LAND EAST OF HULLER HOUSE/ SOUTH WAREHOUSE REDCLIFF BACKS BRISTOL

ARCHAEOLOGICAL EVALUATION

CA PROJECT: 1833
CA REPORT: 04176

Author:	Alistair Barber and Simon Cox	
Approved:	Simon Cox	
Signed:	……	
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Building 11, Kemble Enterprise Park, Kemble, Cirencester, Gloucestershire, GL7 6BQ
Tel. 01285 771022 Fax. 01285 771033 E-mail: info@cotswoldarch.org.uk

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SUMMARY

Site Name:	Land east of Huller House/South Warehouse
Location:	Redcliff Backs, Bristol
NGR:	ST 59010 72560
Type:	Evaluation
Date:	18 August – 23 September 2004
Location of Archive:	To be deposited with Bristol City Museum and Art Gallery
Accession no.	CMAG 2004/60
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An archaeological evaluation was undertaken by Cotswold Archaeology in September 2004 at the request of Angel Property (Huller) Ltd on land immediately east of Huller House/South Warehouse, Redcliff Backs, Bristol. In compliance with an approved Written Scheme of Investigation (CA 2004b) two trenches were excavated across the development area. The evaluation also included observation of four geotechnical trial pits and the logging and assessment of the lithostratigraphic sequence within four geotechnical boreholes.

The boreholes provided evidence for site formation processes and for human activity on the site, both prior to and including the periods later observed in the evaluation trenches. Organic deposits at the base of borehole 1 are potentially of relatively early Holocene date, and therefore may have the potential to fill a gap in the Mesolithic or Neolithic palaeoenvironmental history of Bristol. Further thin organic-rich beds from around 4.5m below present ground level may be contemporary with medieval occupation identified in the evaluation trenches. Biological material from these deposits may therefore provide useful information with regard to human impact on the wider environment.

From the borehole assessment it appeared that medieval deposits extend to a depth of some 6.5m below the existing ground level. The assessment enables the medieval and later development of the site to be broadly interpreted. Initially, food and other domestic waste were discarded on the foreshore in the vicinity of boreholes 2-4. It was then covered up by further alluvial/intertidal deposition. These activities became more frequent and deposition of cultural material dominated over that of the alluvial/intertidal environment. Subsequently, a revetment was built on a north-south axis through the site separating the area of borehole 1 from areas behind the revetment to the east. Cultural material was placed east of the revetment to raise the land above the high water mark. Domestic waste was subsequently

discarded in the vicinity of borehole 1 on the post-medieval foreshore, as it had been in the medieval period. Further waste was discarded in the vicinity of borehole 1, presumably to raise ground level again in association with the construction of the existing harbour wall.

The sequence identified in the boreholes was confirmed by the evaluation trenching, which added greater resolution and dating evidence to the upper (medieval and later) part of the sequence. Well-preserved waterlogged timbers, of which one was possibly a tieback for a late medieval revetment structure, were revealed in trench 2. Silt and clay layers containing mid 13th to 15th-century pottery were dumped behind the structure to raise ground level, thus facilitating the rearward extension of tenement plots extending back from Redcliff Street. Evidence for a medieval building was revealed, together with an adjacent undated wall surviving to present ground level, which may identify a second medieval structure.

Evaluation trench 1 revealed an undated stone-built structure that may represent a narrow dock, slipway or similar quayside facility, which had rapidly filled with river silts following its disuse. Walls, cellarage and an associated vaulted structure, constructed over the quayside feature, identify one of a series of post-medieval tenement properties that formerly extended from Redcliff Street to Redcliff Backs.

Robbing of reusable building materials during the 17th to 18th centuries was followed by episodes of dumping prior to construction of new tenement properties, with associated drainage systems, on the Redcliff Backs frontage.

The evaluation has characterised the palaeoenvironmental and archaeological remains within the study area. Organic deposits at the base of bedded silts and clays in borehole 1 may have the potential for reconstruction of the environment in the Mesolithic/Neolithic. The boreholes also indicate medieval remains may extend to a depth of 6.5m below the existing ground level. Medieval structural remains, although truncated by post-medieval and modern activities, survive to within 1.25m of the modern ground surface in trench 2. In addition, a section of wall of possible medieval date survives to the level of the existing car park surface at c. 8.6m AOD. Probable post-medieval quayside and later remains in trench 1 survived to within 1.75m of the modern ground surface.

1. INTRODUCTION

1.1 During August and September 2004 Cotswold Archaeology (CA) carried out an archaeological evaluation for Angel Property (Huller) Ltd on land immediately east of Huller House/South Warehouse, Redcliff Backs, Bristol (centred on NGR: SP 59010 72560; Fig. 1).

1.2 Pre-application discussions are underway regarding future development of the site. Prior to submission of any planning application, and in order to provide detailed information on the archaeological potential of the site, a brief for an archaeological field evaluation was produced by Bob Jones, City Archaeologist, Bristol City Council (BCC 2004). A subsequent detailed Written Scheme of Investigation (WSI) produced by CA (2004b) was approved by Mr Jones. The fieldwork also followed the *Standard and Guidance for Archaeological Field Evaluation* issued by the Institute of Field Archaeologists (1999) and the *Management of Archaeological Projects II* (EH 1991). The evaluation was monitored by Bob Jones and Peter Insole of Bristol City Council, including site visits on the 16th, 22nd and 28th September 2004.

The site

1.3 The development area is approximately 0.15ha in size, and comprises Huller House, a six-storey brick warehouse built in the mid 19th century, the South Warehouse, a six-storey concrete warehouse built in the early 20th century, and a car park immediately to their east which is the focus of the current evaluation. The site is bounded by Ferry Street to the east, the WCA Warehouse to the south, the Floating Harbour to the west and Mill House to the north (Figs 2, 3).

1.4 The ground level slopes from 8.70m AOD on the Ferry Street frontage to 7.20m AOD at the edge of the Floating Harbour. The level of the floor slab within Huller House is 7.32m AOD. The level of the floor within the South Warehouse is also 7.32m AOD, except along the southern half of the Ferry Street frontage where it is at a level of 9.87m AOD.

1.5 The underlying geology of the area is mapped as alluvium of the Pleistocene and recent periods, overlying Mercia Mudstone Group (MMG) deposits of the Triassic period (BGS 1974). A borehole investigation undertaken by Structural Soils in

August 2004, observed by CA staff, has recorded sandstone deposits at depths of 12.9-14m below present ground level (Appendix 3).

1.6 The evaluation was undertaken within an area of car park partially surfaced with tarmacadam but with the former north-south line of Redcliff Backs preserved by a surface of granite setts.

Archaeological background

1.7 Archaeological interest in the site arises from its location within the historic medieval and later suburb of Redcliffe, and in particular its position astride the conjectured line of a 14th-century waterfront (see Fig. 2 for the approximate position of this and earlier waterfronts to the east). A preceding archaeological desk-based assessment suggested that medieval and later deposits might be present within the area of proposed development unless removed by cellars or service runs (CA 2004a). These remains might include deposits associated with the reclamation of land from the Avon, such as river walls and over-bank tip deposits, as well as features associated with the creation and development of quay and industrial facilities along the riverbank. The latter might include stone slipways, jetties, mooring and rubbing posts, warehouses and stores, and industrial features related principally to textile manufacture, sugar making and distilling. On the eastern side of the site, the potential for preservation of archaeological deposits appeared likely to be good.

1.8 On the western side of the site, archaeological deposits are likely to have been truncated by the basements of Huller House and the South Warehouse, as well as by concrete piles inserted during the construction of the South Warehouse. The potential for the preservation of archaeological deposits in this area was therefore assessed as moderate, but as the current buildings are to be retained no evaluation of this area of the site was required by Bristol City Council. Therefore, the present evaluation focuses solely on land to the east of Huller House and the South Warehouse.

Archaeological objectives

1.9 The objectives of the evaluation were to establish the character, quality, date, significance and extent of any archaeological remains or deposits surviving within the site. This information will assist the Bristol City Council in making an informed judgement on the likely impact upon the archaeological resource by the proposed development.

Methodology

1.10 The fieldwork comprised the excavation of two trenches (trench 1: 7.5m in length and 3.5m in width; trench 2: 14m in length and 3.5m in width; Fig. 3.). Due to the presence of services minor variations were made to the layout of trenches 1 and 2 from that agreed in the WSI with the approval of Mr Jones.

1.11 All trenches were excavated by mechanical excavator equipped with a toothless grading bucket. All machine excavation was undertaken under constant archaeological supervision to the top of the first significant archaeological horizon or the natural substrate, whichever was encountered first. Where archaeological deposits were encountered they were excavated by hand in accordance with the CA Technical Manual 1: *Excavation Recording Manual* (1996).

1.12 Deposits were assessed for their palaeoenvironmental potential and the advice of the English Heritage archaeological science advisor for the south-west, Ms Vanessa Straker, was sought during an on-site monitoring meeting. Having demonstrated the preservation of wood and leather within alluvial levels in trench 2, and with the survival of other types of palaeoenvironmental remains (such as plant remains) likely, the decision was reached that an appropriate programme of sampling could instead be implemented during any future, detailed, archaeological investigation of the site. No deposits, therefore, required sampling and processing in accordance with the CA Technical Manual 2: *The Taking and Processing of Environmental and Other Samples from Archaeological Sites* (2003) All artefacts recovered were processed in accordance with the CA Technical Manual 3: *Treatment of Finds Immediately After Excavation* (1995).

