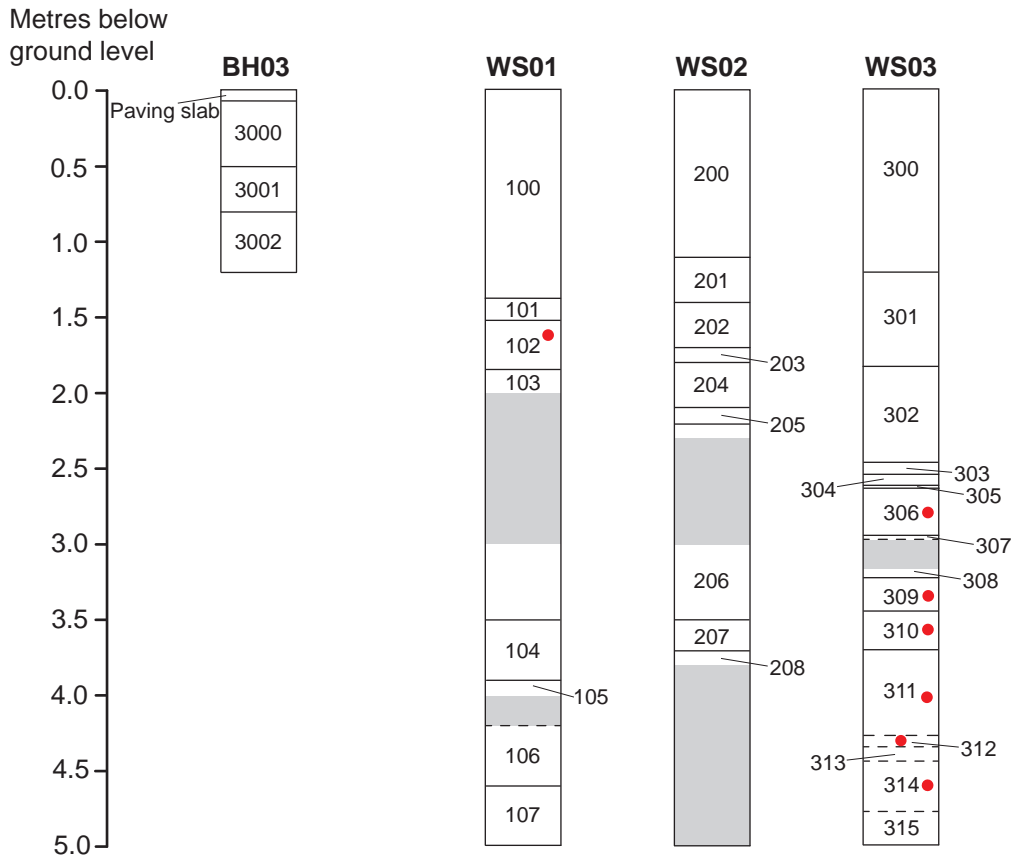


Fig. 11 Borehole Profiles and Trial Pit Section for FC B4

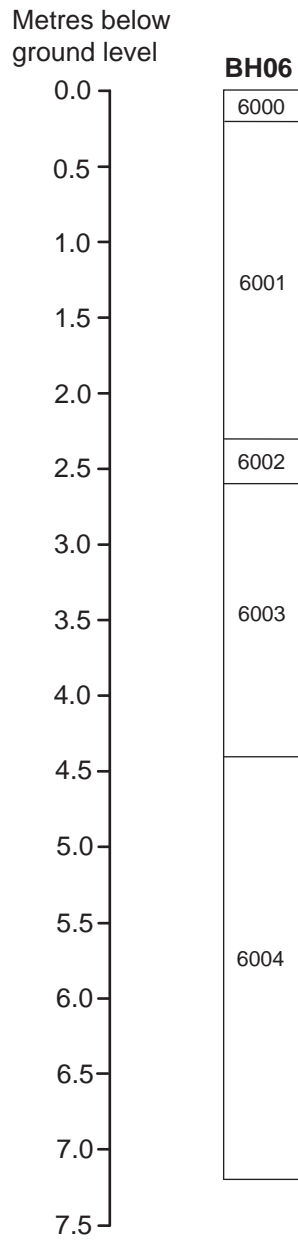


Fig. 12 CP Borehole Profile for FC B11

