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Archaeological Borehole Investigations at
46-50 Piccadilly, York, Phase 2

By Ben Savine

YAT Borehole Evaluation Report 2018/73 SEPTEMBER 2018

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Abbreviations

AOD	Above Ordnance Datum
BPGL	Below Present Ground Level
CBM	Ceramic Building Material
CP	Cable Percussion
MP	Monitoring Point
TT	Trial Trench
WS	Window Sample
YAT	York Archaeological Trust

NON-TECHNICAL SUMMARY

Between the 16th and the 31st May 2018 York Archaeological Trust conducted an evaluation comprising monitoring and logging of boreholes and trial trenches at 46-50 Piccadilly, York (SE 6061 5153). This work comprises Phase 2 of site investigation, following on from Phase 1 of borehole survey undertaken between the 29th March and the 4th April 2017.

The work was undertaken for Dunelm Geotechnical and Environmental Ltd to meet requirements laid out in planning consent agreed by City of York Council (17/00429/FULM). The work was based on a Written Scheme of Investigation produced by YAT. The works fall within Phase 2 of borehole survey and involved the excavation and recording of three Trial Trenches (TT), 2 Cable Percussion (CP) drilled boreholes and nine lightweight windowless dynamic rig (WS) drilled boreholes, four of which were designated as water monitoring points (MP), used for data gathering as part of a five year monitoring programme for analysis of water quality and hydrology.

This report is the first in a series of Interims pertaining to the Phase 2 borehole survey works and deals solely with the monitoring and logging of Site Investigation (SI) works. Forthcoming reporting will cover water quality and hydrology monitoring at regular intervals as stated in the Written Scheme of Investigation (WSI).

KEY PROJECT INFORMATION

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1 INTRODUCTION

Between the 16th and the 31st May 2018 York Archaeological Trust conducted an evaluation comprising monitoring and logging of boreholes and trial trenches at 46-50 Piccadilly, York (SE 6061 5153) (Figure 1).

The site lies within York's Area of Archaeological Importance as defined by the Scheduled Monuments and Archaeological Areas Act 1979.

The work was undertaken for Dunelm Geotechnical and Environmental Ltd to meet requirements laid out in planning consent agreed by City of York Council (17/00429/FULM). The work was based on a WSI produced by YAT. The works fall within Phase 2 of borehole survey and involved the excavation and recording of three trial trenches, 2 cable percussion drilled boreholes and nine lightweight windowless dynamic rig drilled boreholes, four of which were designated as water monitoring points, used for data gathering as part of a five year monitoring programme for analysis of water quality and hydrology.

The purpose of the SI works was twofold: to gather geotechnical information for engineering purposes; to record and assess the archaeological deposition and preservation, also to install water quality and hydrology monitoring devices employed in a five year monitoring programme, designed to inform on the stability of waterlogged archaeological deposits present at the site.

This document, YAT Report Number 218/73, details data gathered from Phase 2 of the borehole and trial trenching programme.

2 METHODOLOGY

The methodology followed that laid out in the WSI, YAT Document 2018/63 (Appendix 3).

The positioning of the dipwells has been designed for optimal coverage across the site, and to reduce risk of damage during construction and to provide long term accessibility following completion of construction. However, the positioning has been restricted to some extent by the standing buildings which limit machine access for the borehole rigs and underground obstructions and utilities linked with the previous use of the building as a garage, such as fuel tanks.

The Si works comprised three different methods, mechanically excavated Trial Trenches, Cable Percussion drilled boreholes and windowless dynamic rig drilled boreholes.

Prior to the commencement of drilling all boreholes were initiated with a hand dug starter pit excavated to a depth of 1.2m to mitigate the presence of unexpected services and other obstacles close to the surface.

Two boreholes were drilled with a cable percussion rig (BH201 and BH202), one inside the NCP car park and the second at the rear of the building (Figure 2), notionally to a depth of 25m Below Present Ground Level (BPGL), archaeological monitoring however was curtailed when the top of undisturbed natural deposits were encountered. Changes in the strata of the archaeological deposition were described and their depths recorded on pro forma record sheets following the standard YAT single context methodology. Samples were recovered

where suitable deposits were identified which differed significantly from those encountered during the Phase 1 SI works.

Nine boreholes were drilled with windowless dynamic rigs (WS201 – WS205 and MP01 and MP02), two of which (MP03 and MP04) with a modular as opposed to a tracked rig. Window samples WS201 – WS205 were located within the garage building and drilled to a depth of 5m BPGL, while the dipwells, MP01 –MP04, were sited at each of the four corners of the site at locations ensuring accessibility before, during at following development of the site (Figure 2). The monitoring points, MP01-04, were intended to be drilled to a depth of 6m BPGL, however in the event this depth was only achieved with MP01 and MP02. Technical issues with the modular window sample rig employed at MP03 and MP04 prevented the expected depth from being achieved, although a depth of 5m BPGL was reached.

In addition it is intended that three trial trenches are to be excavated at the rear of the site along a narrow stretch of open ground between the rear (south-west side) of the NCP car park building and the north-east bank of the River Foss (Figure 2). Access limitations however dictate that this stage of the SI works cannot proceed until the car park has been demolished. An updated version of this report will cover that stage of works following its completion.

Borehole cores were examined by an archaeologist suitably experienced in the deep stratigraphic nature of York's archaeological deposits. All boreholes were recorded using standardised pro forma record sheets and related to Ordnance Datum. Each context was described in full on the pro forma borehole record sheet in accordance with the accepted context record conventions. Each context was assigned a unique number. Borehole logs were supplemented by use of digital photography, including work in progress and detailed images of the recovered cores. Digital photographs were taken at a resolution of no less than 10 mega-pixels.

Where artefacts and ecofacts were recovered these were handled following the guidance set out in the CIFA guidance for archaeological materials, following which appropriate packaging was used and storage was under optimum conditions, as detailed in the RESUE/UKIC publication First Aid for Finds.

Instillation of water monitoring points and sensors

Perforated plastic casing wrapped in a porous barrier material designed to mitigate silting of the borehole was installed in each of the four monitoring points (Plate 1). Instillation of casing in MP01 and MP02 was successfully achieved to the full depth of the boreholes; however casing was only installed to a depth of 4m BPGL in MP03, and 3m BPGL in MP04, most likely due to slumping of material within the boreholes.

At this time (03/09/18) it is not clear whether casing installed in MP03 or MP04 is to a sufficient depth for their use as suitable monitoring points for the duration of the five year monitoring programme. Unfortunately access to both MP03 and MP04 has not been provided to date (03/09/18), consequently their suitability is yet to be established and sensor instillation has yet to take place. It should be noted that sensors were installed in MP01 and MP02 on 5th July 2018 and the water table depth measured. The water table was determined to be at 3.6m BPGL (6.68m AOD) and 3.8m BPGL (6.01m AOD) respectively. Should the water table be found at a similar level around MP03 and MP04 there may be little margin for detecting much more than a moderate fall in its level.

3 LOCATION, GEOLOGY & TOPOGRAPHY

The site lies on the east bank of the River Foss approximately 0.6km north of its confluence with the River Ouse. The underlying solid geology of the site is sandstone of the Sherwood Sandstone Group with superficial deposits of alluvial silt, clay, sand and gravel (http://mapapps.bgs.ac.uk/geologyofbritain/home.html).

The site occupies land which has been altered by human agency since the Roman period, the ground level having been built up by around 8m from that of the underlying glacial moraine. The site lies on the edge of an area that was submerged after the Conquest by the damming of the river Foss to feed the Norman castle, known today as Clifford's Tower, which is situated on the opposite bank of the river. Present ground level is at around 10m AOD with a gentle slope of around 1m towards the river on the west side of the site.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The Piccadilly area has been subject to numerous archaeological interventions since the 1980s. In this section, taken from YAT Report 2016/85 (Reeves 2016), a brief overview is given of the current knowledge based on various sources to provide context for the 46–50 Piccadilly site.

4.1 The topography and regime of the River Foss

The importance of York's waterfronts and their potential to provide information about areas of the city once the focus for trade and commerce has long been recognised. The work of York Archaeological Trust since 1972 has shown that excavation of waterfront sites can reveal evidence for 'the economic basis of the city's life throughout its history' (Addyman et. al. 1988, 1). During the extensive 1981–2 watching brief on the area now occupied by the Coppergate Centre on the west bank of the River Foss the ancient course of the river was found along with revetments, installations, ship fragments, and traces of the water defences of York Castle. Further excavations at the site of the former ABC Cinema, 22 Piccadilly, defined an earlier river channel and associated 11th century riverside revetments (Addyman et. al. 1988, 8).

The 46–50 Piccadilly site is situated on ground near the confluence of the Rivers Ouse and Foss close to the point where these rivers penetrate the York Moraine. The historic fluvial morphology of the lower River Foss is not well understood. What little information there is comes from borehole records and excavations carried out along the south-west side of Piccadilly, Coppergate and more recently the Hungate area: all of which demonstrate a complex landscape morphology which is the product of both natural geological processes and large-scale alterations caused by human agency throughout historic periods.

Evidence from the Walmgate and Piccadilly areas, largely derived from small-scale keyhole excavations carried out by YAT in the early 1990s, has provided valuable evidence about the topographical development of the River Foss and its waterfront areas.

Walmgate occupies a ridge of high ground leading to the crossing point of the Foss at Foss Bridge. The top of natural glacial deposits identified at 31 Walmgate on the street frontage was at depths between 9.92m OD to 9.60m OD (Robinson 2013, 6–7, 15).

To the east of this ridge the archaeological evidence from the proposal site and adjacent sites shows that the ground level on the eastern Foss bank has been increased considerably since the Roman period through land reclamation. At 17–21 Piccadilly, approximately 25m north of

the proposal site, the natural slope towards the Foss was identified between 4.5m BPGL (approximately 5.5m OD) at the south end of the site to 7.6m BPGL (Approximately 2.4m OD) at the northern end (Lilley 1991, 2). At 50 Piccadilly natural was identified at 1.2m OD and a borehole watching brief at 38 Piccadilly identified natural at approximately 9m BPGL –a depth of approximately 1.65m OD. The slope across the same area today is only around 1.6m (YAT Gazetteer 613; Gajos 2013, 7).

4.2 Prehistoric

Prehistoric remains from York are scarce, amounting to a small number of casual finds since the 19th century, mainly from the south-west of the River Ouse and a small number of undated but possibly pre-Roman features (Wellbeloved 1862, 61–3; Radley 1974, 10–4; Hall 1996, 25). However, evidence is increasingly being found for Bronze Age and Iron Age activity focused on the York Moraine, particularly to the east of the city. Closest of these discoveries, found at 25 Lawrence Street some 0.6km to the east of Piccadilly, was a Bronze Age cremation urn discovered in 2007 (Reeves forthcoming) and an assemblage of Neolithic flint tools consistent with occupation recovered from recent excavations at Hungate (Kendall 2009, 175) some 0.35km to the north of the site both within the lower Foss. Considerable evidence for late Neolithic and Bronze Age occupation comes from further east on the moraine such as the recent discoveries in the Heslington area, approximately 3.5km to the east of the city, made during the expansion of the University of York (Antoni, Johnson and McComish 2009).

Prehistoric water levels at the site of 46–50 Piccadilly would have fluctuated in tandem with those of the tidal Ouse (Briden 1997, 170; Duckham 1967, 17). The resulting complex marshland ecosystem was likely a place of significance and a valuable subsistence resource to local populations (Whyman and Howard 2005, 14). Although it is unlikely, there may be evidence for prehistoric activity preserved at 46–50 Piccadilly, its location and the waterlogged nature of the buried deposits in the area could hold potential for valuable information about fluvial landscape morphology and environment during this period.

4.3 Roman

The site is approximately 450m south-east of the south-east corner of the Roman fortress founded in AD 71. Although the archaeological evidence for Roman activity in the area to the south-east of the River Foss is relatively sparse compared to the fortress area the area seems to have been utilised throughout the Roman period (McComish 2007).

Roman Road 1a, leading to *Eboracum* from *Throlam* near Holme-on-Spalding-Moor is thought to have converged with the Road 1b, a minor road from the south, some 150m to the south east of the 46-50 Piccadilly site. Roads 1a and 2, from *Petuaria* (Brough-on-Humber) are thought to have converged approximately 30m north of 46–50 Piccadilly (RCHMY I, 2; Ottaway 2004, 12; Ottaway 2015, 9; HTAY 2015, Sheet F). Roman burials were discovered sometime before 2007 by Malton Archaeological Partnership immediately south of Dixon Lane (McComish 2007). A Roman Altar dedicated to the native god Arciaco was found at St Denys Church on Walmgate and two other coffined Roman burials were found nearby (RCHMY 1, 69–70, 118; HTAY 2015, Sheet F).

Evidence for Roman use of the Foss as a navigation comes from 1951–52 excavations for the construction of the Telephone Exchange building in Garden Place, Hungate, where walls and piles interpreted as a Roman wharf and the buried former course of the river were discovered

(RCHMY I, 64). In the Piccadilly area, evidence for riverbank activity on the east bank of the Foss comes from excavations at numbers 38, 40 and 50 Piccadilly (Appendix 2). A line of stone pillars beneath the Tax Offices on Piccadilly was interpreted as possible evidence for a Roman riverside jetty (Ottaway 1993, 69).

Furthermore, excavations at 38 and 50 Piccadilly suggest there was significant occupation and river front land use during the late 2nd–3rd centuries in the vicinity of the site comprising evidence for management of the riverside, dumped occupation material including domestic pottery and evidence of possible industrial activity.