1.13 This report incorporates the recently completed observation and recording of four geotechnical trial pits, and the logging and assessment of the lithostratigraphic

sequence within four geotechnical boreholes, drilled by Structural Soils Ltd, by CA staff and Dr Keith Wilkinson, University of Winchester (Fig. 3: Appendix 3). The trial pits were excavated purely to locate buried services adjacent to the standing buildings, with all excavation undertaken through modern made ground. Therefore the results are not presented within this report, although details can be found within the site archive.

1.14 The archive and artefacts from the evaluation are currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner the site archive (including artefacts) will be deposited with Bristol City Museum and Art Gallery under accession number CMAG 2004/60.

2. RESULTS

2.1 This section provides an overview of the evaluation results; detailed summaries of the recorded contexts, finds and lithostratigraphic sequence are to be found in Appendices 1, 2 and 3 respectively. Details of the relative heights of the principal deposits and features expressed as metres Above Ordnance Datum (m AOD) appear in Appendix 4.

2.2 The underlying Mercia Mudstone Group (MMG) deposits and pre-medieval river alluvium were not encountered at the limit of excavation within either trench, but were reached within all four geotechnical boreholes (see Appendix 3).

Trench 1 *(Figs 3, 4, 6 - 9)*

2.3 At the limit of excavation, 4.5m below present ground level (4.10m AOD), a flagstone floor 113 and three stone walls 107, 110 and 112, bonded with a hard yellow mortar, were noted. These walls appeared integral with floor 113 and formed three sides of an undated structure, 2.25m in width, which survived up to 2.75m in height. A westward continuation of flagstone floor 113 may be indicated by a resistant deposit encountered at a depth of 7m within borehole 4, immediately west of trench 1 (Fig. 3).

2.4 Wall 110 appears to mark the eastern limit of this narrow, undated, structure. Its high vertical face (surviving to approximately 6.85m AOD) suggests that these structural remains are not those of a gently inclined slipway or similar access but might instead represent a narrow dock, tank or other quayside structure. Two small openings, approximately 0.25m in width and 0.3m in height, within the upper part of northern wall 107 may represent sockets for timber beams spanning across the structure, although no corresponding openings were discernible within opposite, southern, wall face 112.

2.5 The narrow quayside structure contained an apparently homogenous deposit of grey-blue clay-silt 109, approximately 2.2m in thickness, which yielded one fragment of post-medieval roof tile and seven pieces of coal. No subtle laminations were discernible within 109 to suggest that this clay-silt had accumulated gradually, and it conceivably derives from a single tidal inundation. An overlying yellow-brown clay-silt 108 may represent the drier, oxidised, upper levels of the same deposit. The absence of discernible banding, or of abundant artefactual material, within 108 and 109 argues against the structure being a municipal drain running from Redcliffe to discharge into the Avon.

2.6 Following the disuse and silting of the quayside structure a shuttered trench was excavated through silts 108 and 109 to the top of flagstone floor 113, with a concrete infill 111 then permanently closing off the structure. Following this blocking episode the structure was overlain by a concrete foundation 105 for a brick floor, 104 (at 7.10m AOD), of a modern cellar, defined on its southern and western sides by brick and stone-built walls 103 and 131. Immediately west of wall 131, and apparently integral with its construction, were the remains of a vaulted stone structure represented by coursed sandstone walls 146, roof 135 and supporting columns 136. The limited area available for investigation precluded detailed recording but the alignment and spacing of walls 146 suggested that the vaulted structure may have been built off a westward continuation of walls 107 and 112 (Figs 4, 9).

2.7 A series of post-medieval dump deposits within the western part of the trench were cut by a north/south aligned stone culvert 119 and by modern services. These deposits, together with cellar infill 145, were sealed by a concrete foundation for the stone setts of Redcliff Backs, and by the tarmacadam car park surface.

Trench 2 *(Figs 3, 5, 10 - 13)*

2.8 Hand augering within sondage 1 indicated the presence of a stony deposit at a depth of 4m below present ground level. This deposit was overlain by a light grey-blue silt-clay 227 from which no dateable material was recovered.

2.9 At the limit of hand excavation, 3m below present ground level (at 5.95m AOD), grey-blue alluvium 227 was overlain by a darker, more humic, alluvial clay 226 (at 6.2m AOD) from which three sherds of mid 14th to 15th-century pottery were recovered, together with animal bone, stone tile fragments, and a well-preserved triangular offcut of leather. Silt-clay 226 overlay a series of well-preserved, *in situ,* waterlogged timbers. A substantial, east-west aligned, horizontal elm beam (timber 1; top at 6.15m AOD) was 0.25m wide, 0.15m deep and at least 1m in length. Its uppermost surface had been worked to a smooth, convex, profile and a circular black stain, approximately 10mm in diameter, may mark a former peg hole.

2.10 Timber 1 may have rested directly on alluvium 227 or else formed part of a larger, self supporting, structure against which 227, and alluvium 226, had accumulated. Immediately south of horizontal timber 1 were four *in situ* vertical posts or stakes (timbers 2 - 5) of which three were close set in a north/south line. From the limited view afforded by sondage 1 it was unclear whether timbers 2-5 were stakes which had been driven into alluvium 227 or whether this clay-silt had accumulated against standing posts.

2.11 Clay bands 208 and 209 directly overlay the uppermost alluvium 226. Deposit 208 yielded two sherds of 13th to 15th-century pottery together with a piece of slag, animal bone fragments and oyster shells. Overlying deposit 209 produced two sherds of mid 13th to 15th-century pottery, one ridge tile fragment and a stone tile fragment. These redeposited layers, each up to 0.6m in thickness and sloping steeply from east to west, may represent over-wall dumps onto a former jetty structure or, perhaps more likely, domestic and/or industrial waste accumulating immediately east of and against a late medieval river wall or revetment (with timber 1 forming part of a substantial tie-back/brace). That the two clay bands derive from episodes of deliberate dumping is supported by a thin overlying band of clearly dumped oyster shell 207 from which 17 shells were recovered together with animal bone fragments, a stone tile fragment and two iron objects.

2.12 Following these episodes of dumping, reclaiming land at the rear of tenements extending back from the Redcliffe Street frontage, one or more medieval buildings were constructed. One structure was represented by two substantial east/west walls (identifiable only by post-medieval robber trenches 210 and 224, each 1.4m in width and 0.9-1.4m in depth), associated floor make-up layers 202, 206, 213 and 234 and by mortar and flagstone floors 203, 204, 205, 235, 274, 276, 277, 278 (Figs 5, 11; Appendix 1). The highest surviving floor, 274, survived to 7.50m AOD. These foundation deposits and floors were retained *in situ*, although hand cleaning of floor make-up 202 yielded two fragments of animal bone whilst deposit 213 produced 11 oyster shells, a charcoal fragment and one piece of slate. Two fragments of mid 13th to 15th-century tile, a plaster fragment, one oyster shell and two animal bone fragments were retrieved from floor 203 and two fragments of animal bone, one piece of coal and a stone tile fragment from floor 205.

2.13 A compact stony-clay deposit 281, immediately south of the medieval wall denoted by robber trench 210, appears to represent an external surface broadly contemporaneous with the medieval building. The remains of a second medieval building, a few metres south of this external surface, may have been identified from a sandstone wall footing 246, bonded with red clay, noted at the limit of excavation. Footing 246 supported a sandstone wall 247, 0.65m in width and 1.05m in height, which survives to the surface of the present car park (at 8.60m AOD). Although the wall was undated, the red clay bonding of footing 246, and the soft pink-red mortar of wall 247, are comparable with the bonding of medieval walls revealed during excavations in the vicinity (see 1.7 above).

2.14 Extensive robbing of reusable building materials occurred following disuse of the medieval building(s). Post-medieval robber trenches 210 and 228, associated with the northernmost medieval building, contained fills yielding pottery of 17th to 18th-century date, together with animal bone, charcoal, oyster shell, stone tile, plaster, clay pipe stems and slag. The original western extent of the possible second medieval building, represented by footing 246 (to 7.6m AOD) and wall 247, is uncertain. This is due to an episode of modification involving insertion of a line of fine ashlar blocks 296, possibly the western face of a foreshortened structure still incorporating medieval walling 247. The construction trench associated with wall footing 246 appears to have been removed during the creation of an elaborate

drainage system incorporating channel 238, which discharged into a vaulted chamber beneath a stone slab surface 270.

2.15 A large sandstone slab 269, set vertically on edge, and an adjacent section of east/west aligned sandstone wall 268, bonded with a yellow mortar, may identify the truncated remains of an early post-medieval building. These remains were overlain by a series of post-medieval dump deposits 261, 242 and 244 which covered late medieval levels/early post-medieval levels and yielded sherds of 17th to 18th-century pottery. Subsequent post-medieval/early modern development on the site included the insertion of a culvert 263 and drains 238 and 260, and the later construction of substantial properties, possibly warehouses or factories, denoted by substantial wall footings 222/283 and 240, the latter associated with an infilled cellar. These structural remains were sealed by the modern tarmacadam surface of the car park.