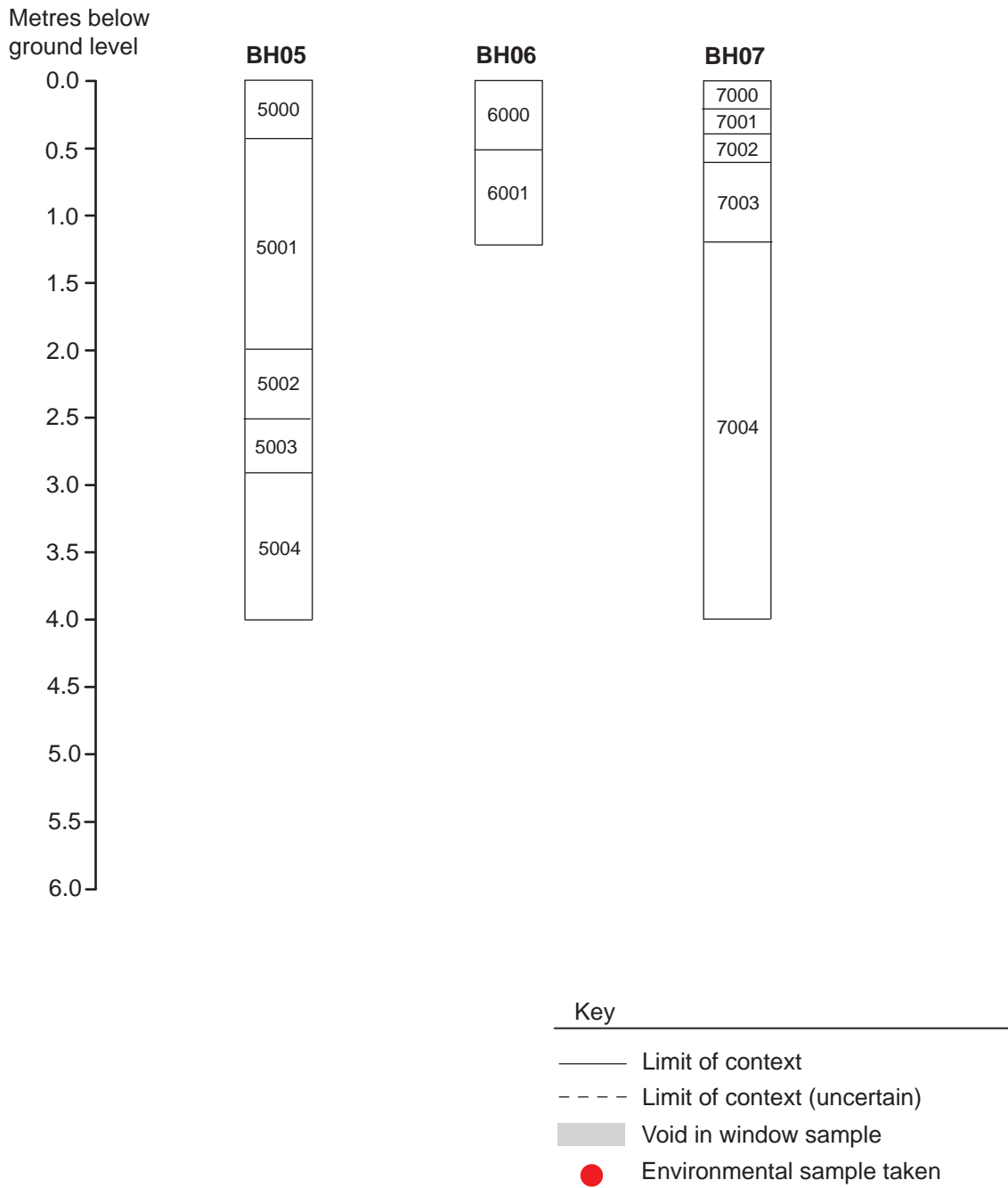


Fig. 13 CP Borehole Profiles for FC C3

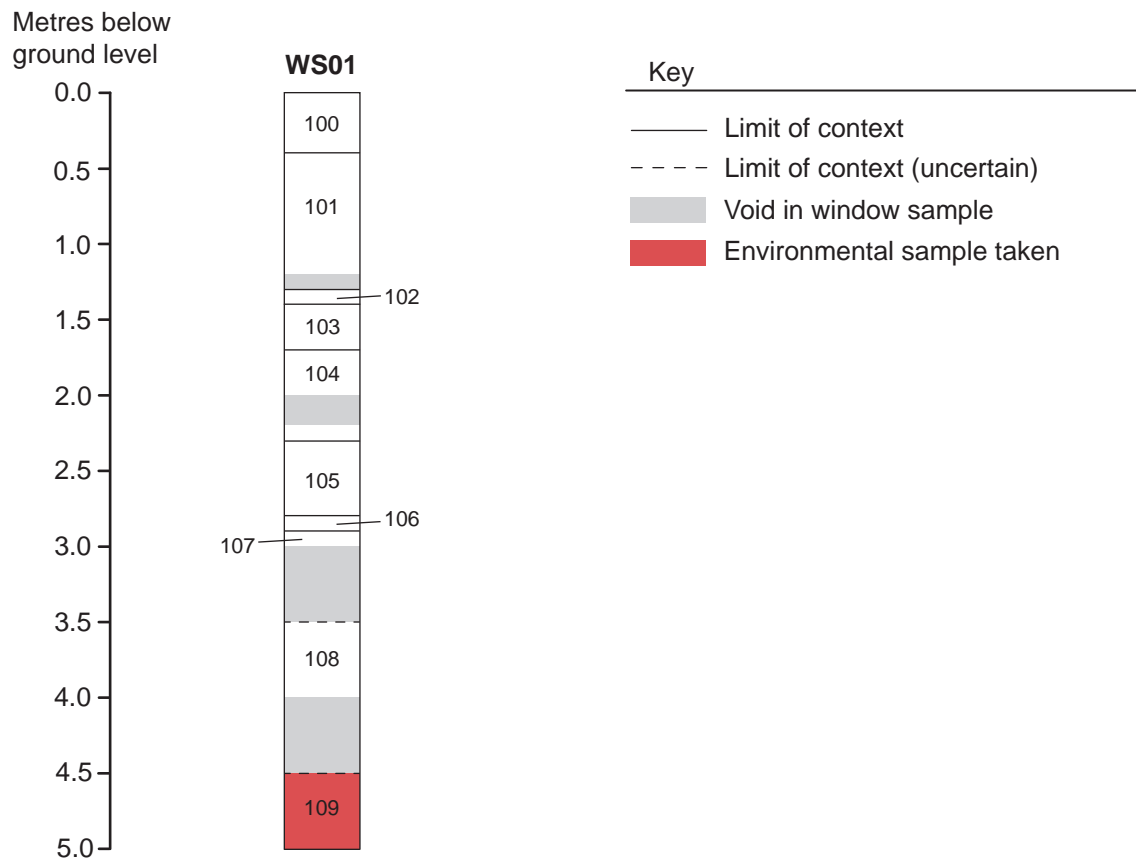


Fig. 14 WS Borehole Profile for FC B7