4.4 Anglian

Evidence for Anglian period York is generally elusive and what has been recovered to date is sparsely distributed across the city. Excavated sites and the distribution of find spots suggests that settlement at York was polyfocal with distinct nuclei spread out across the former Roman fortress and colonia, interspersed with cultivated or waste areas (AY 7/2, 298; Palliser 2014, 37). As yet, no evidence has been found for wharves or intensive occupation, however, evidence from sites along the course of the River Foss suggests occupation and other activity along the river bank. A number of Anglian pot sherds have been recovered from Hungate (AY 7/2, 196; YAT forthcoming) and the Haymarket excavations (Reeves forthcoming), at 22 Piccadilly Anglian pottery, probably of early–mid 9th century date was recovered from two trenches, one of which was associated with a wicker fence running parallel to the river. Silt accumulations above these levels indicate the area was prone to flooding. Further evidence came from 38 Piccadilly where a sherd of Badorf ware was recovered from some 8m below modern street level beneath a substantial accumulation of probable 11th-century alluvial silt. At 17–21 Piccadilly a 9th century relief-band amphora fragment was recovered from around 5m below the modern street level at around 5.7m OD (AY 7/2, 196–197)

The site, 46–50 Piccadilly, is close to one of the most important Anglian period sites so far excavated in York, 46–54 Fishergate (AY 7/1). The majority of the evidence for Anglian activity elsewhere in the city comes from artefacts which may be the result of casual losses through transient activity and may not necessarily be convincing evidence of occupation. However, evidence from the 1985–6 excavation at the former Redfearn National Glass works, 46–54 Fishergate, some 0.4km to the south of 46–50 Piccadilly, provides evidence of an important production and trading centre, or *wic,* occupying an area of around 2,500m² sited on the lower east bank of the River Foss, directly opposite the point of confluence with the River Ouse (AY 7/1). This 7th–late 9th century settlement apparently began as a well organised, probably planned, settlement rather than one that developed organically to exploit the natural communications provided by the rivers and the east–west land route of the York Moraine.

More recent excavations at the former Mecca Bingo and Blue Bridge Lane area a little further south from Fishergate have produced further evidence of Anglian period pit groups and occupation (Spall and Toop 2011, 7). Excavation carried out at the junction of Dixon's Lane/George Street in 2006 discovered further evidence for activity possibly associated with the *wic* approximately 100m to the east of 46–50 Piccadilly (AYW 9, McComish 2007). Based on current archaeological evidence the 46–50 Piccadilly site lies just to the north-west of the possible Anglian settlement (Palliser 2014, 24).

4.5 Anglo-Scandinavian

The site lies within an extensive area of Anglo-Scandinavian activity to the south-east of the former Roman fortress. It has been suggested that the Anglian period *wic* at Fishergate was in decline by the 860s–870s and was replaced at around this time by occupation around the Ousegate/Coppergate area (AY 8/4, 299–304). However, evidence found in 2007 for craft and trade activity at Dixon Lane/George Street, located midway between the Fishergate and Coppergate/Ousegate areas, suggests a wider spatial continuity between the Anglian *wic* and the Anglo-Scandinavian settlement in the late 9th–10th centuries (AYW 8). Evidence for Anglo-Scandinavian activity from YAT excavations at 118–126, 76–82 and 104–112 Walmgate suggests that Walmgate became an important thoroughfare in the burgeoning 9th and 10th - century town and a substantial suburb developed in the area. The nearby churches of St Stephen, Fishergate and St Denys, Walmgate are thought likely of pre-Conquest origins. A number of sites along Piccadilly have revealed traces of Anglo-Scandinavian activity such as bone working evidence from excavations at 38, 50, and 84 Piccadilly (AY 8/4,469–472).

4.6 **Medieval**

The landscape of the River Foss was drastically altered by the damming of the southern end of the river at Castle Mills by William the Conqueror to exploit its waters to feed the moat of the Norman castle at York (VCHY 1961, 509–510). The resulting body of water was called the *Stagnum Regis,* the King's pool. The dam of the Fishpool of the Foss probably provided a causeway across the Foss at the site of the modern Castle Mills Bridge. The first documentary evidence for a bridge at Castle Mills is not until 1585 and the structure was destroyed during the Siege of 1644 (VCHY 1966, 519–520; Raine 1955, 196). Cartographic evidence, as well as evidence from the excavations at 38 and 84 Piccadilly show that the area which now forms the west side of Piccadilly was largely flooded by the creation of the Fishpool and remained so for much of the late medieval period, during which time the King's Fishpool gradually silted up and some of the land formerly flooded reclaimed. The series of maps reproduced in Figures 6 and 13 and historic maps Figures 7–9 show the areas flooded based on archaeological and cartographic sources and the gradual change in area taken up by the King's Pool during the early modern period.

The Walmgate sector of the city was enclosed with defences in the late 12th century (RCHMY 2, 11; HTAY 2015, 31). Fishergate Postern, 0.2km to the south was built sometime in the 14th century (Raine 1955, 20).

Cartographic evidence suggests that 46–50 Piccadilly was at the riverside edge of gardens to the rear of properties fronting onto Walmgate during this period and the archaeological evidence discussed further in Section 6 of this report indicates that waste was dumped along the riverside where there were perhaps jetties or revetments designed to consolidate and reclaim land from the river.

4.7 **Post-medieval**

Canalisation of the River Foss began in the late 18th century, the first stretch from Castle Mills to Monk Bridge being opened in 1794. It was continued to Sheriff Hutton in 1801. Factories and Warehouses at Hungate were still accessible via the Foss Navigation until the 1960s even though its use as a navigation was in decline. In recent decades the remaining light industry has relocated, making way for largely residential development (VCHY 1961, 475; Fife and Walls 1981, 23–25; YAT forthcoming).

The modern street named Piccadilly runs from Pavement across the River Foss and along its east bank to the east end of Castle Mills Bridge. A lane or open space existed at the south end by 1610 and was widened and re-named Piccadilly after the London Street c. 1840. It was extended north to Pavement in 1912 (RCHMY 5, 199).

Much of the street is built over land that was formerly covered by the Kings Pool of the River Foss. The gradual development of the post-medieval landscape can be traced through the historic maps of which there is a sequence available dating from the 17th century. On Speed's map of 1610 the site is depicted as open ground

Richards' map of 1685, which is largely a copy of an earlier map by Captain James Archer(surveyed 1673 and published 1682; not reproduced), shows open ground, presumably used for commercial horticulture with property boundaries and a path or street leading from Walmgate to the east bank of the River Foss. The distinction between streets built-up with houses, and lesser pathways without on these early maps is unclear. Their exact location and orientation in relation to the modern landscape is also difficult to determine with complete accuracy but it seems there has, for a considerable time, been some form of access to the east bank of the Foss from Walmgate and the north side of St Denys' church yard.

By 1750, the publication date of Chassereau's map, the area around St Denys' church is largely built-up, the path leading to the east bank of the Foss is no longer shown and a new path or street leading south towards the Castle Mills Bridge area is indicated, forming the predecessor to the modern southern end of Piccadilly.

4.8 **Modern**

Hargrove's map of 1818 appears to differentiate between probable horticultural land to the north-west and west of St Denys' church and what appears to be open ground to the south-west. The line of the path running south towards Fishergate Postern from the west end of the churchyard is in Hargrove's map delineated with a dashed line, possibly indicating it was of lesser status than other lanes shown further to the east. The 1852 Ordnance Survey map shows the path widened and formalised after the creation of Piccadilly.

By 1852 St Denys' Street had been extended along a line to the south-west with a slight dog-leg and is shown as a built-up street of terraced houses. The properties on the north side of the street appear to be small houses with yards and those on the south appear to be back-to-back houses. Walmgate was a notorious area in the 19th century associated with poverty, crime and prostitution. A block of terraced dwellings, immediately south-west of St Denys' Church, were known as Plow's Rectory Buildings. Finnegan describes these as an unwholesome terrace amongst which there were a small number of 'houses of ill fame' such as 'Todds' and 'Mrs Varley's'. Several diseased and destitute prostitutes entered the work house from this address (Finnegan 1979, 54–55).

In the 19th-century the terraced houses of St Denys' Street ran from Walmgate to the south-west across the 46–50 Piccadilly site almost towards the bank of the River Foss. A search of City of York Council 'Imagine York' images archive returned only 1, relatively uninformative, photograph of the east corner of St Denys Street at its junction with Walmgate taken in c. 1933. The eastern end of the street appears to follow a property boundary or thoroughfare

running south-west from Walmgate along the north side of St Denys' church, a route that can be traced in the historic maps as far back as Speed's map of 1610.

The buildings on Piccadilly are predominantly of 20th century date consisting of a number of former garages, warehouses, offices and retail shops with some residential flats and a large hotel at the Castle Mills end of the street. A terrace of four small houses (numbers 41, 43, 45) built shortly before 1850 is recorded by the Royal Commission as having been demolished before 1961 and the former White Swan Hotel (now Pavement Vaults and residential flats) at the northernmost end of the street incorporates partial remains of a three-storey mid-18th - century house (RCHMY 5, 199).

Number 46–50 Piccadilly was built as a motor garage in 1955 and evidence of this former use is present in both the internal layout of the building and surviving fixtures and fittings.

5 RESULTS

Designation of the eleven boreholes covered by this report follows that as applied by Dunelm Ltd. BH201 and BH202 are cable percussion drilled interventions, WS201-205 are window samples, as are MP01-04 which are the intended monitoring points (as of 25/07/18 monitoring point have only been installed in MP01 and MP02 due to issues with access to the rear of the site). Deposits identified within each of the boreholes were assigned context numbers, each context was then allocated to phase of activity across the site (Figs 3 to 6). It must be noted however, that in the absence of dateable artefacts from the boreholes the phases designated are based only on the broad impression gained from experienced observation of the deposits by the attendant archaeologist.

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

Below-ground obstructions prevented boreholes WS201 and WS205 from being completed. In both cases solid obstructions at approximately 1.3m BPGL resulted in the abandonment of the borehole.

The monitoring points, MP01-04, were intended to be drilled to a depth of 6m BPGL, however in the event this depth was only achieved with MP01 and MP02. Technical issues with the modular window sample rig employed at MP03 and MP04 prevented the expected depth from being achieved, although a depth of 5m BPGL was reached and some useful data recovered.

Height of present ground level (PGL) is given at the beginning of each borehole summary. A graphic representation of the recorded sequence is given in Figure 3, that of the phasing is given in Figures 4 and 5 and deposit modelling is shown in Figure 6. The Ordnance Datum (OD) height values at the tops of the six boreholes inside the car park building were within 180mm of each other, ranging from 9.75m to 9.93m AOD demonstrating a relatively flat ground surface. Similarly the three boreholes located beyond the rear of the car park on the margin of the River Foss were on a flat concrete surface ranging from 9.55m to 9.46nm AOD northwest to southeast. The two boreholes situated on the street frontage perhaps provide an indication more representative of the topography of Piccadilly which falls gradually away to the southeast as it approaches the confluence of the Rivers Ouse and Foss. To the northwest

ground level is at 10.04m AOD, falling some 650mm to the southeast at the next borehole, 9.39m AOD.

5.1 **Borehole BH201**

Borehole BH201 (Figures 3, 5 and 6) was monitored on 16/05/18. Ground level at the time of recording was approximately at 9.84m AOD. 14 contexts were identified (Contexts 1100 to 1113). BH201 has been assigned to the south-eastern transect B.

Phase 1 Natural (Context 1113)

Natural glacial deposits were identified at around 7m BPGL (2.84m AOD) (Context 1113) (Plate 2).

Phase 2 Roman (Contexts 1111 and 1112)

Deposits 1112 and 1111, between 7m BPGL and 5m BPGL (2.84m - 4.84m AOD) were relatively clean, dark silts and clays but with a distinct organic, peaty character often with preserved fragments of wood, charcoal and other organic matter (Plate 3). Although no dateable material was recovered it is thought most likely that they are of a Roman date judging by the appearance of flecks and small fragments of CBM within these deposits.

Phase 3 Early –late Medieval (Contexts 1106 – 1110)

A series of silts and clays with an increasingly gritty content were observed at a depth of between 4m and 1.9m BPGL (4.84m – 7.94m AOD) (Contexts 1110 – 1106). An increase in the abundance of CBM observed in these deposits when compared to those in Phase 2 may be seen as an indication of a late or post-medieval date to the formation of these deposits. The presence of concrete in context 1108 suggests that this context had slumped into the borehole from a higher level.

Phase 4 Post-medieval (Contexts 1102 – 1105)

Post-medieval deposition consisted initially as an accumulation of a garden or horticultural type soil. This material contained an abundance of abraded inclusions, mostly building debris and domestic refuse observed from a depth of 1.9m to 1.3m BPGL (7.94 – 8.54m AOD) (Context 1005). Above 1005 a sequence of demolition material including asphalt, sand and brick rubble from was observed at between 1.3m and 0.6m BPGL (8.54m – 9.24m AOD) (Contexts 1104-1102).

Phase 5 Modern (Contexts 1100 – 1101)

Modern deposits consisted of the present car park's concrete floor and its sub-base (Contexts 1100 and 1101), extending from ground level to 0.6m BPGL (9.84m – 9.24m AOD).

5.2 **Borehole BH202**

Borehole BH202 (Figures 3, 4 and 6) was monitored on 21/05/18. Ground level at the time of recording was approximately at 9.55m AOD. 8 contexts were identified (Contexts 2100 to 2107). BH202 has been assigned to the north-western transect A.

Phase 1 Natural (Contexts 2106 – 2107)

Natural glacial deposits are thought to have been encountered at 8.5m BPGL (1.05m AOD), but were definitely apparent by 9.5m BPGL (0.05m AOD) (Context 2107).

Above Context 2107, Context 2106, present from approximately 7.5/8m BPGL (2.05/1.55m AOD), shared much the same appearance as the natural clay but with the addition of organic black silty lenses. The silty lenses may be highlighting periodic deposition of re-worked or re-deposited natural, perhaps part of a deliberate consolidation of this area close to the east bank of the Foss. There remains, however the possibility that entirely natural processes were at work in the formation of this material.

Phase 2 Roman (Context 2106?)

No definitively Roman deposits were identified, although context 2106 (see above) may date to this period.

Phase 3 Early –late Medieval (Context 2105)

Context 2105 was identified from approximately 4m to 7.5m BPGL (2.05m - 5.55m AOD). This wet dark grey silt, containing fragments of wood, became increasingly dense and organic from around 5.5m BPGL (4.55m AOD). Lenses of fine light grey sand running through this deposit indicate a long standing and gradual accumulation.

Phase 4 Post-medieval (Contexts 2102-2104)

The post-medieval deposits extended from 4m to 0.3m BPGL (5.55m – 9.25m AOD). From 1.2m BPGL (8.45m AOD) the deposits (Contexts 2103 and 2104) consisted of damp, silty coarse sands containing an abundance of inclusions ranging from CBM, mortar and shell fragments to pebbles and cobbles. It is possible that Context 2103 represents a transition from the lower, wetter more organic accumulations to soils more reminiscent of garden or horticultural soils. Identified between 1.2m and 0.3m BPGL (8.45m – 9.45m AOD) Context 2102 appeared less consolidated and was certainly much drier than those deposits below it.

Phase 5 Modern (Contexts 2100-2101)

Modern deposits consisted of a concrete surface, and its sub-base, ranging across the rear of the present car park building and the revetted east bank of the River Foss. Contexts 1100 and 1101 extend from ground level to 0.3m BPGL (9.25m – 9.55m AOD).