The Finds

2.16 Quantities of pottery, animal bone, ceramic building material, shell, coal and glass were recovered. The medieval pottery is dominated by mid 13th to 15th-century Bristol Redcliffe ware. Small quantities of unglazed or partially glazed Saintonge ware were also recovered and are dateable to the mid 14th to 15th centuries. A single sherd of 11th to 13th-century Cotswold Oolitic type ware was recovered from clay dump deposit 208 and represents the only early medieval pottery recovered. This sherd is residual in context, occurring alongside 13th to 15th-century Minety ware. The remainder of the pottery is post-medieval in date and is dominated by locally produced fabrics. The tin-glazed earthenware and yellow-slipped ware are of probable Bristol origin with North Devon gravel tempered ware and the glazed red earthenware produced in Somerset. Other fabrics comprise sgraffito decorated wares, black-glazed earthenware and possible Tudor Green ware. All date to between the 16th and 18th centuries.

The Geoarchaeological Evidence

2.17 Four geotechnical boreholes were drilled across the site under archaeological supervision, with subsequent analysis of the retrieved borehole cores having been undertaken by Dr Keith Wilkinson of Winchester University (see Appendix 3).

2.18 The four stratigraphic units encountered broadly correlate with those recently noted elsewhere in central Bristol (Wilkinson 2001; 2003). Mercia Mudstone Group deposits (Unit 1) were encountered but hold no archaeological or palaeoenvironmental potential. Overlying fluvial gravels (Unit 2), accumulating within a braided river channel, have uncertain archaeological and palaeoenvironmental potential given a lack of firm chronology. No periods of stasis and terrestrial surface formation were discernible within overlying bedded silts and clays (Unit 3), except for the deposition of rubbish during the latter stages of accretion. This unit has been assessed as of low archaeological potential and of uncertain or moderate palaeoenvironmental potential, from organic deposits within borehole 1 of possible Neolithic or Mesolithic date (based on the inferred age of Unit 2) and thin organic-rich beds towards the top of Unit 3, which may be contemporary with medieval occupation of the city. Unit 4, comprising archaeological deposits encountered within trenches 1 and 2, appears to be of high archaeological potential (with those deposits below 6m AOD also having a high palaeoenvironmental potential). The borehole results indicate that the medieval and post-medieval deposits forming Unit 4 extend approximately 6.5m downwards from the present ground surface.

3. DISCUSSION

Introduction

3.1 The evaluation has established the extent, quality, character and date of archaeological remains across the site. The sequence identified encompasses natural Mercia Mudstone Group deposits, deposition of fluvial gravels and estuarine alluvium, tidal reworking of medieval refuse dumped on the foreshore, establishment of a late medieval riverfront front to the west of earlier frontages, construction of late medieval buildings and yards on reclaimed land at the rear of tenements fronting Redcliff Street and an intensification of domestic, commercial and industrial development alongside Redcliff Backs during the post-medieval and modern periods.

Pre-medieval to earlier medieval

3.2 The boreholes show that fluvial gravels (Unit 2) were deposited within a probably braided river channel, potentially prior to 15,000 Calendar years BP (see Appendix 3), and then potentially again from 13,000 to 11,500 Calendar years BP, with fine-grained, laminated, silts and fine sands forming between the gravel strata. The laminated silts may contain biological remains with the potential to reconstruct the contemporary environment, but are classified as of probably low archaeological potential. These deposits were covered by bedded silts and clays (Unit 3), which are again of low archaeological potential. However, these may have palaeoenvironmental potential for the reconstruction of the contemporary environment both in the Mesolithic/Neolithic and medieval periods, owing to the presence of organic deposits at the base and top of the unit.

3.3 The boreholes indicate that in the earlier (pre 14th/15th century) part of the medieval period the site lay on the foreshore of the river Avon, and that anthropogenic waste was being discarded here with increasing frequency. This fits with the known evidence for the development of the waterfront from excavations at 98-103 Redcliff Street (Brett 1999, Insole 1999; **2** on Fig. 2), 95-7 Redcliffe Street (Jones 1986; **3** on Fig. 2) and 82-90 Redcliff Street (Williams and Cox 2001; **4** and **5** on Fig. 2), which suggest that this area lay beyond the 13th-century river wall.

Late medieval

3.4 The preceding archaeological assessment indicated that the probable line of the 14th-century and later waterfront lay along the line of Redcliff Backs (Fig. 2), and this appears to have been confirmed by the discovery of an *in situ* horizontal elm beam and vertical posts within trench 2. These may represent part of a jetty structure or, perhaps more likely, a substantial wooden tieback/brace associated with a late medieval revetment. This is supported by the borehole evidence which suggests anthropogenic waste continued to be dumped onto the foreshore to the west of the structure, whilst to the east material was being dumped to raise ground levels and reclaim land for building behind the new revetment.

3.5 The evaluation has demonstrated that waterlogged remains of timber and leather are well-preserved within these dumped deposits, as seen elsewhere along the Redcliff waterfront, and these conditions are likely to be conducive to the

preservation of other organic remains which hold potential for environmental and economic reconstruction for the contemporary late medieval period.

3.6 Remains of at least two probably late medieval buildings, constructed above the dumped deposits behind the new revetment, were identified in trench 2, which again confirms the known sequence for the development of Redcliffe in this period. The size of the robber trenches for one of these may suggest a substantial building extending back to the late medieval quay, although the function of this building is unclear. A succession of floor surfaces associated with this building may suggest a long period of use, although just how frequently such surfaces would have been replaced could not be ascertained from the evaluation.

Post-medieval

3.7 The evaluation trenches have demonstrated a sequence of construction and periodic adaptation of residential, commercial or industrial buildings, represented by wall footings, floors, limited cellarage, drains and yard surfaces in this period. Close dating of this sequence of development was not afforded by the evaluation. However, Millerd's plan of 1673 shows Redcliff Backs had been created by the late 17th century, with an area of open ground extending westward towards the river (CA 2004a, 7). By his map of 1715 tenements had been constructed between the backs and the river (ibid. 7). Quite how the possible quayside structure in trench 1 fits in with this sequence is not clear, but the implications of the borehole evidence and silting up of the feature suggest that it extended beyond the former medieval river frontage and was open to the tide. Therefore, this would appear to represent some form of subterranean inlet or leat contemporary with buildings along 17th-century or later Redcliff Backs, rather than a medieval dock or slipway.

3.8 The later part of the post-medieval sequence appears to correlate well with the historic map evidence for tenements extending back from Redcliff Street to the Backs (Fig. 3) by the later 19th century. These buildings survived until the 1960s, when clearance as a result of WWII bombing led to the reorganisation of the area and the formation of Ferry Street. They appear not to have had any substantial cellars, and at least one medieval wall may have been preserved within the fabric of one building (101 Redcliff Street) up until its demolition. Remnants of medieval walling also survive, or survived, within post-medieval buildings at 98-103 Redcliff

Street (**2** on Fig. 2), 95-7 Redcliffe Street (**3** on Fig. 2) and 82-90 Redcliff Street (**4** and **5** on Fig. 2), so this is not altogether unexpected.

Conclusions

3.9 The evaluation has characterised the palaeoenvironmental and archaeological remains within the study area, and has demonstrated that the preceding archaeological desk-based assessment was accurate in its prediction of the character and depth of archaeological remains within the site. Organic deposits at the base of bedded silts and clays in borehole 1 may have the potential for reconstruction of the environment in the Mesolithic/Neolithic. The boreholes also indicate medieval remains may extend to a depth of 6.5m (c. 2.3m AOD) below the existing ground level. Medieval structural remains, although truncated by post-medieval and modern activities, survive to within 1.25m (c. 7.35m AOD) of the modern ground surface in trench 2. In addition, a section of wall of possible medieval date survives to the level of the existing car park surface at c. 8.6m AOD. Probable post-medieval quayside and later remains in trench 1 survived to within 1.75m (c. 6.85m AOD) of the modern ground surface.

4. CA PROJECT TEAM

Fieldwork was undertaken by Alistair Barber, assisted by Jon Webster with Jon Hart, Rob Hartle, Andy Loader, Darren Muddiman and Ben Powell. The report was written by Alistair Barber, assisted by Jon Webster. The illustrations were prepared by Lorna Gray. The archive has been compiled by Jon Webster, and prepared for deposition by Sam Inder. The project was managed for CA by Simon Cox.