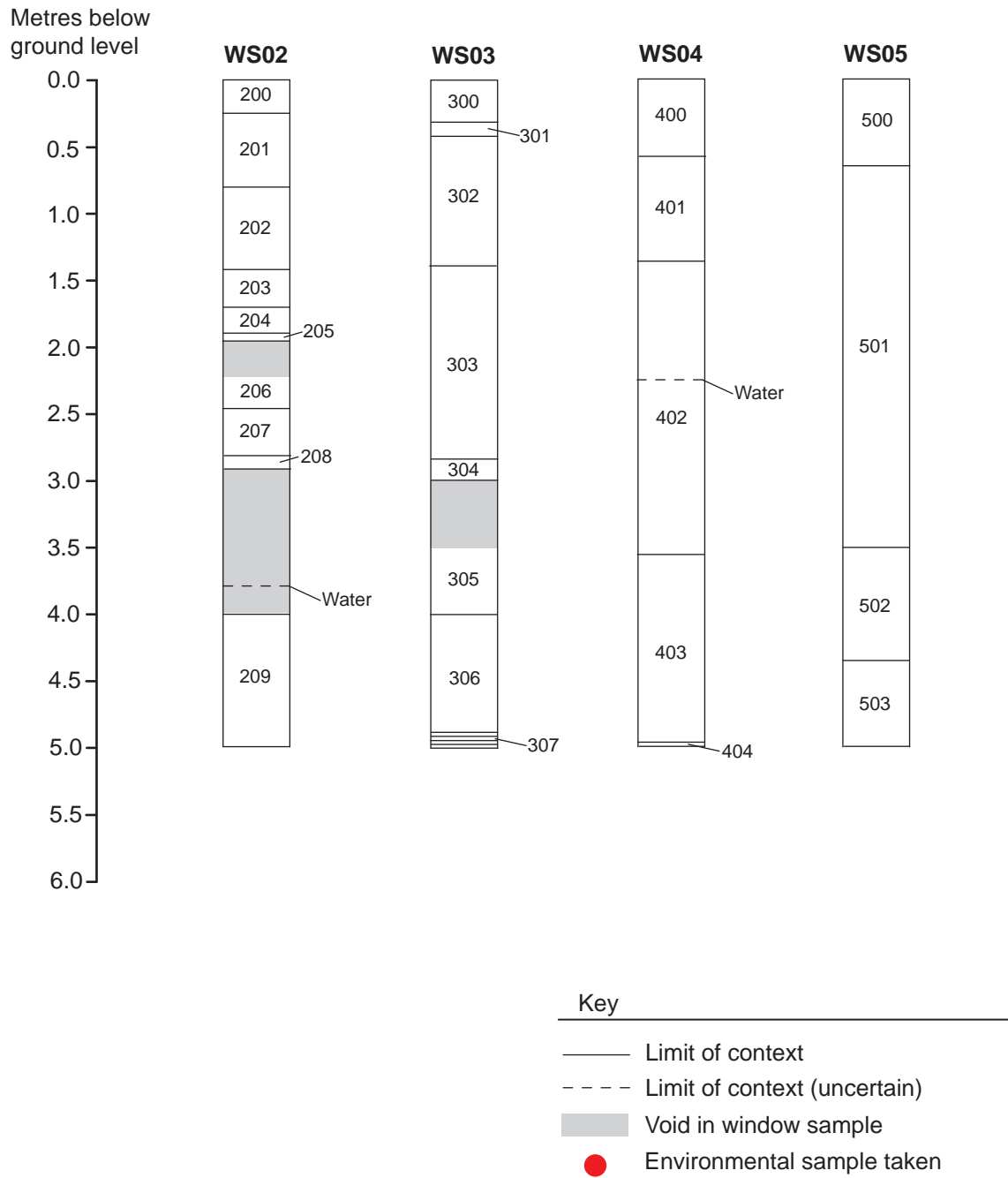
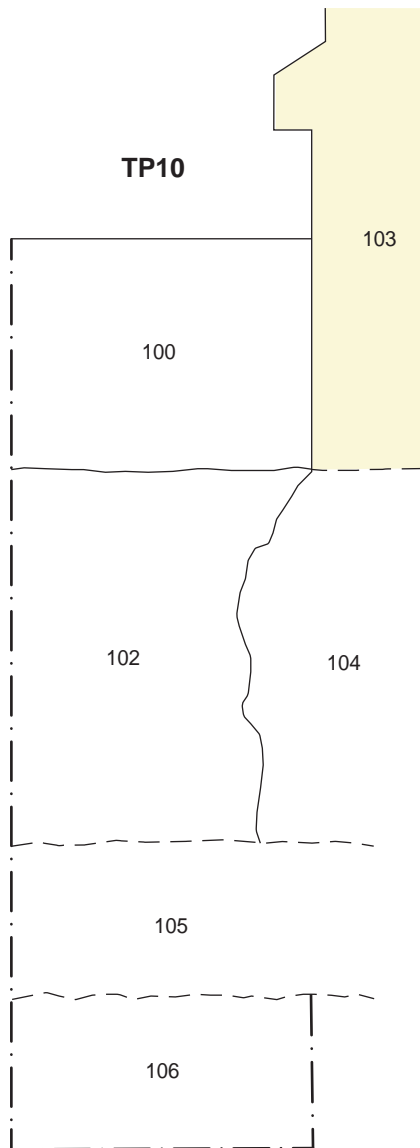
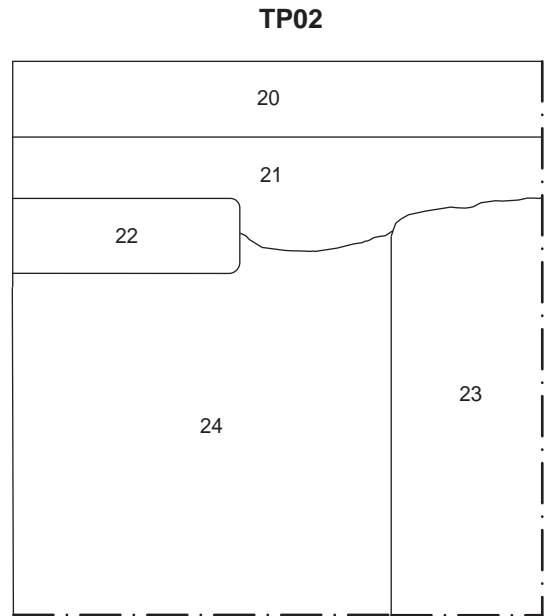
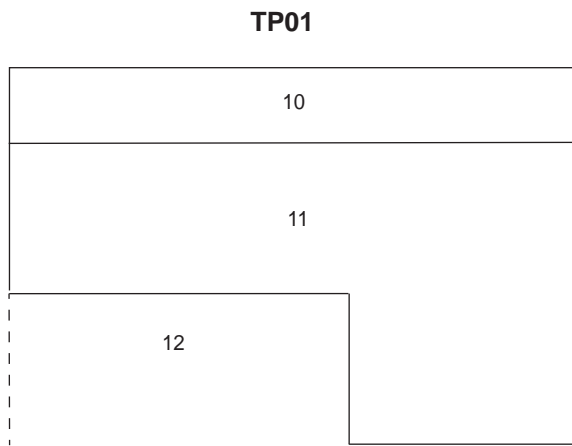