5.3 **Borehole WS201**

Borehole WS201 (Figures 3, 5 and 6) was monitored on 16/05/18. The ground level of the concrete car park ground surface at the time of recording was approximately 9.93m AOD. The borehole was abandoned at a depth of c.1.3m BPGL (8.63m AOD) when a solid obstruction, probably of brick, was encountered. WS201 has been assigned to the south-eastern transect B.

Phase 4 Post-medieval (Contexts 1002-1003)

Above the solid obstruction (Context 1003), which may be an in situ brick wall, was Context 1002. 1002 extended from 1.3m to 0.2m BPGL (7.73m - 8.63m AOD) and consisted of loose silty sand containing an abundance of large CBM fragments, mortar and cobbles interpreted as made ground. This may be a layer of levelling or demolition associated with the clearance of earlier structure on the site.

Phase 5 Modern (Contexts 1001)

Modern deposits consisted of the existing car park's concrete floor surface which measured 0.2m thick from 9.93m to 9.73m AOD.

5.4 **Borehole WS202**

Borehole BH202 (Figures 3, 4 and 6) was monitored on 22/05/18. Ground level at the time of recording was approximately at 9.77m AOD. 8 contexts were identified (Contexts 2001 to 2007). WS202 has been assigned to the north-western transect A.

Phase 1 Natural

Borehole WS202 did not penetrate to a point where natural was countered.

Phase 2 Roman (Context 2008?)

Although no definitively Roman deposits were encountered it is thought possible that CBM flecks observed in Context 2008 may date to that period. Context 2008, a dark grey organic silt containing fragments of wood and charcoal, was found from 4.8m BPGL (4.97m AOD).

Phase 3 Early –late Medieval (Contexts 2005-2007)

Wet organic sandy silts and clays were identified from approximately 2.2m BPGL (7.57m AOD). These deposits, containing fragments of CBM, oyster shell, animal bone and charcoal, are thought likely to date from the medieval period.

Phase 4 Post-medieval (Contexts 2002-2004)

Context 2003 and 2004, present between 2.2m and 1.2m BPGL (7.57m – 8.57m AOD), were much drier, less consolidated and were observed to have a significantly greater inclusion content, particularly of CBM, than deposits encountered below them. These deposits appear likely to represent a mixture of garden or horticultural soil and levelling.

Above 2003 and 2004, Context 2002, a loose mixture of sand and coarse fragments of building debris and stone was observed at between 0.2m and 1.2m BPGL (9.57m - 8.57m AOD) (Plate 10). This deposit was interpreted as made-ground, deliberately raising the ground level. It is possible that this material derived from the demolition and clearance of structures on the site that predated the current car park building.

Phase 5 Modern (Contexts 2100-2101)

Modern deposits consisted of the existing car park's concrete floor surface which measured 0.2m thick from 9.77m to 9.57m AOD.

5.5 **Borehole WS203**

Borehole WS203 (Figures 3, 4 and 6) was monitored on 16/05/18. Ground level at the time of recording was approximately was at 9.75m AOD. 11 contexts were identified (Contexts 3001 to 3011). WS203 has been assigned to the north-western transect A.

Phase 1 Natural

Borehole WS203 did not penetrate to a point where natural was countered.

Phase 2 Roman

No deposits from this borehole could be definitively attributed to the Roman period.

Phase 3 Early –late Medieval (Contexts 3005-3011)

Deposits dating to the medieval period were identified from 5m to 2.17m BPGL (4.75m – 7.58m AOD) (Contexts 3005 – 3011). These deposits consisted of a sequence of damp, dark

grey and black silts and clays. These were observed to be organic in character, often with wood fragments and other plant remains visible in the cores. One layer, Context 3010, was found to be particularly wet, perhaps due to an unusually large proportion (30%-40%) of its make-up consisting of angular stones, cobbles and CBM fragments. This could allow for water to run more freely through this deposit when present at the same depth, 4m to 4.3m BPGL (5.75m – 6.05m AOD).

Phase 4 Post-medieval (Contexts 3002-2004)

A layer of relatively clean silty clay was found sealing the earlier organic silts and clays. This deposit, Context 3004, found at between 1.9m to 2.17m BPGL (7.85m – 7.58m AOD) may represent a change in character or use of land in this area. Above 3004, ranging from 1.9m to 0.2m BPGL (7.85m – 9.55m AOD), were deposits attributed to the post-medieval period. The first of these, Context 3003, appears to have been similar to a garden or horticultural type soil extending to approximately 1m BPGL (8.75m AOD). Context 3002 accounts for the remainder of deposition in this phase, it consisted of friable sand with pebbles, cobbles and some slag. Context 3002 was interpreted as a make-up or levelling deposit.

Phase 5 Modern (Contexts 3000-3001)

Modern deposits consisted of the existing car park's concrete floor surface which measured 0.2m thick from 9.75m to 9.55m AOD.

5.6 **Borehole WS204**

Borehole WS204 (Figures 3, 4 and 6) was monitored on 16/05/18. Ground level at the time of recording was approximately at 9.87m AOD. 10 contexts were identified (Contexts 4001 to 4010), however there was failure to recover any material from the first core at 1m to 2m BPGL. WS204 has been assigned to the north-western transect A.

Phase 1 Natural

Borehole WS204 did not penetrate to a point where natural was countered.

Phase 2 Roman

No deposits from this borehole could be definitively attributed to the Roman period.

Phase 3 Early –late Medieval (Contexts 4006-4010)

Medieval deposits consisted of a series of dark grey and brown organic silts and clays with varying levels of compaction and water content, present at depths between 5m to 3m BPGL (4.87m – 6.87m AOD) (Contexts 4006 – 4010).

Phase 4 Post-medieval (Contexts 4002-4004)

Present above the sequence of organic silts an approximately 0.2m thick layer (Context 4005), consisting of sandy light grey mortar at 2.8m to 3m BPGL (6.87m – 7.07m AOD) was observed.

Above 4005 a series of sandy and silty clays (Contexts 4003 and 4004), possibly garden or horticultural soils, was encountered. These deposits, present at between 2.8m and 2.3m BPGL (7.07m – 7.57m AOD) were observed to be significantly dryer than those below Context 4005.

There was no recovery in the core running from 1m to 2m BPGL (7.87m – 8.87m AOD). This may have been due to an obstruction, indeed the material hand excavated from 0.24m to 1m

BPGL (8.87 – 9.63m AOD) (Context 4002) was very loose sand with a large proportion of sizeable CBM fragments in it make up.

Phase 5 Modern (Contexts 4000)

Modern deposits consisted of the existing car park's concrete floor surface which measured 0.24m thick from 9.87m to 9.63m AOD.

5.7 **Borehole WS205**

Borehole WS205 (Figures 3, 5 and 6) was monitored on 16/05/18. The ground level of the concrete car park ground surface at the time of recording was approximately 9.84m AOD. The borehole was abandoned at a depth of c.1.3m BPGL (8.54m AOD) when a solid obstruction, probably concrete, was encountered (Context 5003). WS205 has been assigned to the south-eastern transect B.

Phase 4 Post-medieval (Contexts 5002-5003)

Above the solid obstruction (Context 5003), was Context 5002. 5002 was a deposit of loose silty sand containing an abundance of large CBM fragments, mortar and cobbles, it extended from 1.2m to 0.3m BPGL (8.64m – 9.54m AOD) and has been interpreted as made ground. This may possibly have been a layer of levelling or demolition associated with the clearance of earlier structures on the site.

Phase 5 Modern (Contexts 1001)

Modern deposits consisted of the existing car park's concrete floor surface which measured 0.3m thick from 9.84m to 9.54m AOD.

5.8 **Borehole MP01**

Borehole MP01 (Figures 3, 4 and 6, Plate 5) was monitored on 26/06/18. Ground level at the time of recording was approximately at 10.04m AOD. 17 contexts were identified (Contexts 10001 to 10017). One deposit Context 10010, situated close to the top of a sequence of richly organic deposits at around 3.35m BPGL (6.69m AOD) may have a level of hydro-carbon contamination, although this was not apparent in either deposits above or below. MP01 has been assigned to the north-western transect A.

Phase 1 Natural

Borehole MP01 did not penetrate to a point where natural was definitively countered.

Phase 2 Roman (Context 10016 and 10017)

What appears to be re-worked natural sand, containing small stones and flecks of charcoal, was identified at around 5.62m BPGL (4.42m AOD) (Context 10017) (Plate 4). The character of this material is not dissimilar to re-worked natural dated to the Roman period found elsewhere in York.

Observed between 5.62m and 5.48m BPGL (4.42m – 4.56m AOD), grading gradually through from 10017 was Context 10016, fine lenses of firm sand and silt which appear to have accumulated soon after Context 10017.

Phase 3 Early –late Medieval (Contexts 10009 - 10015)

Deposition attributed to the medieval period comprise a series of organic dark and mid grey silts and clays present between 5.48m BPGL and 2.97m BPGL (4.56m – 7.07m AOD) (Contexts 10015 – 10009) (Plate 5). These deposits appear likely to have formed gradually over a considerable period of time and under similar wet or waterlogged conditions. As a result the organic content is significant and includes very peaty layers, such as Context 10012 at 3.83 to 4m BPGL (6.04m – 6.21m AOD), and well preserved marine shell and wood as identified in Context 10015, present at between 5.48m and 4.67m BPGL (4.56m – 5.37m AOD).

Phase 4 Post-medieval (Contexts 4002-4004)

Post-medieval activity includes garden or horticultural type soil (Contexts 10008 and 10006) separated by a thick layer of rubble (Context 10007), all identified at between 2.97m and 1.72m BPGL (7.07m – 8.32m AOD) (Plate 5).

Succeeding those deposits, at a depth between 1.72m BPGL and 0.3m BPGL (8.32m – 9.74m AOD), were layers of less compact sands and sandy clays with a large inclusion content, in the most part building debris and cinder, perhaps relating to clearance of earlier builds on the site.

Phase 5 Modern (Contexts 4000)

Modern deposits consisted of the existing floor surface at the street frontage of the car park, in this case concrete pavers and associated sub-base (Contests 10001 and 10002). Together these were 0.3m thick from 10.04m to 9.74m AOD.

5.9 **Borehole MP02**

Borehole MP02 (Figures 3, 5 and 6) was monitored on 26/06/18. Ground level at the time of recording was approximately at 9.39m AOD. 15 contexts were identified (Contexts 20001 to 20015). MP02 has been assigned to the north-western transect B.

Phase 1 Natural (Context 20015)

Natural glacial deposits were identified at around 5.95m BPGL (3.44m AOD) (Context 20015).

Phase 2 Roman (Contexts 20012 – 20014)

Although no deposits could be definitively dated to the Roman period it is thought likely that those deposits close to the natural date to this period. These deposits are wet, soft dark grey and brown silts and clays with significant coarse sand, grit and gravel content observed at between 5.95 and 5m BPGL (3.44m – 4.39m AOD) (Contexts 10014 - 10012) (Plate 6). Context 10013 was 50mm thick comprised almost entirely of well sorted gravel 20 -30mm in diameter, at approximately 5.5m BPGL (3.89m AOD).

Phase 3 Early –late Medieval (Contexts 20011-20005)

Medieval deposition was observed at between 5m and 2.5m BPGL (4.39m - 6.89m AOD) (Contexts 20011 – 20005). This sequence of deposits was largely dark silts and clays with an organic content (Plate 7). They often appeared with a laminated structure, indicating a gradual formation over a considerable period of time under similar wet or waterlogged conditions. One layer, Context 10007 was a 0.2m thick relatively clean mid orangey brown clay , observed at 3.6m to 3.8m BPGL (5.79m - 5.59m AOD) may represent consolidation over the underlying soft and damp material.

Phase 4 Post-medieval (Contexts 20003-20004)

Post-medieval activity was detected from around 2.5m to 0.15m BPGL (6.89m – 9.24m AOD) (Contexts 20004 and 20003). Contest 20004 was thought likely to be a brick wall present at approximately 2m BPGL (7.39m AOD), above which was a deposit of rubble rich dark brown clayey silt, perhaps disturbed garden soil mixed with building debris (Plates 8 and 9).

Phase 5 Modern (Contexts 4000)

Modern deposits consisted of the existing floor surface at the street frontage of the car park, in this case concrete pavers and associated sub-base (Contests 20001 and 10002). Together these were 0.15m thick from 9.24m to 9.39m AOD.

5.10 **Borehole MP03**

Borehole MP03 (Figures 3, 5 and 6) was monitored in two stages on 31/05/18 and 04/06/18. Ground level at the time of recording was approximately at 9.46m AOD. 7 contexts were identified (Contexts 30001 to 30007). MP03 has been assigned to the north-western transect B.

Phase 1 Natural

Borehole MP03 did not penetrate to a point where natural was countered.

Phase 2 Roman

No deposits from this borehole could be definitively attributed to the Roman period.

Phase 3 Early –late Medieval (Contexts 30005-30007)

Medieval deposits were observed between 5m and 2m BPGL (4.75m – 7.75m AOD) (Contexts 30007 – 30005). The deposits consisted of a sequence of dark grey silts and clays containing fragments of charcoal, mortar and CBM. The laminated structure of these deposits indicates a gradual formation over a long period of time under similar wet or waterlogged conditions.

Phase 4 Post-medieval (Contexts 30002-30004)

Post-medieval deposition was represented by layers of rubble/building debris overlain by loose gritty sand, possibly a levelling deposit over the top of the rubble, at between 2 and 0.3m BPGL (7.75m – 9.45m AOD) (Contexts 30004 – 30002).

Phase 5 Modern (Contexts 30001)

Modern deposits consisted of a concrete surface, and its sub-base, lying between the rear of the present car park building and the revetted east bank of the River Foss, to 0.3m BPGL (9.45m - 9.75m AOD)

5.11 **Borehole MP04**

Borehole MP04 (Figures 3, 4 and 6) was monitored in two stages on 31/05/18 and 04/06/18. Ground level at the time of recording was approximately at 9.55m AOD. 8 contexts were identified (Contexts 40001 to 40008). MP04 has been assigned to the north-western transect A.

Phase 1 Natural

Borehole MP04 did not penetrate to a point where natural was countered.

Phase 2 Roman

No deposits from this borehole could be definitively attributed to the Roman period.