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APPENDIX 1: CONTEXT DESCRIPTIONS

Trench 1

101	Modern stone sett surface of Redcliff Backs. 0.2m in thickness.
102	Modern concrete bedding layer. 0.19m in thickness.
103	Modern brick and sandstone wall. 1.75m in depth, 1.1m+ wide, and 4.15m+ in length.
104	Modern brick floor. 0.08m in depth, 2.13m+ wide, and 3.8m+ in length.
105	Modern tarmacadam layer. 0.05m in depth, 2.13m+ wide, and 3.8m+ in length.
106	Modern concrete foundation. 0.28m in depth, 2.13m+ wide, and 3.8m+ in length.
107	Limestone wall of quayside structure. Bonded with yellow mortar. 2.86m in depth, 0.7m+ wide, and 1.85m+ in length.
108	Clay-silt fill within ?quayside structure. Light grey-orange silty clay. 0.6m in depth.
109	Fill of quayside structure. Mid grey-blue silty clay. 1.78m in depth.
110	Limestone wall of quayside structure. Bonded with yellow mortar. 2.86m in depth, 1.85m+ in length, width not known.
111	Modern concrete. 2.86m in depth, 4.15m in length, width not known.
112	As 110.
113	Flagstone floor of ?quayside structure. No visible mortar. 2.04m wide, 4.15m in length, thickness not known.
114	Modern dump deposit. Dark brown-blue silty sand, 0.78m in thickness
115	Cut of service trench. 0.3m in depth, 0.25m wide, and 2.71m+ in length.
116	Fill of 115. Dark brown-blue sand-clay. 0.3m in depth.
117	Cut of modern culvert. 0.58m+ in depth, 0.71m wide, and 3.4m+ in length.
118	Fill of 117. Mid grey-brown sand, 0.23m in depth.
119	Fill of 117. Mid grey-brown sand-gravel, 0.35m+ in depth.
120	Cut of service trench. 0.64m+ in depth, 0.8m wide, and 3.4m+ in length.
121	Fill of 120. Mid grey-brown sand-pebbles, 0.64m+ in depth.
122	Post-medieval/modern dump layer. Light yellow-grey silty-clay, 0.68m+ in depth, 0.66m+ wide, and 0.42+m in length.

123	Cut of service trench. 0.83m in depth, 0.25m wide, and 3.4m+ in length.
124	Fill of 123. Dark grey-blue sand, 0.83m in depth.
125	Cut of service trench. 0.72m in depth, 0.25m wide, and 3.11+m in length.
126	Fill of 125. Same as 116. 0.72m in depth.
127	Cut of modern culvert. 0.59m in depth, 0.4m wide, and 1.89m+ in length.
128	Fill of 127. Light yellow-grey sand-gravel. 0.59m in depth.
129	Layer. Mid orange-brown sand. 0.36m thick, 0.96m+ wide, and 0.41m+ in length.
130	Cut of modern wall. 1.49m in depth, 0.85m wide, and 3.45m+ in length.
131	Fill of 130. mid brown-blue sand, with brick and mortar inclusions. 1.49m in depth
132	Cut of service trench. 0.43m in depth, 0.57m wide, and 4.7m+ in length.
133	Fill of 132. Light yellow-white concrete, 0.43m in depth.
134	Modern stone wall. Bonded with hard grey mortar. 0.73m+ in depth, 0.26m+ wide, and 1.69m in length.
135	Roof of vaulted structure. Sandstone construction, bonded with yellow mortar. 1m+ in depth, 0.42m wide, and 1.41m+ in length.
136	Stone side supports associated with roof 135. Sandstone construction, bonded with yellow mortar. 0.48m+ in depth, 0.25m wide, and 0.87m in length.
137	Fill of 135. Dark grey-blue silty sand. Dimensions not known.
138	As 107.
139	Post-medieval deposit. Dark grey-blue sand-clay. 0.41m in thickness
140	Cut of modern feature. Vertical sides. 0.45m in depth, other dimensions not known.
141	Fill of 140. Mid grey-blue sand-clay. 0.45m in depth.
142	Post-medieval deposit. Mid grey-orange, 0.32m in depth, other dimensions not known.
143	Post-medieval deposit. Light red-orange, 0.27m in depth, other dimensions not known.
144	Void
145	Modern cellar infill: fragmentary sandstone, brick, clay, ash. Dimensions not established.
146	Side walls of vaulted structure. Sandstone courses bonded with yellow mortar.
147	Modern infill deposit: fragmentary sandstone, clay and brick. Dimensions not established.
148	Modern concrete deposit.

Trench 2

201	Modern tarmacadam surface of car park. 0.05m in thickness.
202	Medieval floor make-up. Orange-grey-brown clay, 0.2m in thickness, 1.4m wide, and 1m+ in length.
203	Medieval surface. Red-brown sand-fragmentary sandstone. 0.25m in thickness.
204	Medieval surface. Yellow-red sandstone, 0.07m in thickness.
205	Medieval surface. Dark grey-black silty clay. 0.01m in thickness
206	Medieval make-up layer. Dark grey-brown clay with sandstone inclusions, 0.15m in thickness.
207	Medieval dump deposit. Grey-brown silty clay. 0.18m in thickness.
208	Medieval dump deposit. Orange-red to grey-brown clay, maximum 0.6m in thickness.
209	Medieval dump deposit. Yellow-grey to red-brown clay, maximum 0.6m in thickness.
210	Cut of post-medieval robber trench. Vertical sided trench, 1.4m in depth, 1.3m wide, and 3.79+m in length.
211	Fill of 210. Dark grey-black gritty clay. 1m in depth.
212	Fill of 210. Grey-brown stony clay. 0.4m in depth.
213	Medieval floor make-up. Orange-brown clay. 0.09m in thickness.
214	As 207.
215	Medieval dump deposit. Grey-brown silty-clay. 0.2m in thickness.
216	Medieval dump deposit. Dark brown-black silty-clay. 0.1m in thickness.
217	Medieval dump deposit. Grey-brown clay. 0.1m in thickness.
218	Medieval dump deposit. Red-brown clay with sandstone inclusions. 0.1m in thickness.
219	Medieval dump deposit. Dark brown silty-clay. 0.1m in thickness.
220	As 209.
221	Modern construction cut. Vertical sided trench 0.6m in depth, 1.33m wide, and 7.62m+ in length.
222	Post-medieval wall footing. Sandstone bonded with hard grey mortar. 2m in depth, 0.55m wide, and 7.57m+ in length.
223	Post-medieval footing. 0.15m in depth, 0.15m wide, length not known.
224	Post-medieval foundation. Offset concrete, 0.25m+ wide, length and depth not known.
225	Fill of 221. Black gritty clay. 0.50 in depth, 1.33m wide, and 7.57m+ in length.
226	Medieval layer. Grey-blue silt. 0.3m in thickness, 1m+ wide, and 1m+ in length.

227	Medieval layer. Grey silt, 1m in thickness.
228	Cut of post-medieval robber trench. Same as 230.
229	Fill of 228. Same as 231.
230	Cut of post-medieval robber trench. Vertical sided trench, 0.75m in depth, 1.6m wide, and 3.95m+ in length.
231	Fill of 230. Dark blue-brown sand-clay, 0.75m in depth.
232	Cut of post-medieval robber trench. Same as 210.
233	Fill of 232. Same as 211.
234	Medieval make-up layer. Same as 213.
235	Medieval flagstone floor. Large limestone slabs set upon stony clay, 0.05m in depth, 0.45m wide, and 0.6m in length.
236	Cut of modern service trench. 1.5m wide, 3.5m in length, depth not known.
237	Fill of 237. Dark brown-black gritty clay, Depth not known.
238	Modern drain. Red brick lined drain. 0.1m wide, 3.5m+ in length, depth not known.
239	Fill of 238. Dark brown-black gritty clay, depth not known.
240	Post-medieval wall. Well mortared. 0.95m+ in depth, 0.6m wide, 3.75m in length.
241	Late-medieval/post-medieval layer. Grey-brown gritty clay. 0.14m+ wide, 1.43m+ in length, depth not known.
242	Late-medieval/post-medieval layer. Dark grey-brown gritty clay. Dimensions not known.
243	Construction cut. Vertical sided. 0.95m+ in depth, 0.6m wide, 3.75m+ in length.
244	Post-medieval/modern layer. Dark brown-black cinder and clay 0.2m thick.
245	Fill of 238. Grey ashy concrete. 0.8m in depth.
246	?Late-medieval wall footing. Sandstone, bonded with red clay. Dimensions not known.
247	?Late-medieval wall. Bonded with soft pink-red mortar. 1.2m in depth, 0.58m wide, length not known.
248	Post-medieval/modern layer. Grey-brown sandstone. 0.2m+ in thickness.
249	Post-medieval/modern layer. Grey-brown gritty clay. Dimensions not known.
250	Post-medieval/modern layer. Red-white mortar-clay. 0.12m in thickness, 1m wide, length not known.
251	Post-medieval/modern layer. Same as 244. 0.25m in thickness.
252	Post-medieval/modern layer. Grey-brown gritty clay. 0.08m in thickness.
253	Post-medieval/modern layer. Grey-white gritty clay. 0.08m in thickness.
254	Modern brick structure only partially exposed. Dimensions not known.
255	Fill of 240. Grey-brown gritty clay. 1.2m+ wide, 2m+ in length, depth not known.
256	Fill of 240. Red-black gritty clay. 0.25m in depth, 1.2m+ wide, and 2m+ in length.
257	Fill of 240. Grey brown gritty clay. 0.5m+ in depth, 1.2m+ wide, and 2m+ in length.
258	Fill of 240. Grey-brown to red-black gritty clay. 0.4m in depth, 1.2m+ wide, and 1.47m+ in length.
259	Cut of modern drain. Vertical sided. 0.45m in depth, 0.6m wide, and 2.26m+ in length.
260	Fill of 259. Dark brown-black silty clay. 0.45m in depth.
261	Same as 242.
262	Cut of modern drain. Vertical sided. 0.75m in depth, 1.3m wide, and 2.5m+ in length.
263	Post-medieval paved floor. Sandstone slabs, no visible mortar. 0.35m wide, 2.5m+ in length, depth not known.
264	Post-medieval wall. Sandstone blocks, bonded with grey mortar. 0.35m in depth, 0.2m wide, and 2.5m+ in length.
265	Fill of 264. Dark brown-black clay. 0.2m in thickness.
266	Fill of 264. 0.15m in thickness.
267	Post-medieval capping stone. Related to 264. 0.1m in depth, and 0.7m in wide, length not known.
268	Post-medieval wall. Grey sandstone, with hard yellow mortar. 0.7m wide, other dimensions not known.
269	Post-medieval stone setting. Pitched stone. 0.1m wide, 0.45m in length, depth not known.
270	Late-medieval surface. Flat sandstone slabs, mortared. Dimensions not known.
271	Post-medieval drain. Sandstone slabs, mortared. Dimensions not known.
272	Void.
273	Medieval surface. Light grey-orange silty clay. 0.51m+ in depth, 0.54m+ wide, and 0.91m+ in length.
274	Medieval surface. Light yellow-white sand. 0.04m in depth, 0.42m+ in length, width not known.
275	Medieval surface. Dark blue-grey silty sand. 0.03m in depth, 0.56m+ in length, width not known.
276	Medieval surface. Light brown-grey sand. 0.03m in depth, 0.24m+ in length, width not known.
277	Medieval surface. Light blue-grey silty sand. 0.06m in depth, 0.58m+ in length, width not known.
278	Medieval surface. Mid grey-yellow sand-clay. 0.13m in depth, 0.62m+ in length, width not known.
279	Modern concrete floor surface: 0.3m in thickness, not fully exposed.
280	Modern dump deposit: not fully exposed.
281	Modern dump deposit: not fully exposed.
282	Modern dump deposit: not fully exposed.
283	Post-medieval/modern wall: sandstone courses bonded with mortar, not fully exposed.
284	Post-medieval/modern construction cut: not fully exposed.