Fig. 15 WS Borehole Profiles for FC C1



Key

- Limit of context
- - - - Limit of context (uncertain)
- Limestone blocks

scale 1:10

Fig. 16 Trial Pit Sections for FC B7

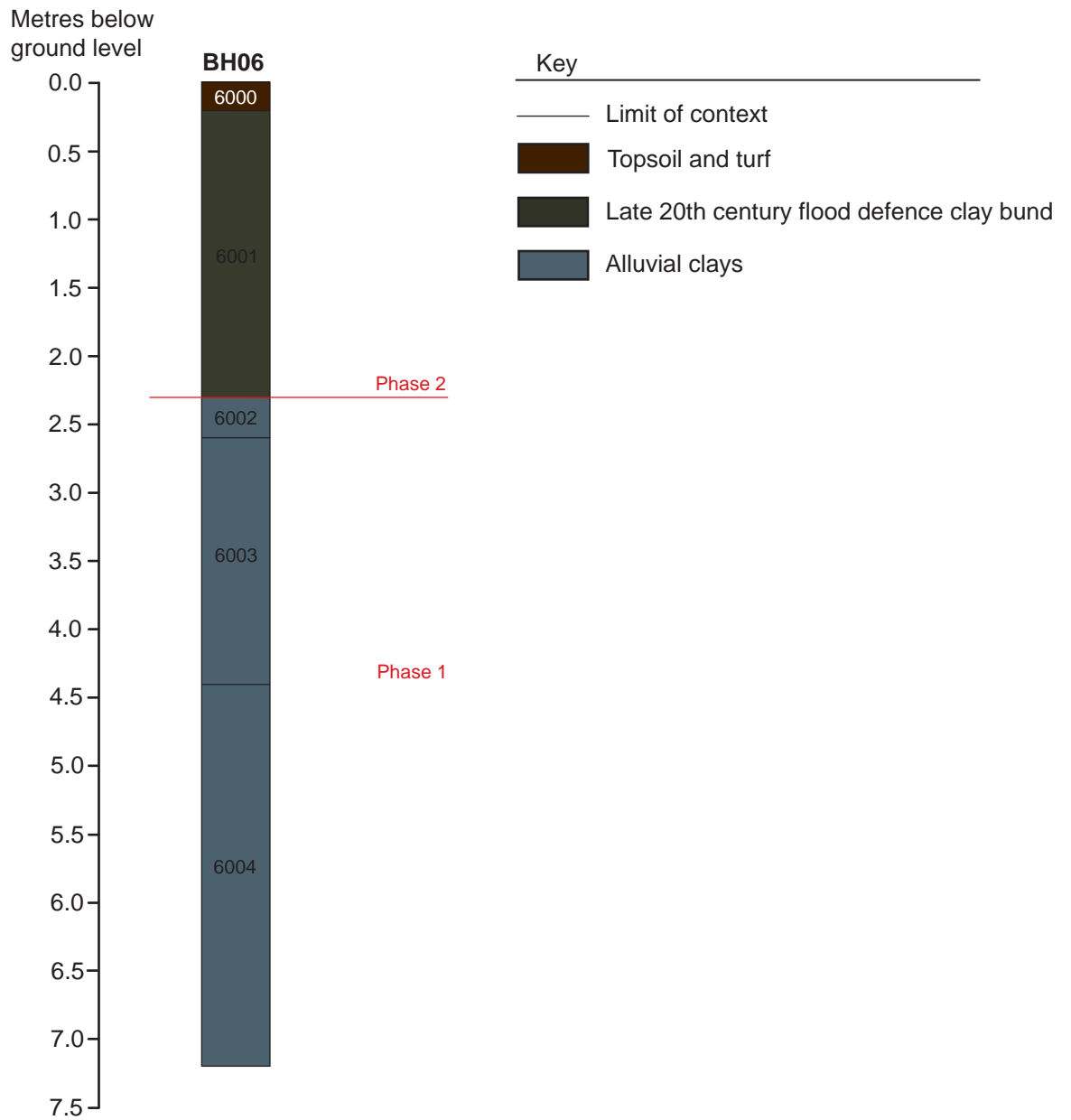


Fig. 17 CP Borehole Deposit Model for FC11

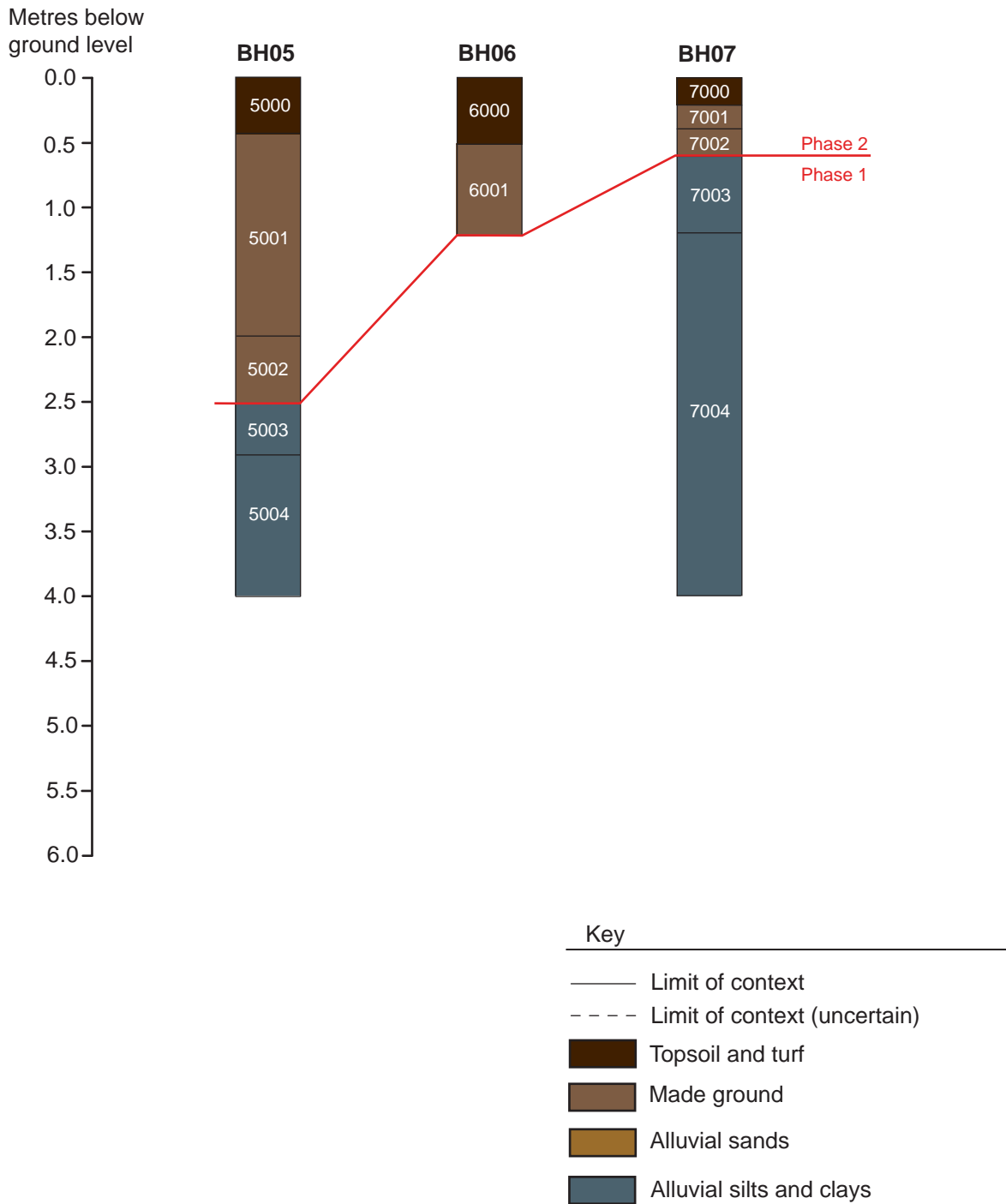
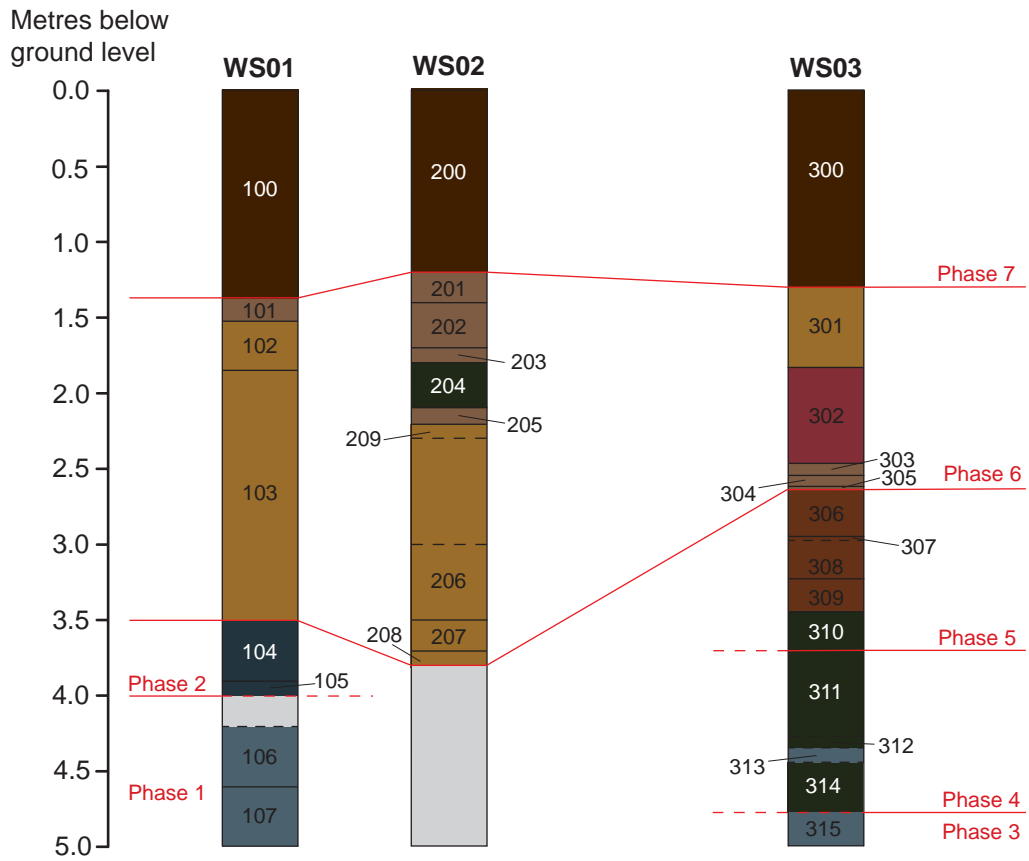