Phase 3 Early –late Medieval (Contexts 40005-40008)

Medieval deposits were observed between 5m and 2m BPGL (4.55m - 7.55m AOD) (Contexts 40008 – 40005). The deposits consisted of a sequence of dark grey silts and clays containing fragments of charcoal, mortar and CBM which varied in water content. The laminated structure of these deposits indicates a gradual formation over a long period of time under similar wet or waterlogged conditions.

Phase 4 Post-medieval (Contexts 4002-4004)

Post-medieval activity was detected from around 2m to 0.3m BPGL (7.55m – 9.25m AOD) (Contexts 40004 and 40002). Context 40004 and 4003 were re-deposited natural clays mixed with rubble. This material is likely to be a consolidation sealing the wetter deposits below.

was thought likely to be a brick wall present at approximately 2m BPGL (7.39m AOD), above which was a deposit of rubble rich dark brown clayey silt, perhaps disturbed garden soil mixed with building debris.

Phase 5 Modern (Contexts 4000)

Modern deposits consisted of a concrete surface, and its sub-base, lying between the rear of the present car park building and the revetted east bank of the River Foss, to 0.3m BPGL (9.35m - 9.55m AOD).

6 SUMMARY

The Phase 2 borehole programme lends further detail to, and closely supports, the results of the Phase 1 works. The pattern of deposition observed across both Phases 1 and 2 was very similar, considering that together with the comprehensive sampling strategy undertaken in Phase 1 no additional samples retrieved during Phase 2 have been selected for study.

The following summary provides a guide to the deposit sequence as encountered during the Phase 2 works. It should be noted however that the interpretation given is accompanied by the caveat that measurements are approximate (voids, movement and compression of deposits during the coring process can affect the accuracy of the data) and that any dating and interpretation is limited by the chance process of recovering dateable artefacts.

Modern (Phase 5)

Existing surfaces and associated deposits were found to extend no further than 0.6m below the present ground surface (at BH201), but more generally was found to extend to a depth approximately of 0.3m.

Post-medieval (Phase 4)

Phase 4 deposits were identified extending as far as 4m BPGL (BH201), although a depth ranging from 2m to 3m BPGL for the base of this phase was more typical.

These post-medieval deposits were largely found to consist of layers of garden or horticultural type soil and deposits rich in building debris, mostly brick rubble but also including some concrete in places. In some instances deposits consisted of a mixture of these materials. The

emerging picture is of levelling, perhaps derived from the demolition and clearance of buildings predating the current car park building, in some places gardens or open ground associated with those buildings appears to have been disturbed during the clearance process, while in other areas, more notably towards the south of the site, disruption to soil horizons appears to have been minimal.

In some places (WS203, MP04 and perhaps WS204) the earliest deposits in Phase 4 were found to consist largely of clay. It is possible that they represent a consolidation of previously wet marginal land, Phase 3 deposits predominantly comprising of alluvial type accumulation.

Medieval (Phase 3)

Medieval deposits were identified between 2m and 7.5m BPGL. Differentiating between post-medieval, medieval and earlier deposition with any precision has been hampered by the almost complete absence of dateable material across the site, consequently the delineation between these Phases is somewhat speculative, and in of itself has largely relied upon the observation of significant shifts in the character of the deposits.

Deposits attributed to Phase 3 were distinguished from later deposition by their dark, silty increasingly organic and often waterlogged character.

Roman

Roman deposition was tentatively identified between 5m and 7.5m BPGL. Generally deposits attributed to Phase 2 were cleaner, brighter and closer in character to the underlying natural than the later deposits. Unfortunately no dateable artefacts were recovered.

That these deposits appear likely to be re-worked natural could be seen as an indication that early human intervention involved some re-modelling and re-deposition of natural material across this area of the east bank of the Foss.

Natural

Natural was identified at 7m BPGL in BH201, more tentatively at 8.5m BPGL (definitely at 9.5m BPGL) in BH202, and again possibly at the very bottom of MP02 at just shy of 6m BPGL. Such discrepancies are to be expected given that ground levels may vary considerably between areas depending on natural variation in the post-glacial landscape and the nature of archaeological intrusion into it.

Contamination

Possible hydrocarbon contamination was recorded in borehole MP01 close to the top of the medieval waterlogged deposits at 3.35m BPGL (6.69m AOD).

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APPENDIX 1 – INDEX TO ARCHIVE

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Sample register	1
Digital photographs	202
Written Scheme of Investigation	1
Report	1

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APPENDIX 2 – CONTEXT LIST

Borehole	Context No.	Description
BH201	1100	Concrete
	1101	Friable, brownish grey, gritty sand with moderate pebbles and cobbles.
	1102	Friable, greyish brown, gritty sand with frequent CBM, moderate pebbles and cobbles.
	1103	Firm, yellowish grey, gritty sand with frequent limestone fragments and moderate pebbles and cobbles.
	1104	Hard, black, asphalt.
	1105	Firm, dark grey, clayey, gritty silt with moderate CBM fragments and mortar flecks.
	1106	Firm, dark grey, gritty, silty clay with moderate CBM fragments and mortar flecks.
	1107	Firm, brownish dark grey, silty clay with occasional mortar and CBM flecks.
	1108	Hard grey concrete with frequent CBM fragments and moderate pebbles.
	1109	Friable, dark grey, silty clay with moderate limestone flecks and fragments.
	1110	Soft to friable, very dark brownish grey, clayey peat with moderate wood fragments, occasional CBM, mortar and charcoal flecks.
	1111	Soft to friable, very dark grey, peaty sandy clay with occasional small pebbles.
	1112	Soft, very dark grey silty clay with occasional small pebbles.
	1113	Firm, yellowish brown clay.
Borehole	**Context No.**	**Description**
BH202	2100	Concrete.
	2101	Graded crushed limestone hardcore.
	2102	Loose, mid brown to black, coarse sand and grit with frequent CBM fragments, moderate concrete fragments, occasional light brown clay patches.
	2103	Soft to friable, damp, dark grey black, slightly silty coarse sand with frequent small CBM fragments, small to medium sized pebbles and angular stones, occasional oyster shells and leather fragments.
	2104	Soft to friable, damp, dark grey black, silty coarse sand with moderate pebbles and angular stones, occasional mid to small CBM fragments and plant remains (roots).
	2105	Firm, mid to dark grey silt with lenses of black, organic silt and lenses of fine light grey sand. Moderate charcoal flecks, occasional limestone fragments.
	2106	Firm, wet and very sticky, light to mid brown clay with lenses of black organic silt. Frequent pebbles and cobbles.
	2107	Firm, light greyish brown clay with frequent small and medium sized pebbles.
Borehole	**Context No.**	**Description**
WS201	1001	Concrete.
	1002	Loose, mid brown, silty sand with moderate CBM fragments, cobbles, CBM and mortar.

Borehole	Context No.	Description
WS202	2001	Concrete.
	2002	Loose, light greyish brown sand with moderate cobbles.
	2003	Friable, dark brown, sandy clay with occasional CBM and mortar flecks.
	2004	Friable, dark grey, sandy silt with moderate charcoal and cinder flecks.
	2005	Soft, dark brown, silty clay with occasional CBM, mortar and charcoal flecks.
	2006	Loose, dark grey, clayey silt with moderate CBM fragments, charcoal and mortar flecks, occasional animal bone flecks and oyster shell fragments.
Borehole	**Context No.**	**Description**
WS203	3001	Concrete.
	3002	Friable, mid orangey brown sand with frequent large cobbles and pebbles, occasional limestone flecks and slag fragments.
	3003	Friable, black, silty sand with frequent tile fragments, cinder and mortar flecks.
	3004	Firm, mid brownish grey, clayey silt with frequent sand, stone and tile flecks.
	3005	Firm, black, slightly sandy silt with occasional shell, mortar and limestone flecks.
	3006	Friable, wet, black, silt and sand with frequent mortar and cinder flecks.
	3007	Firm, dark grey silt with frequent mortar flecks and moderate wood fragments.
	3008	Firm, mid grey, silty clay with frequent wood flecks.
	3009	Friable to firm, dark grey, clayey silt with frequent mortar and charcoal flecks, occasional tile flecks.
	3010	Loose, very wet, light brownish grey, clay and sand with c.30-40% angular stones and CBM fragments.
	3011	Firm, spongy and very organic black silt and fibrous organic matter with mid greyish brown clay lenses. Occasional animal bone fragments and snail shells.
Borehole	**Context No.**	**Description**
WS204	4001	Concrete.
	4002	Loose, orangey brown, sand with moderate CBM and mortar fragments, occasional small pebbles.
	4003	Soft, light greyish brown, sandy clay with occasional charcoal flecks and orange sandy lenses.
	4004	Friable, light greyish brown, silty clay with occasional CBM, mortar and charcoal flecks.
	4005	Friable light greyish brown, sandy mortar with occasional charcoal, CBM and oyster shell.
	4006	Loose, mid greyish brown, sandy silt with occasional CBM and mortar flecks.
	4007	Very loose, mid grey, clayey silt with occasional mortar flecks.
	4008	Friable dark grey silty clay with occasional mortar flecks.
	4009	Loose, mid brownish grey, clayey silt with occasional mortar and CBM.
	4010	Very loose, mid grey, slightly clayey silt with occasional animal bone fragments.

Borehole	Context No.	Description
WS205	5001	Concrete.
	5002	Compacted, mid brown sand and cobbles.
	5003	Concrete.
Borehole	**Context No.**	**Description**
MP01	10001	Concrete pavers.
	10002	Compacted, light brown and black, sand and rubble.
	10003	Firm, mid brown, clay, cobbles and pebbles.
	10004	Friable to firm, dark brown, coarse sand with frequent cinder, brick rubble and pebbles.
	10005	Loose to friable, black coarse cinder rich sand with mortar flecks.
	10006	Firm, dark brown, clayey silt with moderate pebbles and CBM fragments.
	10007	Compacted, wet, light brown sand and pebbles with occasional limestone fragments.
	10008	Firm, dark brown silt and coarse sandy clay with frequent mortar and CBM fragments.
	10009	Firm, mid brownish grey clay with black sandy lenses. Moderate lenses of mortar, CBM fragments and charcoal flecks.
	10010	Loose to friable, black coarse sandy silt. Possible diesel contamination.
	10011	Firm, mid to dark grey, clay with occasional angular stones and pebbles.
	10012	Firm, black peat and clay laminations with frequent charcoal. Very organic.
	10013	Friable, black clayey silt, c.25-30% CBM and mortar fragments. Occasional charcoal lenses.
	10014	Firm, olive greenish brown, clay with occasional pebbles.
	10015	Firm, peaty clay with frequent small round wood fragments, mussel shell, occasional angular stones and pebbles. Very organic and fibrous, also micaceous.
	10016	Firm, dark grey, sand and silt lenses.
	10017	Firm light orangey brown sand with occasional charcoal flecks and small stones.
Borehole	**Context No.**	**Description**
MP02	20001	Concrete pavers.
	20002	Compacted rubble.
	20003	Friable to firm, dark brown, clayey silt with frequent mortar, CBM, and limestone, occasional cobbles and pebbles.
	20004	Compact, mid brown, brick, sandstone and limestone rubble and mortar.
	20005	Firm, mid to dark greyish brown, clayey silt with occasional mortar lenses CBM and charcoal flecks.
	20006	Soft to firm, mid to dark grey, silty clay with frequent bone fragments, pebbles, wood fragments and charcoal flecks,
	20007	Firm, mid orangey brown, clay with mid grey streaks.
	20008	Firm, very dark grey black, slightly peaty, silty clay with moderate charcoal fleck. Fibrous and organic.
	20009	Firm, very wet, mid grey, clay with occasional light orangey brown clay

Borehole	Context No.	Description
		patches with occasional sandy lenses.
	20010	Firm, black, laminated peaty clay and sand with moderate charcoal flecks.
	20011	Firm, black peaty clay with frequent charcoal, occasional marine shell, CBM flecks and animal bone.
	20012	Soft, mid to dark grey gritty sandy silt with gravel lens.
	20013	Gravel, c.20-30mm diameter.
	20014	Firm, mid greyish brown, sandy clay with frequent charcoal flecks and occasional small stones.
	20015	Firm, light orangey brown laminated sand.
Borehole	**Context No.**	**Description**
MP03	30001	Concrete.
	30002	Compacted red brick rubble and mortar with soft dark brownish grey coarse sandy silt and grit.
	30003	Friable, mid grey CBM, mortar and concrete rubbles.
	30004	Friable, mid brownish grey silt and mortar with Frequent CBM and concrete fragments.
	30005	Soft to friable, dark grey, clayey, sandy silt with Moderate charcoal and CBM flecks, occasional mortar flecks.
	30006	Soft to friable, dark grey, coarse sandy, clayey silt with moderate charcoal and mortar flecks
	30007	Friable, dark brownish grey, clayey silt with occasional charcoal flecks.
Borehole	**Context No.**	**Description**
MP03	40001	Concrete.
	40002	Friable, light brownish grey, slightly silty sand with frequent concrete, mortar and CBM fragments.
	40003	Firm, dark brownish grey, silty clay with moderate mortar and charcoal flecks.
	40004	Firm, dark greyish brown, silty clayey sand with moderate charcoal and occasional CBM fragments.
	40005	Firm, dark grey, silty clayey sand with moderate charcoal and occasional CBM fragments.
	40006	Friable, dark grey clayey silty sand with occasional mortar and charcoal flecks.
	40007	Friable, dark grey gritty clayey silt with mid grey mottling. Occasional charcoal and small stones.
	40008	Soft, dark grey sandy clayey silt.

Table 2 Context list

APPENDIX 3 – WRITTEN SCHEME OF INVESTIGATION

WRITTEN SCHEME OF INVESTIGATION FOR

ARCHAEOLOGICAL WATCHING BRIEF

Site Location: **46-50 Piccadilly, York**

NGR: **SE 6061 5153**

Proposal: **Ground works**

Foundation design

Ground Investigation works / water monitoring

Planning ref: **17/00429/FULM**

Prepared for: **Dunelm Ltd**

Document Number: **YAT Report 2018/63**

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
draft	BS	14.05.18	IDM	16.05.18	IDM	16.05.18
Updated draft	BS	28.06.18	IDM	28/06/18	IDM	28/06/18

8 SUMMARY

1.1 Planning consent has been granted for the redevelopment of 46-50 Piccadilly, York (SE 6061 5153). The scheme will include part 5/part 6 storey hotel (140 bedrooms) with ground floor restaurant and 5 storey building comprising 8 no. apartments (Class C3).