285	Post-medieval/modern wall footing: not fully exposed.
286	Granite sett surface of Redcliff Backs. 0.25m in thickness.
287	Post-medieval/modern dump deposit: dark brown gritty clay, 0.6m in thickness.
288	Modern pipe trench cut. 1m in depth.
289	Fill of modern service trench: dark grey-brown gritty clay. 01m in thickness.
290	Modern pipe trench cut. 0.45m in width, 0.4m in depth.
291	Fill of modern service trench: dark grey-brown gritty clay. 0.4m in thickness.
292	Modern service trench cut: dimensions not established.
293	Fill of modern service trench: dark grey-brown gritty clay. 0.6m in thickness.
294	Modern pipe trench cut. 0.6m in width, 0.55m in depth.
295	Fill of modern service trench: dark grey-brown gritty clay. 0.55m in thickness.
296	Post-medieval wall: yellow ashlar blocks.

Timber descriptions

1	Boxed horizontal timber. Elm beam with convex planed uppermost surface and straight sides. Black stain on surface approximately 10mm in size suggesting nail hole. 0.22m in depth, 0.22m wide, and 0.88m+ in length. ? brace/tie back associated with medieval waterfront.
2	Quarter boxed vertical timber at top, although uncertain if possibly whole timber in cross section at depth. 0.12m wide, 0.11m in length, depth not known. Driven stake or supported post.
3	Quarter boxed vertical timber at top, although uncertain if possibly whole timber in cross section at depth. 0.12m wide, 0.11m in length, depth not known. Driven stake or supported post.
4	Quarter boxed vertical timber at top, although uncertain if possibly whole timber in cross section at depth. 0.12m wide, 0.09m in length, depth not known. Driven stake or supported post.
5	Quarter boxed vertical timber at top, although uncertain if possibly whole timber in cross section at depth. 0.12m wide, 0.14m in length, depth not known. Driven stake or supported post.

APPENDIX 2: THE FINDS

THE POTTERY AND OTHER FINDS BY SAM INDER

Quantities of pottery, animal bone, ceramic building material, shell, coal and glass were recovered during excavations. The pottery has been compared with the Bristol type series.

The small assemblage of pottery comprises medieval and post-medieval fabrics. The medieval pottery is dominated by mid 13th to 15th-century Bristol Redcliffe ware (BPT118). Small quantities of unglazed or partially glazed Saintonge ware (BPT160) were also recovered and are dateable from the mid 14th to 15th century. A single sherd of 11th to 13th-century Cotswold Oolitic type ware (BPT18) was recovered from fill 208 and represents the only early medieval pottery recovered. This is residual in context, occurring alongside 13th to 15th-century Minety ware (BPT84).

A number of fragments of Redcliffe ware ceramic tile were also recovered including ridge tile from fill 209.

The remainder of the pottery is post-medieval in date and is dominated by locally produced fabrics. The tin-glazed earthenware (BPT99) and yellow-slipped ware (BPT100) are of probable Bristol origin with North Devon gravel tempered ware (BPT112) and the glazed red earthenware produced in Somerset (BPT285). Other fabrics comprise sgraffito decorated wares, black-glazed earthenware and possible Tudor Green. All date to between the 16th and 18th century.

Finds Concordance

109 1 fragment of roofing tile (186g)
7 pieces of coal (786g)
Spot-date: post-medieval

202 2 fragments of animal bone (21g)

203 2 fragments of ceramic tile (10g); Redcliffe ware
1 fragment of plaster (7g)
1 oyster shell (7g)
2 fragments of animal bone (36g)
Spot-date: Mid 13th to 15th century

205 2 fragments of animal bone (54g)
1 piece of coal (10g)
1 fragment of stone tile (181g)

207 2 Fe objects (21g)
1 fragment of stone tile (63g)
5 fragments of animal bone (43g)
17 fragments of oyster shell (39g)

208 2 sherds of pottery (26g); Cotswold Oolitic type, Minety ware
1 piece of slag (1g)
4 fragments of animal bone (10g)
9 oyster shells (130g)
Spot-date: 13th to 15th century

209 2 sherds of pottery (83g); Redcliffe ware
1 fragment of ridge tile (72g)
1 fragment of stone tile (49g)
Spot-date: Mid 13th to 15th century

211 11 sherds of pottery (182g); Redcliffe ware, Saintonge, glazed red earthenware
1 fragment of ceramic tile (32g)
3 fragments of animal bone (69g)
1 piece of charcoal (1g)
7 oyster shells (109g)
2 fragments of poss stone tile (76g)
4 pieces of plaster (78g)
1 Cu alloy object-SF 1 (10g)
Spot-date: 17th to 18th century

212 5 sherds of pottery (43g); Saintonge, yellow-slipped ware, glazed red earthenware
1 fragment of ceramic tile (22g); Redcliffe ware
1 fragment of animal bone (9g)
2 oyster shells (38g)
Spot-date: 17th to 18th century

213 11 fragments of oyster shell (37g)
1 piece of charcoal (1g)
1 piece of slate (8g)

215 1 sherd of pottery (19g); Redcliffe ware
Spot-date: Mid 13th to 15th century

218 1 sherd of pottery (22g); Redcliffe ware
5 fragments of animal bone (105g)
1 piece of charcoal (1g)
4 oyster shells (45g)
Spot-date: Mid 13th to 15th century

219 1 sherd of pottery (10g); Redcliffe ware
Spot-date: Mid 13th to 15th century

220 1 sherd of pottery (13g); Redcliffe ware
1 oyster shell (10g)
2 fragments of animal bone (20g)
Spot-date: Mid 13th to 15th century

226 3 sherds of pottery (90g); Redcliffe ware, Minety ware, Saintonge? ware
1 piece of charcoal (1g)
3 fragments of animal bone (118g)

2 fragments of stone tile (38g)
Spot-date: Mid 14th to 15th century

229 12 sherds of pottery (159g); Redclife ware, poss Saintonge ware, North Devon gravel tempered ware, tin-glazed earthenware, yellow-slipped ware, Sgraffito ware, glazed red earthenware
13 fragments of animal bone (249g)
2 pieces of glass slag (189g)
1 fragment of vessel glass (11g)
9 clay pipe stems (29g)
2 fragments of ceramic building material (393g)
5 fragments of stone (266g)
5 fragments of oyster shell (23g)
2 Fe nails (41g)
Spot-date: 17th to 18th century

241 12 sherds of pottery (183g); glazed red earthenware, black-glazed earthenware, poss Tudor Green
1 fragment of roof tile (67g); Redcliffe ware
22 fragments of animal bone (392g)
30 fragments of marine shell (405g)
1 piece of slag (1g)
5 fragments of stone (81g)
3 pieces of charcoal (1g)
3 pieces of slate (68g)
2 pieces of plaster (10g)
1 Cu alloy object (4g)
Spot-date: 17th to 18th century

242 3 sherds of pottery (61g); glazed red earthenware
Spot-date: 17th to 18th century

244 7 sherds of pottery (140g); glazed red earthenware, black-glazed earthenware
1 fragment of vessel glass (4g)
2 fragments of clay pipe (19g)
10 fragments of animal bone (140g)
7 oyster shells (403g)
1 piece of slate (37g)
Spot-date: 17th to 18th century

261 6 sherds of pottery (177g); glazed red earthenware, yellow-slipped ware
5 clay pipe stems (22g)
1 piece of slate (65g)
1 fragment of ceramic building material (56g)
Spot-date: 17th to 18th century

THE WATERLOGGED WOOD BY ROWENA GALE

Introduction

This report includes the identification of a fragment of waterlogged timber removed from a horizontal beam within trench 1.