Fig. 18 CP Borehole Deposit Models for FC C3



Key

- Limit of context
- - - Limit of context (uncertain)
- Topsoil and turf
- Brick and mortar rubble
- 19th-20th century levelling/made ground
- 19th-20th century redeposited clays
- Medieval dumping
- Peaty/organic rich deposits
- Potential Roman deposits
- Alluvial deposits
- No recovery from core

Fig. 19 WS Deposit Model for FC B4

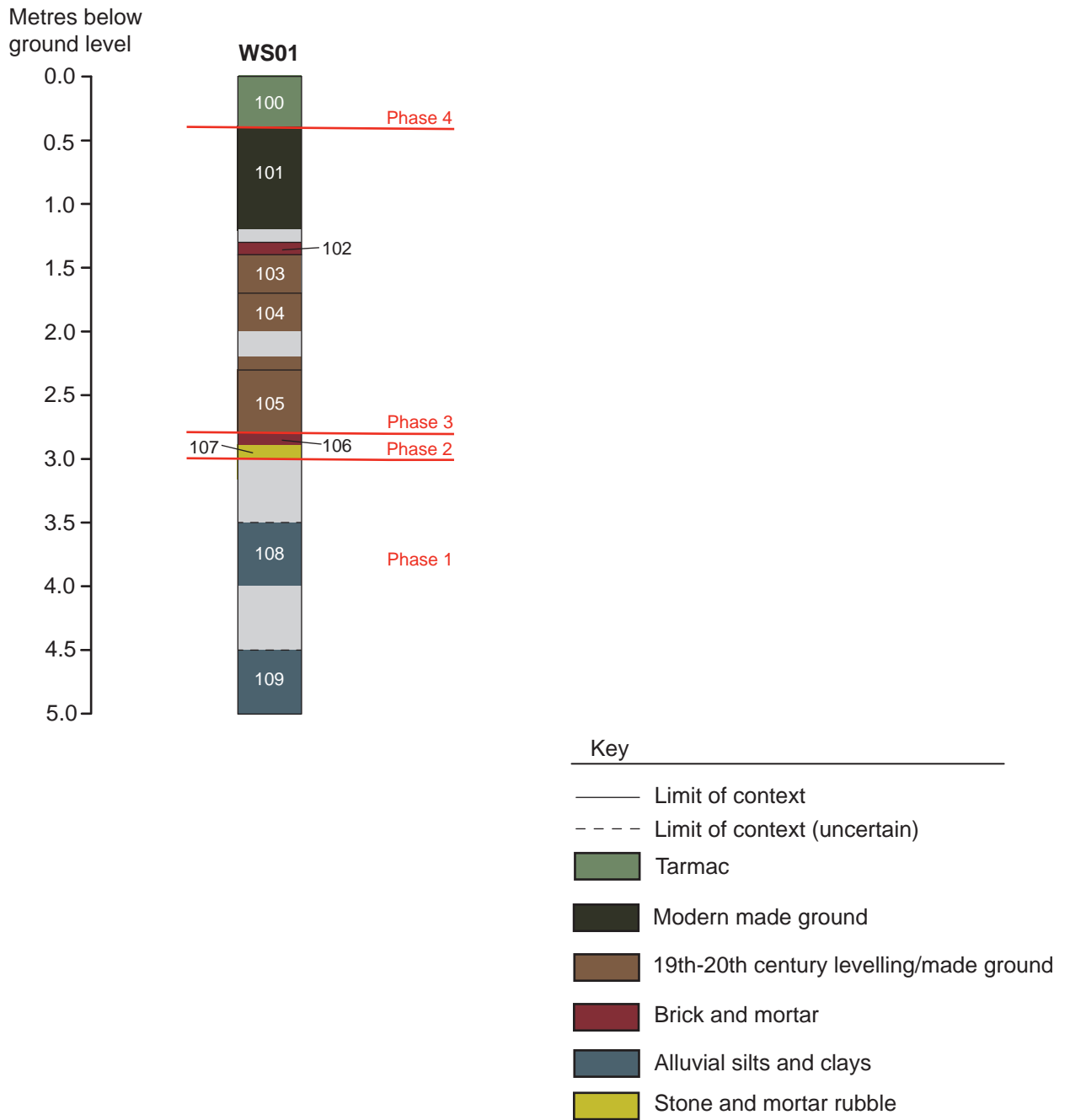