The following archaeological conditions have been imposed:

> *4 No work shall commence on site until the applicant has secured the implementation of a programme of archaeological work (a watching brief on all ground works by an approved archaeological unit) in accordance with a specification supplied by the Local Planning Authority. This programme and the archaeological unit shall be approved in writing by the Local Planning Authority before development commences.*
>
> *Reason: The site lies within an Area of Archaeological Importance and the development will affect important archaeological deposits which must be recorded during the construction programme.*

5 No development shall take place until the applicant has submitted a foundation design and statement of working methods, which preserve 95% of the archaeological deposits on the site, to, and secured the approved in writing of, the Local Planning Authority.

Reason: The site lies within an Area of Archaeological Importance and the development must be designed to preserve 95% of the archaeological deposits within the footprint of the building(s). To ensure that the proposed development does not harm groundwater resources in line with paragraph 109 of the National Planning Policy Framework and the Environment Agency's Groundwater Protection: Principles and Practice.

6 Wet, organic archaeological deposits survive on this site which merit preservation in-situ. An archaeological programme of hydrological and water quality monitoring is required on this site to assess continued in-situ preservation. The archaeological programme shall comprises 4 stages of work. Each of the following stages shall be completed and submitted to and approved in writing by the Local Planning Authority.

(i) No development shall commence until a Written Scheme of Investigation (WSI) has been submitted to and approved in writing by the Local Planning Authority. The WSI shall set out how appropriate hydrological and water quality monitoring will be introduced on the site and how it shall be assessed and reported at suitable intervals. The WSI shall conform to standards set by the Chartered Institute for Archaeologists.

(ii) Installation of hydrological and water quality monitoring devices shall be completed in accordance with the programme set out in the WSI approved under part (i) of this condition. Details of when the monitoring device have been completed shall be submitted to and agreed in writing with the Local Planning Authority.

iii) The evidence of provision for monitoring of and analysis and reporting on data from the hydrological and water quality monitoring devices for a period of 5 years, shall be submitted to and approved in writing by the Local Planning Authority at the intervals agreed in the WSI.

(iii) A copy of a report of the archaeological programme detailed in the WSI shall be submitted to the Local Planning Authority to be deposited with City of York Historic Environment Record. The report shall be submitted within six months of the completion of the monitoring period or such other period as maybe agreed in writing with the Local Planning Authority.

Reason: The site lies within an Area of Archaeological Importance which contains nationally significant undesignated heritage asset (waterlogged organic archaeological deposits) which will be affected by development. The effect on these deposits must be monitored. This condition is in accordance with Section 12 of NPPF and the latest

guidance from Historic England on in-situ preservation of organic deposits and subsequent monitoring.

1.2 This Written Scheme of Investigation (WSI) has been prepared by YAT on behalf of Dunelm Ltd. The work will be carried out in accordance with this WSI.

9 SITE LOCATION & DESCRIPTION

The proposal site fronts onto Piccadilly and is bounded to the east by the River Foss (Figure 1). The underlying geology of the site is sandstone of the Sherwood Sandstone Group with superficial deposits of alluvial silt, clay, sand and gravel (http://mapapps.bgs.ac.uk/geologyofbritain/home.html).

The building currently occupying the site was built in the 1950s as a garage and is largely of concrete with a glass shop frontage facing Piccadilly.

The present ground level is relatively flat at around 9.5m OD, however archaeological investigation has shown that natural glacial deposits, buried ground surfaces and archaeological deposits slope down toward the River Foss from a ridge of high ground on Piccadilly (see Section 4.2)

10 DESIGNATIONS & CONSTRAINTS

3.1 The client is responsible for investigating designations of the site regarding listed building, conservation areas etc. York Archaeological Trust (YAT) are appointed purely to deliver the Watching Brief as outlined in this document. The site lies within York's Area of Archaeological Importance as defined by the Scheduled Monuments and Archaeological Areas Act 1979.

3.2 The positioning of the dipwells has been designed for optimal coverage across the site, and to reduce risk of damage during construction and to provide long term accessibility following completion of construction. However, the positioning has been restricted to some extent by the standing buildings which limit machine access for the borehole rig and underground obstructions and utilities linked with the previous use of the building as a garage, such as fuel tanks.

11 ARCHAEOLOGICAL INTEREST

4.1 Period-by-period summary

The Piccadilly area has been subject to numerous archaeological interventions since the 1980s. The following overview of the current archaeological knowledge of the site and surrounding area is taken from YAT Report 2016/85 (Reeves 2016).

4.2 The topography and regime of the River Foss

The importance of York's waterfronts and their potential to provide information about areas of the city once the focus for trade and commerce has long been recognised. The work of York Archaeological Trust since 1972 has shown that excavation of waterfront sites can reveal

evidence for 'the economic basis of the city's life throughout its history' (Addyman et. al. 1988, 1). During the extensive 1981–2 watching brief on the area now occupied by the Coppergate Centre on the west bank of the River Foss the ancient course of the river was found along with revetments, installations, ship fragments, and traces of the water defences of York Castle. Further excavations at the site of the former ABC Cinema, 22 Piccadilly, defined an earlier river channel and associated 11th-century riverside revetments (Addyman et. al. 1988, 8).

The 46–50 Piccadilly site is situated on ground at the confluence of the Rivers Ouse and Foss close to the point where these rivers penetrate the York Morraine. The historic fluvial morphology of the lower River Foss is not well understood. What little information there is comes from borehole records and excavations carried out along the south-west side of Piccadilly, Coppergate and more recently the Hungate area; all of which demonstrate a complex landscape morphology which is the product of both natural geological processes and large-scale alterations caused by human agency throughout historic periods.

Evidence from the Walmgate and Piccadilly areas, largely derived from small-scale keyhole excavations carried out by YAT in the early 1990s, has provided valuable evidence about the topographical development of the River Foss and its waterfront areas.

Walmgate occupies a ridge of high ground leading to the crossing point of the Foss at Foss Bridge. The top of natural glacial deposits identified at 31 Walmgate on the street frontage was at depths between 9.92m OD to 9.60m OD (Robinson 2013, 6–7, 15).

To the east of this ridge the archaeological evidence from the proposal site and adjacent sites shows that the ground level on the eastern Foss bank has been increased considerably since the Roman period through land reclamation. At 17–21 Piccadilly, approximately 25m north of the proposal site, the natural slope towards the Foss was identified between 4.5m BPGL (approximately 5.5m OD) at the south end of the site to 7.6m BPGL (Approximately 2.4m OD) at the northern end (Lilley 1991, 2). At 50 Piccadilly natural was identified at 1.2m OD and a borehole watching brief at 38 Piccadilly identified natural at approximately 9m BPGL –a depth of approximately 1.65m OD. The slope across the same area today is only around 1.6m (YAT Gazetteer 613; Gajos 2013, 7).

4.3 **Prehistoric**

Prehistoric remains from York are scarce, amounting to a small number of casual finds since the 19th century, mainly from the south-west of the River Ouse and a small number of undated but possibly pre-Roman features (Wellbeloved 1862, 61–3; Radley 1974, 10–4; Hall 1996, 25). However, evidence is increasingly being found for Bronze Age and Iron Age activity focused on the York Moraine, particularly to the east of the city. Closest of these discoveries, found at 25 Lawrence Street some 0.6km to the east of Piccadilly, was a Bronze Age cremation urn discovered in 2007 (Reeves forthcoming) and an assemblage of Neolithic flint tools consistent with occupation recovered from recent excavations at Hungate (Kendall 2009, 175) some 0.35km to the north of the site both within the lower Foss. Considerable evidence for late Neolithic and Bronze Age occupation comes from further east on the moraine such as the recent discoveries in the Heslington area, approximately 3.5km to the east of the city, made during the expansion of the University of York (Antoni, Johnson and McComish 2009).

Prehistoric water levels at the site of 46–50 Piccadilly would have fluctuated in tandem with those of the tidal Ouse (Briden 1997, 170; Duckham 1967, 17). The resulting complex marshland ecosystem was likely a place of significance and a valuable subsistence resource to local populations (Whyman and Howard 2005, 14). Although it is unlikely, there may be evidence for prehistoric activity preserved at 46–50 Piccadilly, its location and the waterlogged nature of the buried deposits in the area could also hold potential for valuable information about fluvial landscape morphology and environment during this period.

4.4 **Roman**

The site is approximately 450m south-east of the south-east corner of the Roman fortress founded in AD 71. Although the archaeological evidence for Roman activity in the area to the south-east of the River Foss is relatively sparse compared to the fortress area the area seems to have been utilised throughout the Roman period (McComish 2007).

Roman Road 1a, leading to *Eboracum* from *Throlam* near Holme-on-Spalding-Moor is thought to have converged with the Road 1b, a minor road from the south, some 150m to the south east of the 46-50 Piccadilly site. Roads 1a and 2, from *Petuaria* (Brough-on-Humber) are thought to have converged approximately 30m north of 46–50 Piccadilly (RCHMY I, 2; Ottaway 2004, 12; Ottaway 2015, 9; HTAY 2015, Sheet F). Roman burials were discovered sometime before 2007 by Malton Archaeological Partnership immediately south of Dixon Lane (McComish 2007). A Roman Altar dedicated to the native god Arciaco was found at St Denys Church on Walmgate and two other coffined Roman burials were found nearby (RCHMY 1, 69–70, 118; HTAY 2015, Sheet F).

Evidence for Roman use of the Foss as a navigation comes from 1951–52 excavations for the construction of the Telephone Exchange building in Garden Place, Hungate, where walls and piles interpreted as a Roman wharf and the buried former course of the river were discovered (RCHMY I, 64). In the Piccadilly area, evidence for riverbank activity on the east bank of the Foss comes from excavations at numbers 38, 40 and 50 Piccadilly. A line of stone pillars beneath the Tax Offices on Piccadilly was interpreted as possible evidence for a Roman riverside jetty (Ottaway 1993, 69).

Furthermore, excavations at 38 and 50 Piccadilly suggest there was significant occupation and river front land use during the late 2nd–3rd centuries in the vicinity of the site comprising evidence for management of the riverside, dumped occupation material including domestic pottery and evidence of possible industrial activity.

4.5 **Anglian**

Evidence for Anglian period York is generally elusive and what has been recovered to date is sparsely distributed across the city. Excavated sites and the distribution of find spots suggests that settlement at York was polyfocal with distinct nuclei spread out across the former Roman fortress and colonia, interspersed with cultivated or waste areas (AY 7/2, 298; Palliser 2014, 37). As yet, no evidence has been found for wharves or intensive occupation, however, evidence from sites along the course of the River Foss suggests occupation and other activity along the river bank. A number of Anglian pot sherds have been recovered from Hungate (AY 7/2, 196; YAT forthcoming) and the Haymarket excavations (Reeves forthcoming), at 22 Piccadilly Anglian pottery, probably of early–mid 9th century date was recovered from two

trenches, one of which was associated with a wicker fence running parallel to the river. Silt accumulations above these levels indicate the area was prone to flooding. Further evidence came from 38 Piccadilly where a sherd of Badorf ware was recovered from some 8m below modern street level beneath a substantial accumulation of probable 11th-century alluvial silt. At 17–21 Piccadilly a 9th century relief-band amphora fragment was recovered from around 5m below the modern street level at around 5.7m OD (AY 7/2, 196–197; Appendix 2)

The site, 46–50 Piccadilly, is close to one of the most important Anglian period sites excavated in York, the former Redfearn National Glass works, 46–54 Fishergate, which is around 0.4km to the south (AY 7/1). The majority of the evidence for Anglian activity elsewhere in the city comes from artefacts which may be the result of casual losses through transient activity and may not necessarily be convincing evidence of occupation. However, evidence from the 1985–6 excavation of 46–50 Piccadilly provides evidence of an important production and trading centre, or *wic,* occupying an area of around 2,500m² sited on the lower east bank of the River Foss, directly opposite the point of confluence with the River Ouse (AY 7/1). This 7th–late 9th century settlement apparently began as a well-organised, probably planned, settlement rather than one that developed organically to exploit the natural communications provided by the rivers and the east–west land route of the York Moraine.

More recent excavations at the former Mecca Bingo and in the Blue Bridge Lane area a little further south from Fishergate have produced further evidence of Anglian period pit groups and occupation (Spall and Toop 2011, 7). Excavation carried out at the junction of Dixon's Lane/George Street in 2006 discovered further evidence for activity possibly associated with the *wic* approximately 100m to the east of 46–50 Piccadilly (AYW 9, McComish 2007). Based on current archaeological evidence the 46–50 Piccadilly site lies just to the north-west of the possible Anglian settlement (Figure 4; Palliser 2014, 24).

4.6 **Anglo-Scandinavian**

The site lies within an extensive area of Anglo-Scandinavian activity to the south-east of the former Roman fortress. It has been suggested that the Anglian period *wic* at Fishergate was in decline by the 860s–870s and was replaced at around this time by occupation around the Ousegate/Coppergate area (AY 8/4, 299–304). However, evidence found in 2007 for craft and trade activity at Dixon Lane/George Street, located midway between the Fishergate and Coppergate/Ousegate areas, suggests a wider spatial continuity between the Anglian *wic* and the Anglo-Scandinavian settlement in the late 9th–10th centuries (AYW 8). Evidence for Anglo-Scandinavian activity from YAT excavations at 118–126, 76–82 and 104–112 Walmgate suggests that Walmgate became an important thoroughfare in the burgeoning 9th- and 10th -century town and a substantial suburb developed in the area. The nearby churches of St Stephen, Fishergate and St Denys, Walmgate are thought likely of pre-Conquest origins. A number of sites along Piccadilly have revealed traces of Anglo-Scandinavian activity such as bone working evidence from excavations at 38, 50, and 84 Piccadilly (AY 8/4, 469–472).

4.7 **Medieval**

The landscape of the River Foss was drastically altered by the damming of the southern end of the river at Castle Mills during the Norman period to exploit its waters to feed the moat of the Norman castle at York (VCHY 1961, 509–510). The resulting body of water was called the

Stagnum Regis, the King's pool. The dam of the Fishpool of the Foss probably provided a causeway across the Foss at the site of the modern Castle Mills Bridge. The first documentary evidence for a bridge at Castle Mills is not until 1585 and the structure was destroyed during the Siege of 1644 (VCHY 1966, 519–520; Raine 1955, 196). Cartographic evidence, as well as evidence from the excavations at 38 and 84 Piccadilly show that the area which now forms the west side of Piccadilly was largely flooded by the creation of the Fishpool and remained so for much of the late medieval period, during which time the King's Fishpool gradually silted up and some of the land formerly flooded reclaimed. Historic maps show the areas flooded based on archaeological and cartographic sources and the gradual change in area taken up by the King's Pool during the early modern period (Not reproduced here; see Desk Based Assessment, YAT Report 2016/85).