Methodology

The wood was firm and well-preserved. Thin sections were removed for examination using standard techniques (Gale and Cutler 2000). The anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. The maturity of the wood was assessed (i.e., heartwood/ sapwood).

Results

Context 226, sample 2: elm (*Ulmus* sp.), sapwood.
The fragment examined included about 5 growth rings ranging in width from *c.* 3 – 5 mm (indicative of moderate growth rates). This would suggest that for this phase of growth the environment was not particularly competitive. The sample examined would be suitable for C14 dating, should that be required.

APPENDIX 3: THE GEOARCHAEOLOGICAL EVIDENCE (FIGS 14 & 15)

AN ASSESSMENT OF THE STRATIGRAPHY BY KEITH WILKINSON

Introduction

In accordance with a brief issued by Bristol City Council (Jones 2004, 8, para. 6.6), a series of four boreholes were drilled under archaeological supervision at the site in August 2004 (Figure 2). The purpose of the investigation was to:

a. determine the total thickness of medieval and post-medieval stratigraphy below present ground surface
b. determine whether alluvial and intertidal deposits outcropping on the site contain evidence for stable terrestrial surfaces (i.e. palaeosols and/or peat)
c. assess the palaeoenvironmental potential of the alluvial/intertidal deposits
d. determine whether gravel strata of Quaternary date outcrop between the fine-grained alluvial/intertidal stratigraphy and the geological substrate
e. If fluvial gravels as described in d. were located, to assess their archaeological and palaeoenvironmental potential

The report describes the stratigraphy recorded in the cores collected during the drilling, assesses the archaeological and palaeoenvironmental potential of the strata and makes recommendations with regard to further geoarchaeological work on the site should development proceed. It should be emphasised at the outset that the four boreholes were drilled for *geotechnical* purposes; placement of these boreholes and the treatment of recovered cores was decided by the geotechnical engineers.

The site is mapped by the British Geological Survey as lying on Quaternary alluvium (BGS 1974). 'Alluvium' is a catch-all title used by the BGS to describe all recent (usually Holocene) fine-grained deposits forming in riverine and intertidal environments. As both the BGS map and other borehole surveys in central Bristol (e.g. Wilkinson 2001; 2003) demonstrate, Quaternary alluvial and intertidal stratigraphy unconformably overlies Triassic deposits of the Mercia Mudstone Group.

Methodology

The boreholes were drilled by Structural Soils Ltd using a Comacchio MC 230 diesel-powered rotary corer. This device collects 1.5m long cores of between 50mm and 100mm diameter, which are retained within Perspex tubing. Drill holes at the site were not cased and therefore it is possible that contaminants from later deposits were introduced into the stratigraphy during drilling. Drilling was monitored by a Cotswold Archaeology officer, who also recorded the location of the boreholes in relation to the Ordnance Survey National Grid and Ordnance Datum.

The intact cores were taken to the Structural Soils Ltd offices in Bedminster, Bristol, for description. The author made two visits to describe the cores on 25th and 31st August 2004. The procedure for describing the cores was as follows:

a. the perspex liners were cut open and the exposed core scraped back to reveal a fresh surface.
b. sediments in the core were described by the author to standard sedimentary criteria (Munsell 2000, Tucker 1982).
c. sub-samples were taken for C14 dating and microfloral examination from zones of the stratigraphy which appeared to have a high or unknown potential to provide useful palaeoenvironmental information (samples are listed in Appendix)
d. the cores were described and sampled by a geologist working for Structural Soils, a process that resulted in their destruction

Borehole (BH) 3 was treated differently from the procedure described above. The perspex sleeves containing the cores split during drilling and the geotechnical engineer, worried that the sediments contained in the cores would dry out, decided to describe the stratigraphy immediately upon arrival of the cores at the Structural Soils offices. This procedure was watched by a Cotswold Archaeology officer who took notes on the top 4.8m of stratigraphy, but the author was unable to attend.

The sediment descriptions (including the basic description of BH 3) were subsequently entered into a Rockworks database (RockWare 2002), and the software was then used to generate the cross section shown as Figure 14.
As is discussed further below core recovery in the top 6m of stratigraphy was poor. There were frequent zones of no recovery, while the strata that was preserved in the cores was more badly compressed (e.g. a 1.5m long core was represented by 0.7m of retained strata). This appears to have been caused by the coarse nature of the made ground and archaeological deposits at this level. In order therefore to understand how the borehole record correlated with archaeological deposits in the top approximate 4m of the stratigraphy, the author made a visit to the site in order to examine open sections during the course of the field evaluation (on 23rd September 2004). Descriptions made during this visit have been included in the discussion of Unit 4 below.

Stratigraphy

Four stratigraphic units were recognised in the strata exposed in the borehole cores:

Unit 1: Mercia Mudstone Group (-5.7m OD and below)
This unit comprises stiff dark reddish brown (2.5 YR 3/4) silts and clays. These rapidly become lithified within 1m of the upper contact. The deposits are of the Triassic Mercia Mudstone Group (MMG) (formerly Keuper Sandstone). There is no evidence for the weathering of the MMG surface as has previously been seen in areas to the west (e.g. the northern part of the Harbourside site [Wilkinson 2003] and Deanery Road [Wilkinson 2001]), while the horizontal bedding of clay/silts together with sand and gravel strata, also seen at these sites, did not occur at Huller House. In other words it would appear that any weathered surface in the MMG had been removed prior to later deposition at Huller House and that the MMG beds are not horizontal, meaning that those found at Huller House do not correlate with those further west.

Unit 2: Fluvial gravels (-2.4 to –5.7m OD)
Tabular sets of pebble and granular gravels unconformably overlie the silts and clays of the MMG group at approximately 5.8 to –5.7m OD. There is some slight variation in morphology of the gravel strata in the three boreholes that were described in detail, but this is to be expected given the inferred mechanism of genesis. The base of Unit 2 is formed by thin (approximately 0.1m thick) sets of clast-supported pebble-gravels. These fine upwards in each set to matrix-supported granules and fine pebbles in a coarse sand matrix. In total this gravel bed is between 1m and 1.5m thick. It is unconformably overlain by a series of thin beds (approximately 0.20-0.35m thick and totalling 0.84m), of dark grey and very dark grey (5 Y 4/1 to 5 Y 3/1) silts and clays with fine laminae of medium and fine sand. Within the silts were moderate quantities of wood fragments and patches of highly comminuted organics (Figure 3). In BH 4 the fine beds are further separated by further sets of fining upwards gravels. The fine-grained beds are then capped by sets of tabular gravels of exactly the same description as that noted from the base, effectively forming a sandwich with the laminated silts as the filling (Figure 15). Gravel clasts are mostly of quartzite and carbonate rocks which appear to have been derived from Triassic strata.

It is certain that Unit 2 formed in a fluvial depositional environment. This may have been of a braided type (*sensu* Collinson 1986). However, the fine-grained beds are less likely to have formed in such an environment. The presence of laminated sands in the bedded silts suggests that accretion was within a channel rather than on the floodplain, while the organic component appears to have been redeposited from elsewhere. However, it is unclear whether the fine-grained layers in all boreholes accumulated as the fill of a single channel. A possible indication that they do not was the discovery of further laminated silts sandwiched between bedded gravels at similar elevations (-3.69 to –3.80m OD) on the Harbourside site (Wilkinson 2003, figure 1). Chronology of Unit 2 is unclear given the present lack of either fossils or absolute dates from this gravel anywhere in central Bristol. However, the following hypothesis is offered in the absence of such data and to take into account the apparent change in the fluvial depositional environment during deposition of the gravels:
a. the lowest tabular-bedded gravels relate to the braided river of the Oldest/Older Dryas stadial of northern Europe, c. >15,000 Cal. yr. BP
b. the fine-grained, laminated, silts and fine sands formed in an anastomosing regime during the Windermere (Allerød) interstadial between 15,000 Cal. yr. BP and 13,000 Cal. yr. BP
c. the upper bedded gravels resulted from further deposition in a braided river depositional environment during the Loch Lomond (Younger Dryas) stadial at 13,000-11,500 Cal. yr. BP.

Unit 3: Bedded silts and clays (+2m OD [possibly +3.8m OD] to –2.5/-3.5m OD
The fine-grained deposits that overlie the gravels of Unit 2 do so conformably, in the sense that they provide the interstitial fill between individual gravel clasts (particularly in BH 3 – see Figure 14). The gravel surface on which deposition took place is approximately 0.5m lower in the east of the site than in the west, perhaps explaining why only in BH 1 do 1m of organic-rich sediments immediately overlie Unit 2. These organic deposits start off as homogeneous organic muds behaving as interstitial fill, gradually changing upwards to bedded dark grey (2.5 Y 4/1) mineral silts and clay with frequent coarse organic laminations. Fragments of *Mytilus edulis* (common mussel) were found from the organic silts during description. It is possible that these indicate a marine origin for

the sediments, but given the morphology of the deposits this seems unlikely. They are therefore either the result of human discard, or more likely a contaminant that has fallen down the borehole.