Fig. 20 WS Borehole Deposit Model for FC B7

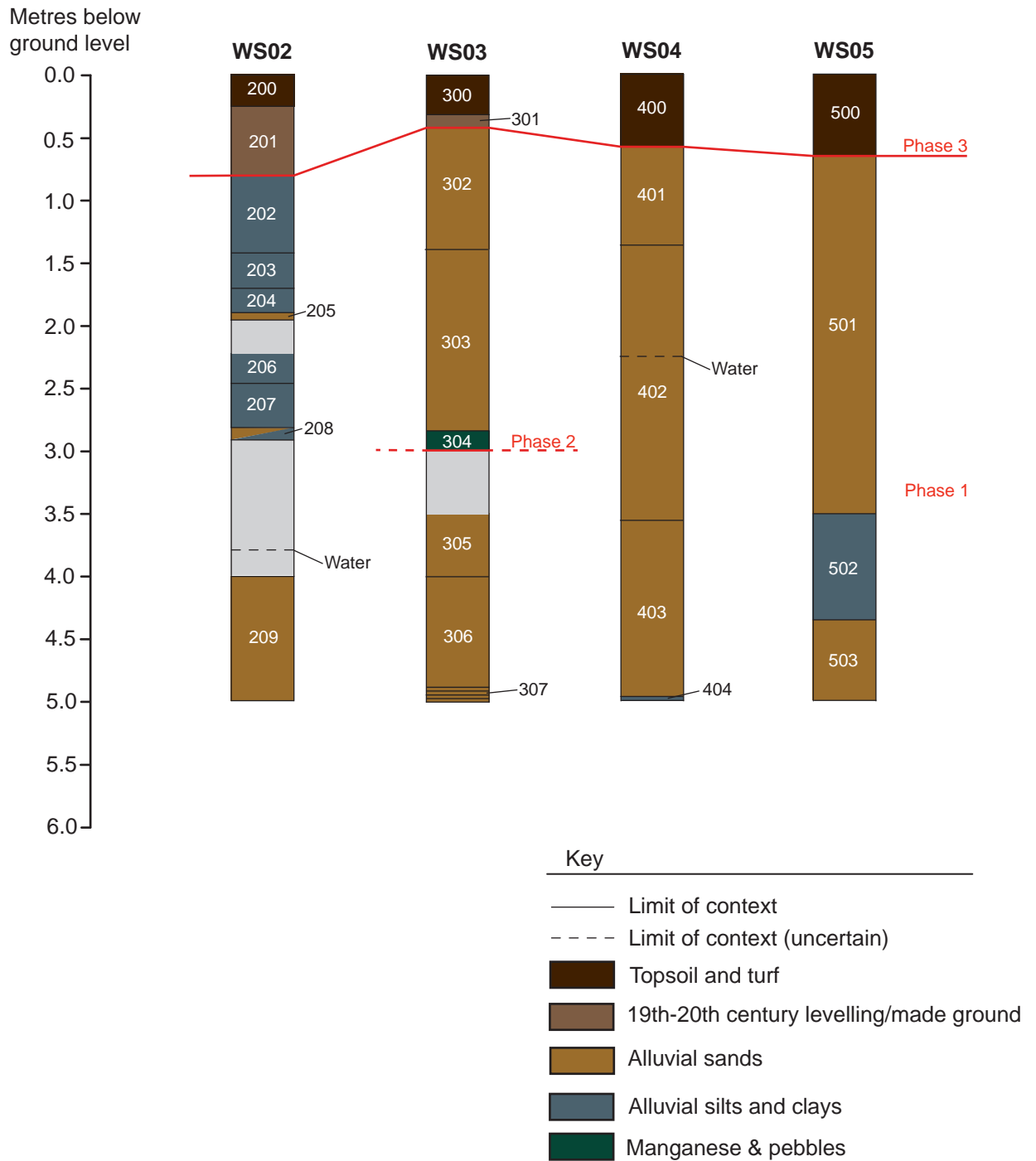


Fig. 21 WS Borehole Deposit Models for FC C1

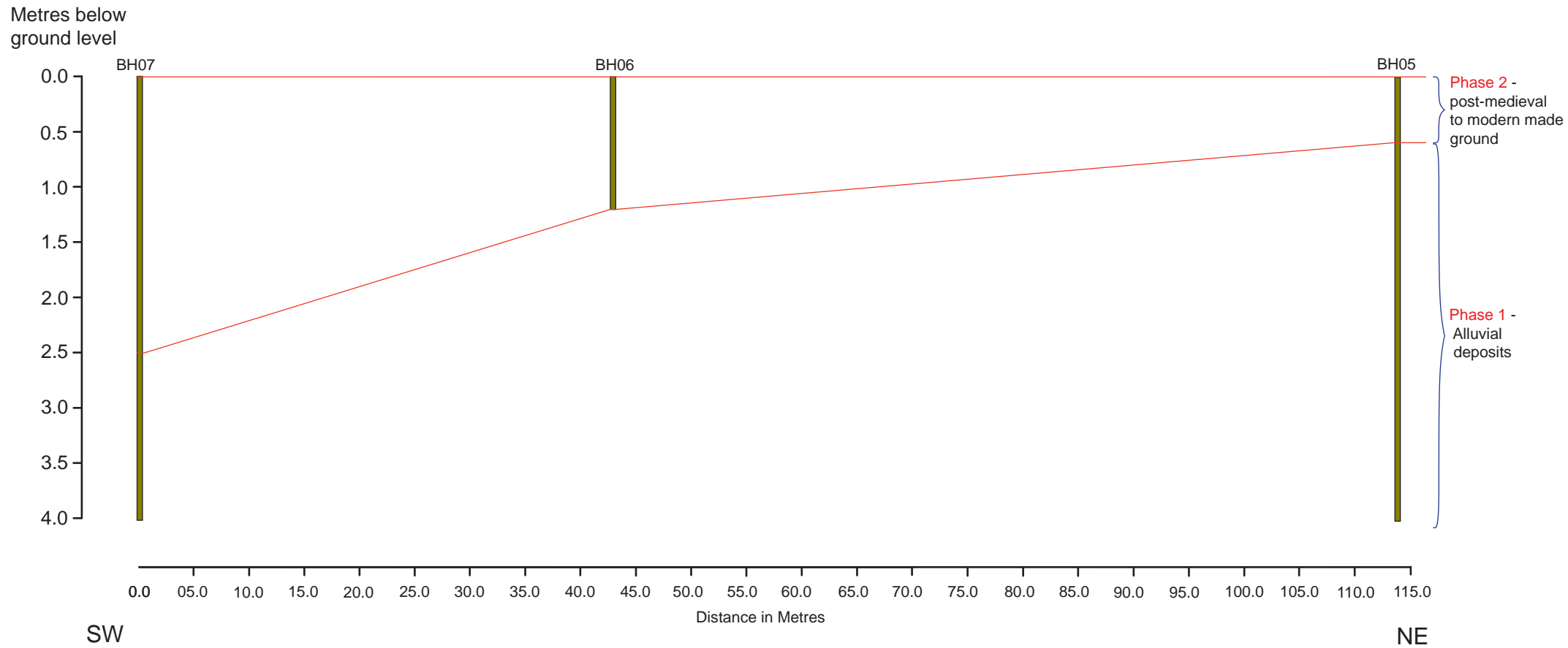


Fig. 22 Deposit model, southwest to northeast transect for FC C3

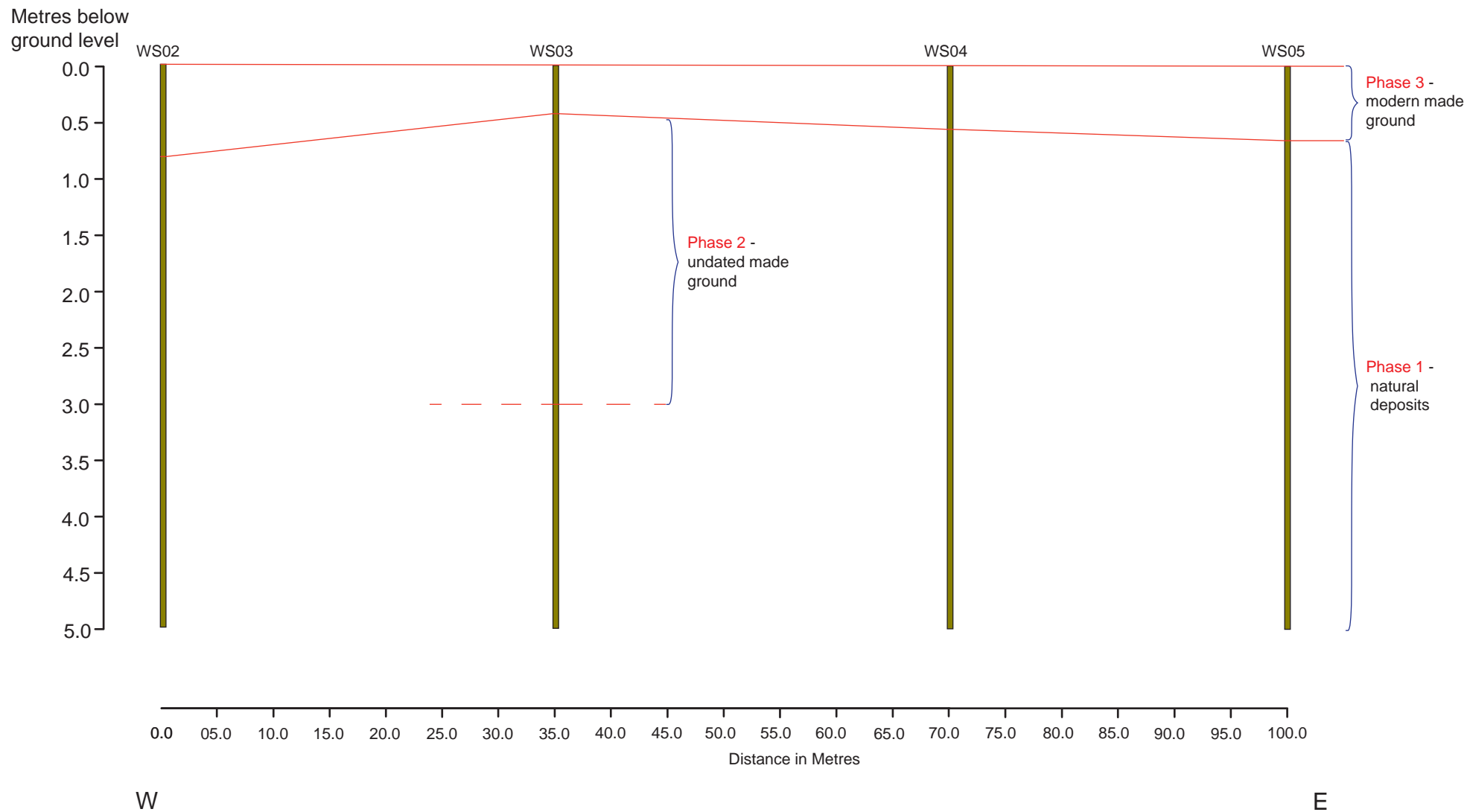


Fig. 23 Deposit model, west to east transect for FC C1



YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.



© York Archaeological Trust

York Archaeological Trust, Cuthbert Morrell House, 47 Aldwark, York YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Website: <http://www.yorkarchaeology.co.uk>

© 2018 York Archaeological Trust for Excavation and Research Limited
Registered Office: 47 Aldwark, York YO1 7BX
A Company Limited by Guarantee. Registered in England No. 1430801
A registered Charity in England & Wales (No. 509060) and Scotland (No. SCO42846)