The Walmgate sector of the city was enclosed with defences in the late 12th century (RCHMY 2, 11; HTAY 2015, 31). Fishergate Postern, 0.2km to the south was built sometime in the 14th century (Raine 1955, 20).

Cartographic evidence suggests that 46–50 Piccadilly was at the riverside edge of gardens to the rear of properties fronting onto Walmgate during this period and the archaeological evidence discussed further in Section 6 of this report indicates that waste was dumped along the riverside where there were perhaps jetties or revetments designed to consolidate and reclaim land from the river.

4.8 **Post-medieval**

Canalisation of the River Foss began in the late 18th century, the first stretch from Castle Mills to Monk Bridge being opened in 1794. It was continued to Sheriff Hutton in 1801. Factories and Warehouses at Hungate were still accessible via the Foss Navigation until the 1960s even though its use as a navigation was in decline. In recent decades the remaining light industry has relocated, making way for largely residential development (VCHY 1961, 475; Fife and Walls 1981, 23–25; YAT forthcoming).

The modern street named Piccadilly runs from Pavement across the River Foss and along its east bank to the east end of Castle Mills Bridge. A lane or open space existed at the south end by 1610 and was widened and re-named Piccadilly after the London Street c. 1840. It was extended north to Pavement in 1912 (RCHMY 5, 199).

Much of the street is built over land that was formerly covered by the Kings Pool of the River Foss. The gradual development of the post-medieval landscape can be traced through the historic maps of which there is a sequence available dating from the 17th century. On Speed's map of 1610 the site is depicted as open ground

Richards' map of 1685, which is largely a copy of an earlier map by Captain James Archer (surveyed 1673 and published 1682; not reproduced), shows open ground, presumably used for commercial horticulture with property boundaries and a path or street leading from Walmgate to the east bank of the River Foss. The distinction between streets built-up with houses, and lesser pathways on these early maps is unclear. Their exact location and orientation in relation to the modern landscape is also difficult to determine with complete accuracy but it seems there has, for a considerable time, been some form of access to the east bank of the Foss from Walmgate and the north side of St Denys' church yard.

By 1750, the publication date of Chassereau's map, the area around St Denys' church is largely built-up, the path leading to the east bank of the Foss is no longer shown and a new path or street leading south towards the Castle Mills Bridge area is indicated, forming the predecessor to the modern southern end of Piccadilly.

4.9 **Modern**

Hargrove's map of 1818 appears to differentiate between probable horticultural land to the north-west and west of St Denys' church and what appears to be open ground to the south-west. The line of the path running south towards Fishergate Postern from the west end of the churchyard is in Hargrove's map delineated with a dashed line, possibly indicating it was of lesser status than other lanes shown further to the east. The 1852 Ordnance Survey map shows the path widened and formalised after the creation of Piccadilly.

By 1852 St Denys' Street had been extended along a line to the south-west with a slight dog-leg and is shown as a built-up street of terraced houses. The properties on the north side of the street appear to be small houses with yards and those on the south appear to be back-to-back houses. Walmgate was a notorious area in the 19th century associated with poverty, crime and prostitution. A block of terraced dwellings, immediately south-west of St Denys' Church, were known as Plow's Rectory Buildings. Finnegan describes these as an unwholesome terrace amongst which there were a small number of 'houses of ill fame' such as 'Todds' and 'Mrs Varley's'. Several diseased and destitute prostitutes entered the work house from this address (Finnegan 1979, 54–55).

In the 19th-century the terraced houses of St Denys' Street ran from Walmgate to the south-west across the 46–50 Piccadilly site almost towards the bank of the River Foss. A search of City of York Council 'Imagine York' images archive returned only 1, relatively uninformative, photograph of the east corner of St Denys Street at its junction with Walmgate taken in c. 1933. The eastern end of the street appears to follow a property boundary or thoroughfare running south-west from Walmgate along the north side of St Denys' church, a route that can be traced in the historic maps as far back as Speed's map of 1610.

The buildings on Piccadilly are predominantly of 20th-century date consisting of a number of former garages, warehouses, offices and retail shops with some residential flats and a large hotel at the Castle Mills end of the street. A terrace of four small houses (numbers 41, 43, 45) built shortly before 1850 is recorded by the Royal Commission as having been demolished before 1961 and the former White Swan Hotel (now Pavement Vaults and residential flats) at the northernmost end of the street incorporates partial remains of a three-storey mid-18th -century house (RCHMY 5, 199).

Number 46–50 Piccadilly was built as a motor garage in 1955 and evidence of this former use is present in both the internal layout of the building and surviving fixtures and fittings. An assessment of the architectural merit of these buildings and their historic landscape setting is beyond the remit of this report, however, the building is unusual and as there are few examples of such buildings remaining in York, many others having been destroyed without record investigation and recording of the buildings may be informative.

12 DEPOSIT SEQUENCE BASED ON PREVIOUS SITE INVESTIGATION

5.1 Summary of YAT Report 1992/14 Archaeological Evaluation at 50 Piccadilly and YAT Report 2017/59 Borehole Survey at 47-50 Piccadilly

An evaluation excavation was carried out by York Archaeological Trust at 50 Piccadilly, York over 8 weeks in 1992 on behalf of the Polar Motor Company (York) Ltd. The excavation was directed by Rhona Finlayson who subsequently wrote the evaluation report (YAT Report 1992/14).

A single 3m x 3m trench 8 metres deep was excavated down to a height of 2m OD at which level natural glacial deposition was identified. This small evaluation excavation is the principal source for understanding the archaeological potential of 46–50 Piccadilly.

The monitoring of eight boreholes was undertaken by York Archaeological Trust in late March/ early April 2017. This work included water level monitoring over a six month period. The monitoring and reporting (YAT Report 2017/59) was carried out by Ben Reeves and the analysis of the water level monitoring was undertaken by Ian Panter.

The following summary is based on the results of these studies.

5.1.1 Natural

(1992/14) Glacial deposition consisting of a compact grey-blue sandy clay and friable light brown sandy clay with occasional iron-panning and small pieces of plant matter was encountered at 2.6m OD.

(2017/59) Natural was only encountered in Borehole 1, here it was tentatively identified at a depth of 7.8m BPGL, 2.11m OD

5.1.2 Roman

(1992/14) The Roman activity identified during the 1991 excavation at 46–50 Piccadilly begins in the late-2nd century when two small parallel drainage ditches aligned north-south 0.3m apart were dug into natural deposits. Environmental evidence from samples suggested they intermittently carried water and that the surrounding landscape may have been rough grazing or weedy waste ground. Deposits above the backfilled ditches showed that the ground surface was subsequently raised with an isolated post being the only suggestion of structural activity: All being subsequently sealed by burnt material suggesting possible industry in the vicinity, into which another linear feature of uncertain function was dug. This was followed by a sequence of dumped domestic refuse and a line of stakes in the 3rd century. These deposits were overlain by a rough cobble surface followed by an organic build-up, again, all of 3rd century date.

(2017/59) Roman deposition was tentatively identified between 7.8m and 6.3m BPGL in Borehole 1 where ‘cleaner’ and brighter looking deposition, more akin to natural was identified. However, no dateable artefacts were recovered.

5.1.3 Probable Anglo-Scandinavian

(1992/14) The Roman ditches were overlain by a series of levelling or dumped deposits interspersed with occasional cut features including a post-hole and a ditch. Deposits included burnt residues, possible burning in situ, domestic midden material tipping west towards the river overlain by remnants of a cobble surface at a height of 4.35m OD.

5.1.4 Medieval

(1992/14) Above the level of the cobble surface remnants was a build-up of humic silty clays containing pottery dated to the 11th–12th centuries. Thin lenses of organic material with vivianite inclusions suggested alternating waterlogged and dry conditions and an increasingly pronounced slope to the west was noted as these deposits had accumulated.

A large dump of irregularly-shaped tree-trunk timbers, found at approximately 4.6m OD, was interpreted as a possible boundary or perhaps discarded material, dumped at the margins of a timber yard to consolidate the ground surface.

These levels were followed by 14th century build-up with evidence for sporadic water-logging and organic material with copious domestic waste and hay and straw remnants probably representing discarded bedding or feed from animal keeping. A domestic cat skeleton was also recovered from these deposits, which tended towards sloping westwards indicating continued riverside waste tipping.

A row of substantial vertical posts, circular in profile, and various horizontal timbers, some of which had been nailed to the posts were discovered at around 5.2m OD and interpreted as revetments for ground consolidation and the possible creation of a terrace of higher ground. The excavator stressed the inherent interpretive limitations due to the small window of excavation.

Fourteenth century activity consisted of a series of dumped organic material and a large dump of large tile fragments all tipping steeply towards the river. Deposits to the west of the revetment already discussed consisted of dumped and built-up material, formed in still/slow moving water according to evidence from environmental sample analysis.

Compact clay and a series of horizontal planks found at 6.05m OD ranging in length from 0.47m–2m, had later been used to consolidate the earlier timber revetment and was overlain by a further series of dumps and levelling material dated to the 15th century by pottery.

> (2017/59) Medieval deposits were identified between 3m and 6m BPGL across the site, although distinguishing between medieval and earlier deposition is extremely difficult and highly speculative. Deposits were found generally to become darker, wetter and more organic below 3m BPGL across the site.
>
> Samples from the medieval deposition across the site demonstrate that they are waterlogged and have appreciable organic content. Preservation is variable but the potential for well preserved organic and macrofossil remains of the medieval period is considerable.

5.1.5 Post-medieval

(1992/14) Above the late medieval deposition was a series of dumps and levelling deposits including demolition material and 17th century pottery. This activity was shown to have continued into the 18th century when a further 0.5m build-up of dumped material was deposited.

(2017/59) Post-medieval deposits were identified between 2m BPGL and 3.5m BPGL.

5.1.6 Modern

(1992/14) Above these deposits was a series of linear features, evidence for 18th–19th century horticultural use of the land shown on Todd's Map of 1829.

The uppermost 0.3–0.5m layers of hand-dug deposition contained human bone and demolition material presumed to have originated from St Denys' Church yard. It was suggested by the excavator that this material was probably re-deposited when Plow's Rectory Buildings, shown on the 1852 OS map, were constructed during which parts of the churchyard may have been disturbed, or possibly when the tax office on the site opposite was built.

The uppermost deposition was removed by mechanical digger and it was found that the foundations of the building present at the time of excavation intruded to a maximum of 1.5m and therefore had not impacted on significant archaeological deposits.

(2017/59) The evaluation demonstrated that in Borehole 1, nearest the Piccadilly frontage of the site, the upper 2m BPGL are comprised of modern deposits. In addition Borehole 5 may have encountered the remains of nineteenth century structures at approximately 3–4m BPGL / 6.87–5.87m AOD.

5.1.7 Existing Borehole

A single borehole was put in on the site (York HER EY 04063) as part of the works for the Coppergate II proposals, but as the scheme never went ahead, no monitoring work was carried out (John Oxley CYC pers. comm.).

13 GROUNDWORKS TO BE MONITORED

13.1 In order to satisfy condition 4 (**17/00429/FULM**) this work will comprise a **continuous** watching brief, on excavation pertaining to all SI (Site Investigation) works, foundations, trenches services and any subsequent groundworks involving excavation. The watching brief may be stepped down to **intermittent monitoring**, depending on the results, and following agreement from the Development Control Archaeologist.

13.2 SI works will comprise on the excavation of three test pits, two cable percussion drilled boreholes and nine window sample boreholes to be drilled with a compact tracked rig. Monitoring of this phase of works will comprise a continuous watching brief.

13.3 Regarding foundation design (condition 5, **17/00429/FULM**) YAT will review and consult with the Development Control Archaeologist.

13.4 Section 7 of this WSI details hydrological and water quality monitoring required by condition 6 (**17/00429/FULM**). In summary, four window sample drilled boreholes, located at each of the four corners of the site (see Figure 2), are to be utilised as dipwells. Three monitoring points will have a TROLL data logger suspended from the well head, while a water quality meter will be installed in the fourth. In addition a single Baro TROLL will be installed in one of the four dipwells. The installation of these sensors will produce data during the course of a 5 year programme of water monitoring instigated to understand the site hydrology and potential impact of the development. The results of the monitoring will be presented in annual interim

reporting for each of the 5 years of the monitoring programme.

14 HYDORLOGICAL AND WATER QUALITY MONITORING

14.1 Recently published Historic England guidance on Preserving Archaeological Remains (Historic England 2016) has informed the City of York condition to evaluate potential deeply buried, water-logged and organic deposits by borehole.

14.2 It is intended that a 5 year programme of on-going water monitoring post-evaluation will be undertaken to understand the site hydrology and potential impact of the development. The monitoring and assessment will encompass both hydrology and water quality over the course of the stipulated time frame.

14.3 Hydrological monitoring will be undertaken by the use of three TROLL data loggers suspended from the well heads of dipwells positioned close to each of the four corners of the development site (see Figure 2). It is intended that the dipwell locations will reduce risk of damage during construction and ensure that they remain accessible after completion of the development, thereby allowing for the long term monitoring of the site's hydrology.

14.4 Barometric pressure is to be measured with a Baro TROLL installed in one of the four dipwells mentioned above (section 7.3).

14.5 Water levels will be automatically logged using *in* situ sensors. The data will be assessed with reference to the levels measured by the Viking Recorder on the River Ouse (the closest Environment Agency monitoring station), along with weekly rainfall levels recorded at the University of York's Heslington Campus and hosted by the Electronics Department.

14.6 Annual interim reporting will be undertaken for the groundwater monitoring of the site for each of the 5 years of the monitoring programme.

14.7 Water quality monitoring will be undertaken at a single location in order to measure the redox potential, pH level and conductivity of the groundwater.

14.8 Water quality will be assessed on a fortnightly basis over the first six months of the monitoring programme, with a view to dropping to monthly or biannually recording over the duration of the programme depending on the result of the initial period.

14.9 Annual interim reporting will be undertaken for the water quality monitoring for each of the five years of the monitoring programme.

15 DELAYS TO THE DEVELOPMENT SCHEDULE

15.1 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.

15.2 It is not intended that the archaeological monitoring should unduly delay site works. However, the archaeologist on site should be given the opportunity to observe, clean, assess and, where appropriate hand excavate, sample and record any exposed

features and finds. In order to fulfil the requirements of this WSI, it may be necessary to halt the earth-moving activity to enable the archaeology to be recorded properly.