The upper stratigraphy of Unit 3 in BH 1 and all that in BH 2 and BH 4 is predominantly of dark grey (2.5 Y 4/1 – 5 Y 4/1) bedded silts and clay with occasional fine organic laminae. Only at the very top do the laminae disappear and the silts and clays appear homogeneous. This change is likely to be the result of post-depositional modification resulting from sediment loading and drying of the upper part of the stratigraphy. Nevertheless organic-rich beds do occur towards the top of Unit 3 in both BH 1 and BH 4 albeit at different elevations (Figure 2). Examples of the freshwater gastropod *Anisus leucostoma* (a species that prefers mud-rich, shallow water environments [Boycott 1936]) and fragments of the common oyster (*Ostrea edulis*) were noted in Unit 3 at approximately -0.8m OD in BH 1. The first of these is likely to provide some indication of the contemporary depositional environment, while the latter is probably representative of discarded human food remains. A large (unidentified) bone was also found at about +0.5m OD in BH 1, and is again likely to be discarded domestic waste.

It is unclear on the basis of present evidence when Unit 3 began to accumulate. However, deposition is likely to have taken place in both an alluvial floodplain and an intertidal marsh. Evidence from a correlative deposit of Unit 3 at Deanery Road, suggests that peat formation between 6000 and 5000 Cal. yr. BP took place just above the contemporary sea level (Wilkinson *et al*. 2002). It is likely that the Huller House deposits both pre- and post-date this event. The deposition of Unit 3 continues as Unit 4 begins to form, i.e. this would appear to be a time trangressive process. These events are best seen in BH 2 where a sand containing red ceramic clasts outcrops at +2m OD, but is then overlain by a further 1.7m of fluvial/intertidal sediments before being capped by the archaeological deposits of Unit 4..

Unit 4: Made ground and archaeological deposits (-0.3m OD to +8.73m OD)
The base of Unit 4 comprises interdigitating fluvial/intertidal silts and clay of the type already discussed for Unit 3 and archaeological layers formed of redeposited fluvial/intertidal silts and clays mixed with organics and ceramics (and, in the case of BH 2, a piece of leather). These would appear to represent deposition of domestic waste onto the foreshore. Subsequent silt/clay deposition from the adjacent watercourse then acts to form an interstitial fill between the cultural debris. The archaeological deposits outcrop at rather lower elevations in BH 1 than the other bore holes and it is possible that this is the result of the separation of this area from the rest of the site by a 14th-century revetment (Fig. 2). The upper parts (i.e. the top approximately 4m of each bore hole) of Unit 4 comprise a series of diamicts that have incorporated a great deal of cultural material including brick, ash, coal, and in the uppermost layers, concrete. These deposits were highly compressed in the borehole stratigraphy, but could be clearly seen in the sections of the evaluation trenches. These demonstrate that the diamicts are horizontally bedded, and in addition to building material they contain significant quantities of oysters, mussel shells and in the case of deposits below +6m OD, waterlogged plant macro remains. Indeed diamicts beneath this level also contain redepositied alluvial/intertidal silts and clays. The upper diamicts (i.e. within 2m of present ground surface) are overwhelmingly dominated by re-deposited building material and would appear to have formed from the Victorian period onwards.

It is the task of the conventional archaeological evaluation to interpret Unit 4. However, the borehole evidence suggests the following sequence of events:
a. food and other domestic waste was discarded on the foreshore in the vicinity of BH 2-4. It was then covered up by further alluvial/intertidal deposition. This would first appear to have occurred in the medieval period on the basic of the ceramics recovered from the boreholes. These activities became more frequent and deposition of cultural material dominated over that of the alluvial/intertidal environment.
b. a revetment was built on a north-south axis through the site separating the area of BH 1 from areas behind the revetment to the east. Cultural material was placed east of the revetment to raise the land above the high water mark. Domestic waste was discarded in the vicinity of BH 1 as described under a.
c. further waste was discarded in the vicinity of BH 1 and a wall fronting the river built to its immediate west

Assessment

The four stratigraphic units seen at Huller House broadly correlate with those recently noted elsewhere in central Bristol (Wilkinson 2001; 2003). However, despite the comparisons that can be drawn with sites that have been investigated further to the west, a number of questions remain that need resolution before a firm statement of archaeological potential can be made with regard Units 2 and 3. The currently available data from Huller House suggests the following:

Unit 1: Mercia Mudstone Group. This has NO archaeological or palaeoenvironmental potential. It is a Triassic deposit and therefore long predates the evolution of the Hominidae family. Moreover it would appear that all traces of any terrestrial land surface of Quaternary date at the surface of the Mercia Mudstone have been removed.

Unit 2: Fluvial gravels. This Unit has an UNCERTAIN (but probably low) archaeological potential and an UNCERTAIN palaeoenvironmental potential. The uncertainty relates in both cases to the lack of any firm chronology. If the deposits are – as has been suggested above – of Devensian Late Glacial date they will have a low archaeological potential given that humans were absent from Britain for much of the stadials (Barton 1997). Deposits accreting in a braided river are also unlikely to preserve *in situ* archaeological remains. However, depending on their age the laminated silts could conceivably contain vestiges of human activity, and will certainly contain biological remains that could be used to reconstruct the contemporary environment.

Unit 3: Bedded silts and clays. This Unit has a LOW archaeological potential and a UNCERTAIN or MODERATE palaeoenvironmental potential. No sedimentary characteristics that indicate episodes of stasis and therefore terrestrial surfaces, were noted. This suggests that deposition was probably continuous. People are therefore unlikely to have used the area occupied by Huller House during accumulation of Unit 3, except as an area on which to discard their rubbish during the latter stages of accretion. The higher potential afforded to the status of Unit 3 with respect to palaeoenvironmental evidence is based on the following:
a. the organic deposits at the base of BH 1 may be of relatively early Holocene date given the *inferred* age of Unit 2. Their examination may therefore fill a gap in the Mesolithic or Neolithic palaeoenvironmental history of Bristol.
b. there are further thin organic-rich beds towards the top of Unit 3 which may, given associated finds, be contemporary with medieval occupation in the city. If so biological material from these deposits may provide useful information with regard to human impact on the wider environment

However:
c. there are no peat beds in the stratigraphy and therefore limited opportunity for high resolution micro-floral analysis
d. organic sedimentation, except where noted in a. and b. above only formed thin laminae comprised of reworked biological material
e. there are indications that parts of the Unit 3 stratigraphy has been modified by post-depositional processes (e.g. fractures, drying etc)

Unit 4: Archaeological deposits and made ground. This Unit was the subject of the conventional archaeological evaluation which indicates that it is of HIGH archaeological potential (Barber this volume). Deposits of Unit 4 that outcrop below +6m OD also have a HIGH palaeoenvironmental potential. All categories of biological remains are well preserved below this elevation, while they are also firmly associated with past human activity. It is worth emphasising that Unit 4 extends approximately 6.5m downwards from the present ground surface across the entire site (if the sand lens containing ceramics noted in BH 2 is included).

Conclusions and recommendations

The borehole survey carried out at Huller House supports the conclusions of the archaeological evaluation in respect of Unit 4, but further suggests that these important medieval and post-medieval deposits extend 6.5m below current ground surface. Should development take place that would impact on this zone of the stratigraphy further mitigative archaeological works are likely to be required.

The archaeological potential of Unit 3 is low, while the impact on these deposits from development is only likely to be from pile driving. Nevertheless two parts of the stratigraphy have unknown/moderate palaeoenvironmental potential depending upon the chronology. Similarly Unit 2 is also unlikely to be directly impacted by development except by piling. However, the sandwiched fine-grained silts reported above appear to occur rarely in Bristol, and depending upon their chronology, may provide important palaeoenvironmental information for the Late Pleistocene. For these reasons a further examination of these units should be considered as part of any archaeological mitigation strategy. Sufficient samples exist from Unit 2 to enable both a chronology to be determined and microbiological analysis to be carried out if required (Appendix A), but further coring would be needed to collect cores from Unit 3. This could be achieved by drilling through the base of any archaeological trenches using a Cobra power auger or similar device, ideally in the western part of the site.

Appendix A: Sub-samples collected from the Huller House bore hole stratigraphy

The following sub-samples were collected from the Huller House cores during the course of sediment description carried out at the offices of Structural Soils Ltd:

BH	Depth interval (m below surface)	Purpose
1	11.27-11.28	Microflora
1	11.34-11.35	Microflora
1	11.41-11.42	Microflora
1	11.48-11.49	Microflora
1	11.55-11.56	Microflora
1	11.62-11.63	Microflora
1	11.64-11.66	^{14}C
1	11.69-11.70	Microflora
1	11.76-11.77	Microflora
1	11.75-11.77	^{14}C
1	11.83-11.84	Microflora
1	11.90-11.91	Microflora
1	11.97-11.98	Microflora
4	11.72-11.74	^{14}C
4	12.95-12.96	Microflora
4	12.98-12.99	Microflora
4	13.28-13.29	Microflora
4	13.34-13.35	Microflora
4	13.37-13.39	^{14}C
4	13.40-13.41	Microflora
4	13.46-13.47	Microflora
4	13.55-13.56	Microflora

The sub-samples are currently in storage in the Department of Archaeology, University College Winchester.