15.3 Plant or excavators shall not be operated in the immediate vicinity of archaeological remains until the remains have been recorded and the archaeologist on site has given explicit permission for operations to recommence at that location.

16 RECORDING METHODOLOGY

16.1 All boreholes will be recorded using standardised pro forma record sheets and related to Ordnance Datum. Borehole cores will be examined in the field by an archaeologist suitably experienced in the deep stratigraphic nature of York's archaeological deposits. Where possible, the results will then be cross-referenced to deposits identified in the 1992 excavation (Finlayson 1992a) and the 2017 borehole survey (Reeves, 2017).

16.2 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.

16.3 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.

16.4 All finds will be collected and handled following the guidance set out in the CIfA 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.

16.5 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.

16.6 A soil sampling programme will be undertaken for the recovery and identification of charred and waterlogged remains where suitable deposits are identified which differ significantly from those encountered during the 2017 borehole monitoring programme. The collection and processing of environmental samples will be undertaken in accordance with Historic England guidelines (Campbell, Moffatt and Straker 2011).

16.7 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.

16.8 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.

17 REPORT & ARCHIVE PREPARATION

17.1 Upon completion of the groundworks, a report will be prepared to include the following:

a) A non-technical summary of the results of the work.

b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.

c) An account of the methodology and results of the operation, describing structural data, associated finds and environmental data.

d) A selection of photographs and drawings, including an overall plan of the site accurately identifying the areas monitored.

e) Specialist artefact and environmental reports as necessary.

f) Details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive.

g) A copy of the key OASIS form details

h) Copies of the Brief and WSI

i) Additional photographic images may be supplied on a CDROM appended to the report

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

17.3 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.

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

17.5 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.

18 HEALTH AND SAFETY

18.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

18.2 A Risk Assessment will be prepared prior to the start of site works.

19 TIMETABLE & STAFFING

19.1 Works are expected to commence on Wednesday 16th May 2018 and continue for a period of six days, until 23rd May 2018.

19.2 Specialist staff available for this work are as follows:

- Human Remains - Malin Holst (York Osteoarchaeology Ltd)
- Palaeoenvironental remains – PRS Ltd
- Head of Curatorial Services - Christine McDonnell
- Finds Researcher - Nicky Rogers
- Medieval Pottery Researcher - Anne Jenner
- Finds Officers – Nienke Van Doorn
- Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie & Dr Roger Doonan
- Conservation – Ian Panter

20 MONITORING OF ARCHAEOLOGICAL FIELDWORK

20.1 As a minimum requirement, John Oxley, the principle planning archaeologist at City of York Council, will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed. York Archaeological Trust will notify John Oxley of any discoveries of

archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with John Oxley.

21 COPYRIGHT

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For the latest Historic England guidance documents see:

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

PLATES

Plate 1 Permeable dipwell lining, 0.1m scale units.

Plate 2 BH201, Context 1113, natural clay at c.7.5m BPGL, 0.1m scale units.

Plate 3 BH201, Context 1112, c.6.4m BPGL, 0.1 scale units.

Plate 4 MP01, presumed Roman deposits (top right of image) grading up from 6m BPGL, 0.1m scale units.

Plate 5 MP01, cores from 1m to 5m BPGL (bottom left to top right of image) showing the transition from post-medieval soils and rubble, through to medieval waterlogged organic silts and clays, 0.1m scale units. Note slumped in loose rubble and/or voids cause by compression of the weight of the rig and forces applied by it at the top (left side of image) of each core.

Plate 6 MP02, Context 20010, relatively clean deposit attributed to the Roman period, 0.1m scale units.

Plate 7 MP02, cores from 4m-5m and 5m-6m (bottom left to top right of image) showing the transition through medieval deposits to those of a possible Roman date, 0.1m scale units.

Plate 8 MP02, post-medieval deposits from 1.2m to 2m BPGL, 0.1m scale units.

Plate 9 MP02, post-medieval deposits as excavated from hand dug started pit, 0.1m scale units.

Plate 10 WS202, loose rubble from immediately below the car park floor to 1.2m BPGL, possibly deriving from the demolition of earlier structure on the car park site, 0.1m scale units.

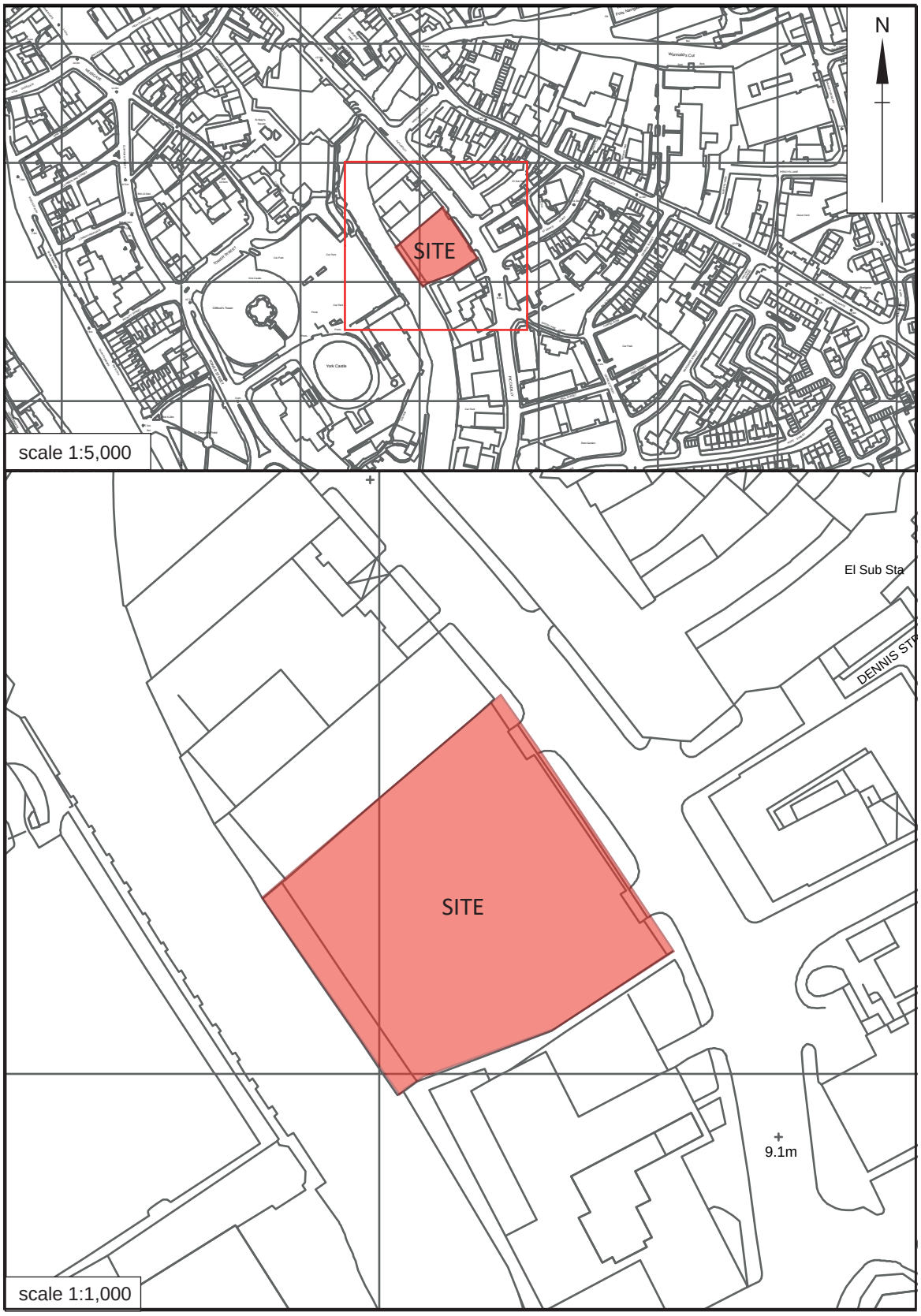
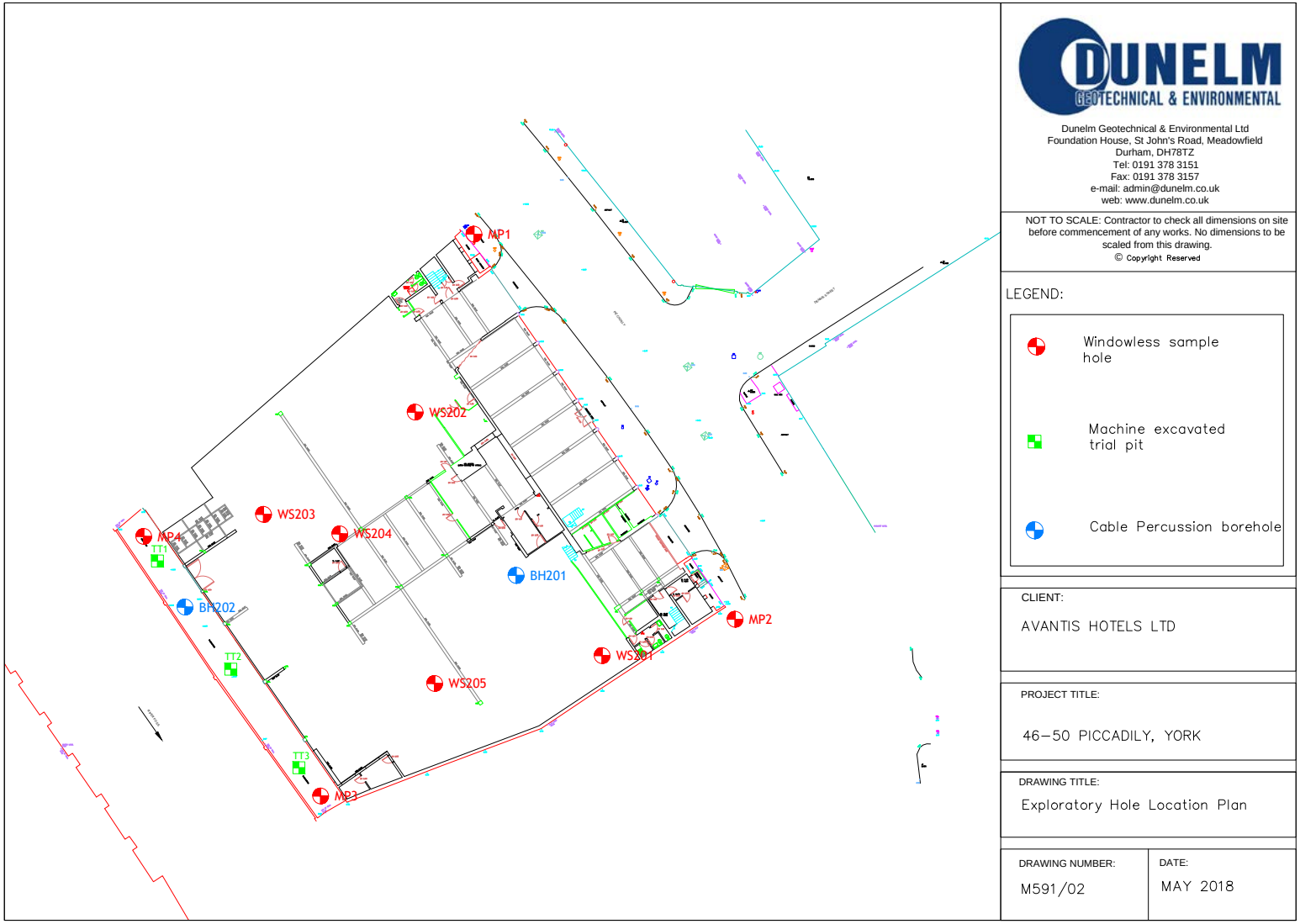


Fig. 1 Site Location



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NOT TO SCALE: Contractor to check all dimensions on site before commencement of any works. No dimensions to be scaled from this drawing.

LEGEND:

- Windowless sample hole
- Machine excavated trial pit
- Cable Percussion borehole

CLIENT: AVANTIS HOTELS LTD

PROJECT TITLE: 46–50 PICCADILY, YORK

DRAWING TITLE: Exploratory Hole Location Plan

DRAWING NUMBER: M591/02

DATE: MAY 2018

Fig. 2 Borehole locations

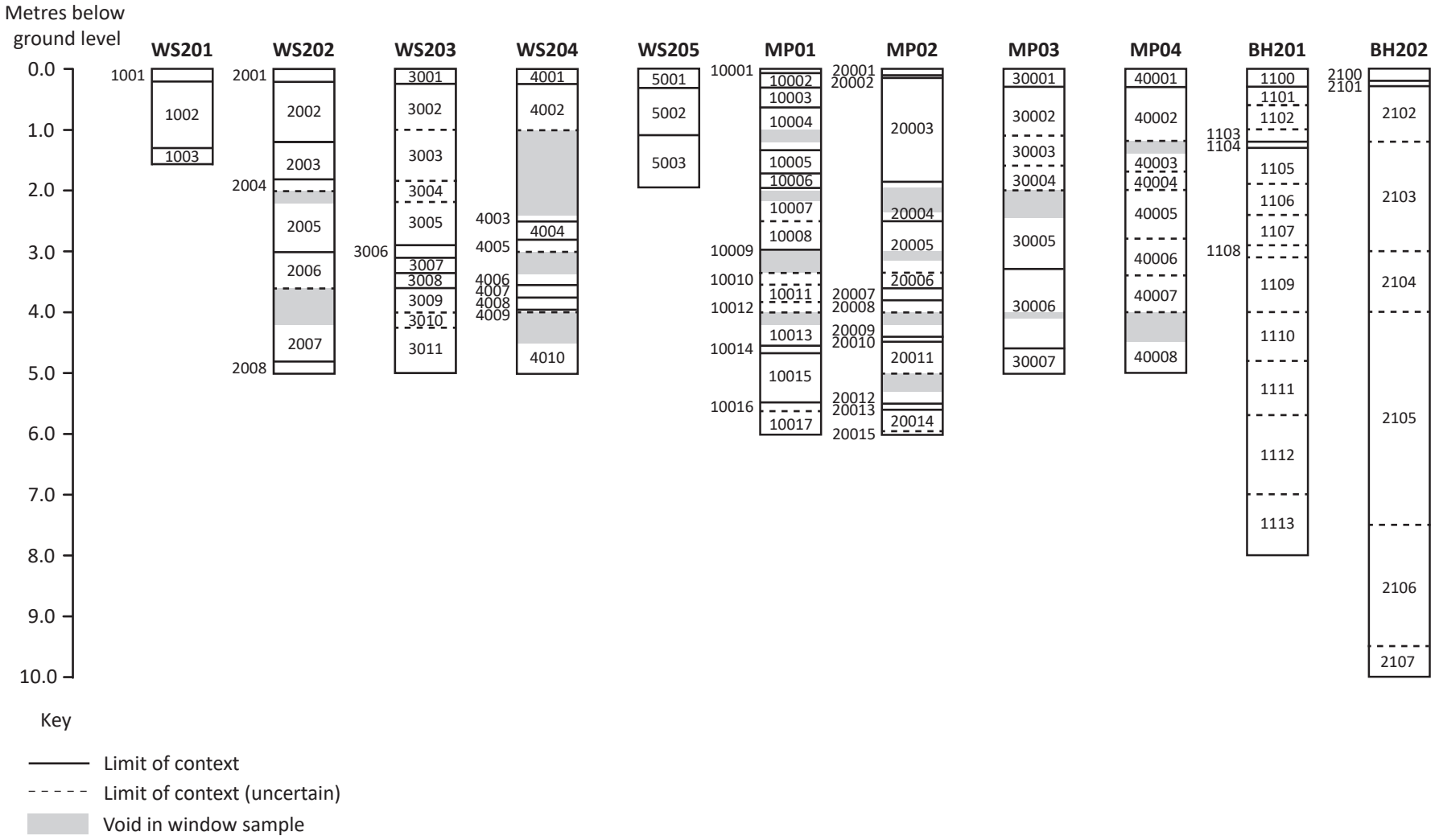


Fig. 3 Borehole profiles (1:100 Scale)

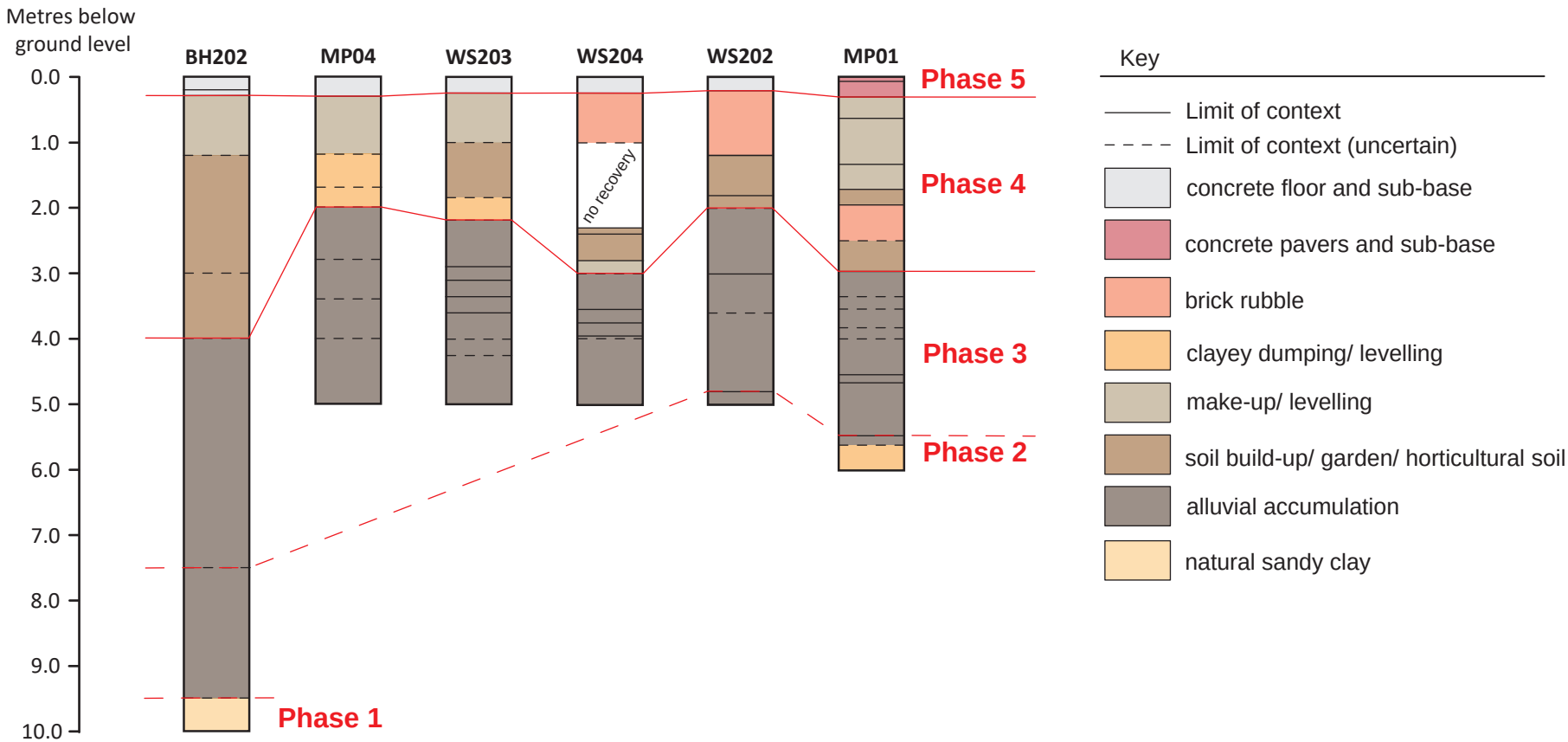


Fig. 4 Borehole profiles and deposit phasing, Transect A

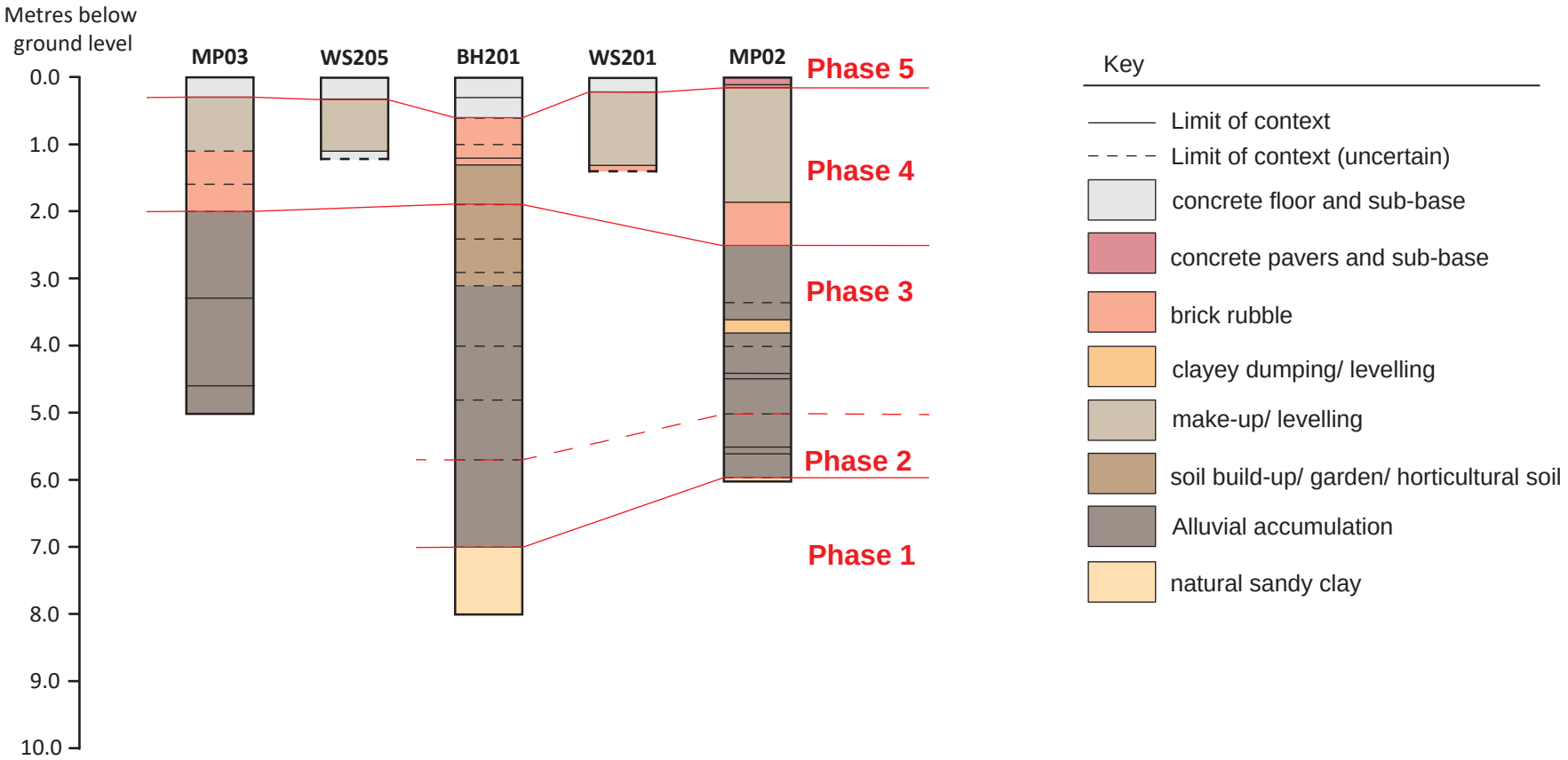
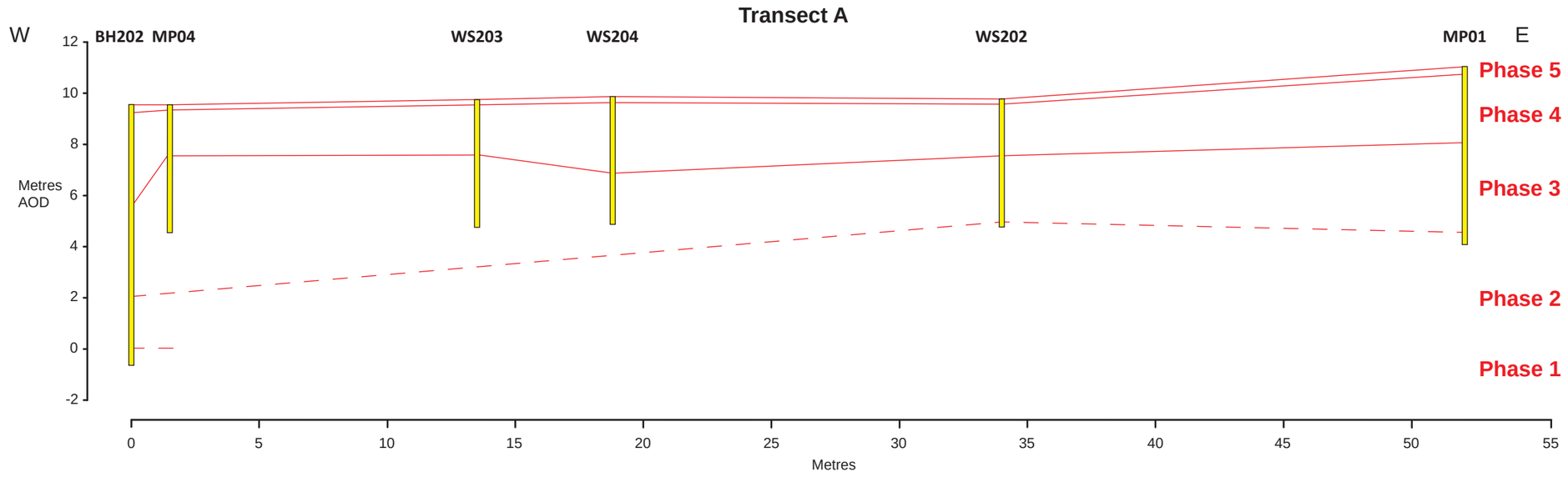


Fig. 5 Borehole profiles and deposit phasing, transect B



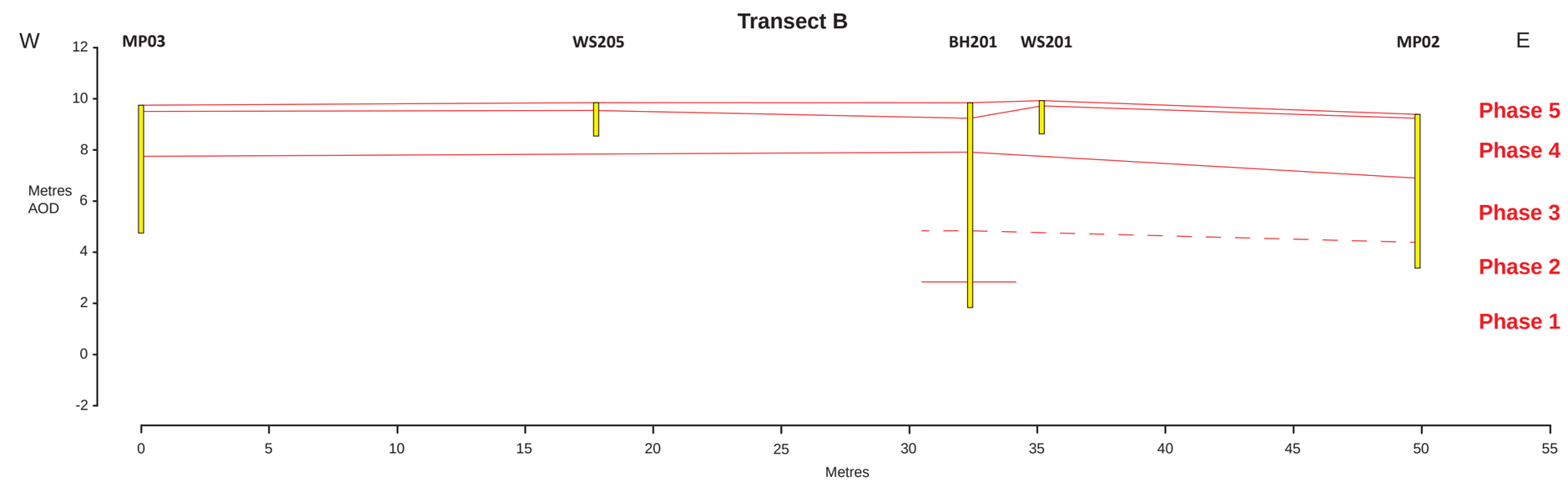


Fig. 6 46-50 Piccadilly Phase 2 Deposit Model

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