APPENDIX 4: LEVELS OF PRINCIPAL DEPOSITS AND STRUCTURES

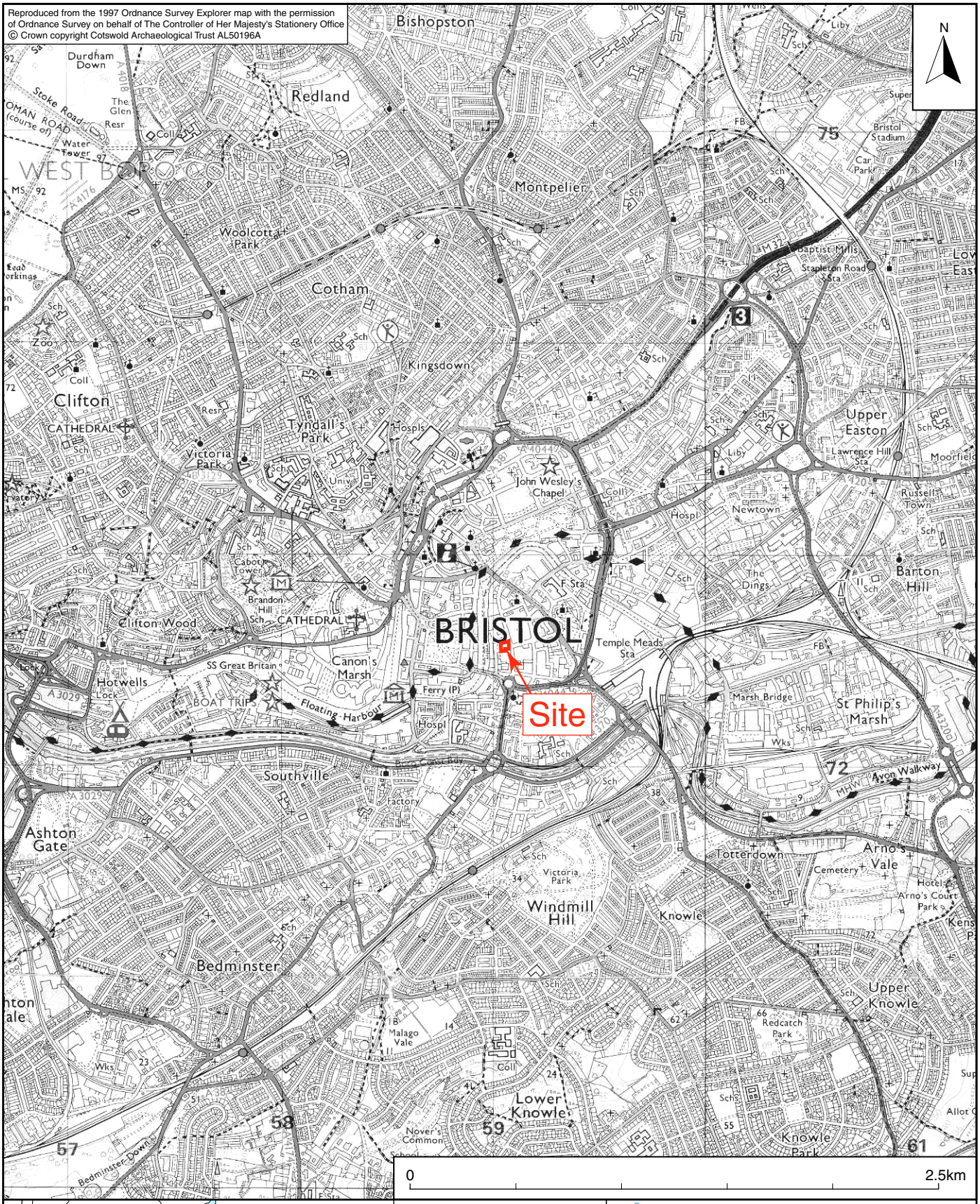
Levels are expressed as metres below current ground level and as metres Above Ordnance Datum (AOD), calculated using a client-supplied survey of the site by JR Tye.

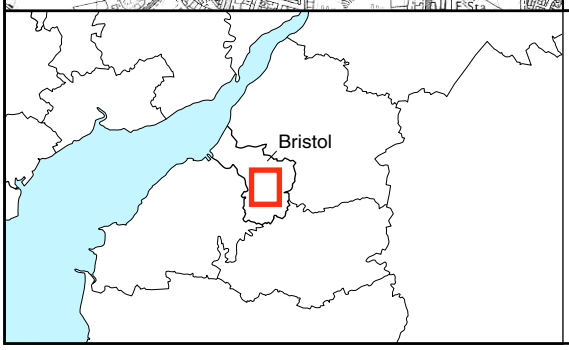
	Trench 1	Trench 2
Current ground level	0.00m (8.69m)	0.00m (8.60m)
Cellar floor	1.55m (7.10m)	-
Top of ?quayside structure (wall 107)	1.8m (6.85m)	-
Top of ?quayside flagstone floor 113	4.5m (4.10m)	-
Top of uppermost surviving medieval floor surface 274	-	1.25m (7.50m)
Top of ?medieval wall 247	-	0.00 (8.60m)
Top of ? medieval wall footing 246	-	1.10m (7.70m)
Top of alluvium 226	-	2.75 (6.20m)
Top of alluvium 227	-	2.95m (5.95m)
Top of medieval timber 1	-	2.85m (6.15m)
Limit of excavation	4.5m (4.10m)	2.9m (5.95m)

Upper figures are depth below modern ground level, lower figures in parentheses are metres AOD.

APPENDIX 5: TRENCH CO-ORDINATES

Trench No	NGR Sheet	Easting	Northing
1	ST	59010	72574
	ST	59020	72577
	ST	59012	72570
	ST	59021	72573
2	ST	59019	72564
	ST	59023	72566
	ST	59023	72552
	ST	59027	72554



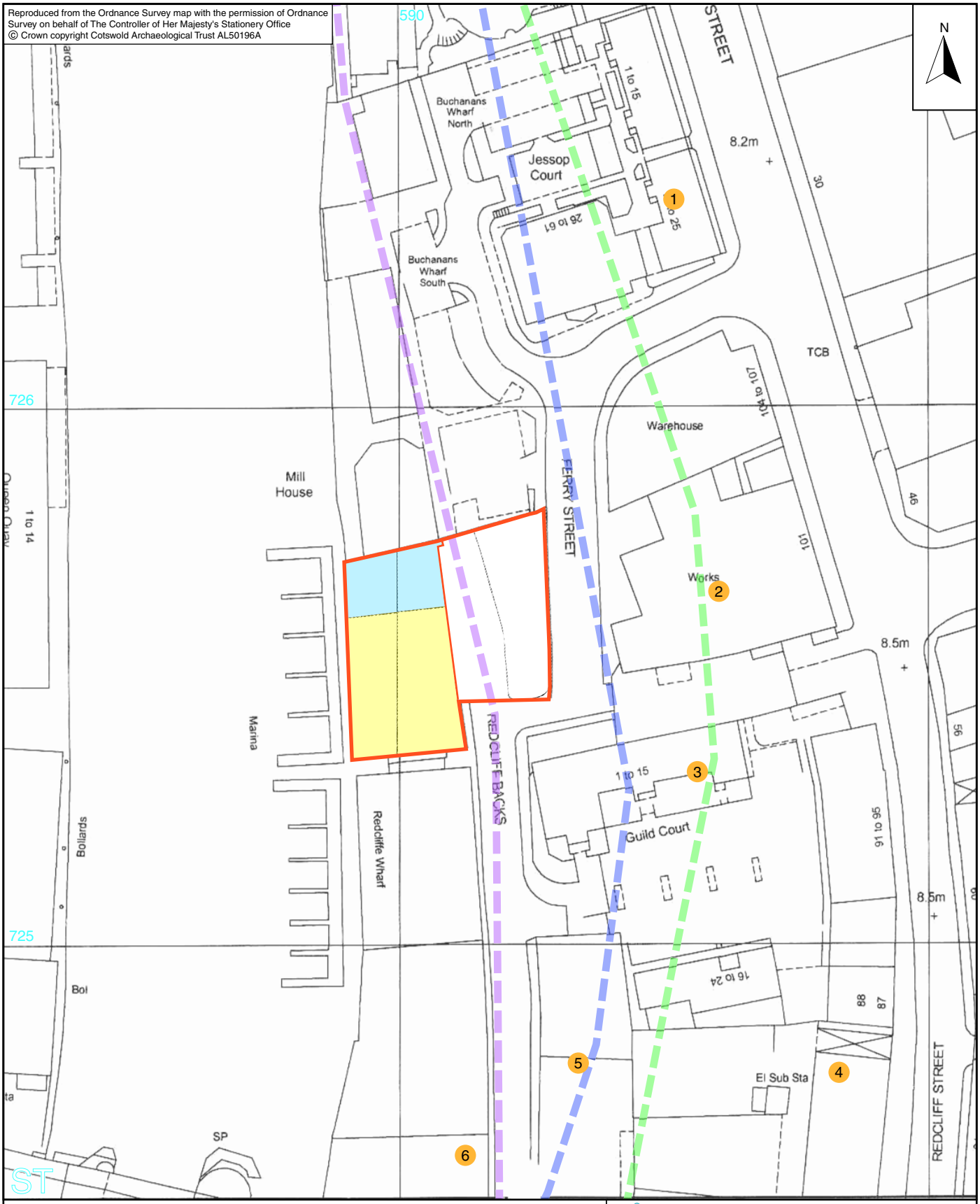


COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Site location plan

SCALE	*PROJECT NO.*	*FIGURE NO.*
1:25,000@A4	1833	**1**



site
Huller House
South Warehouse
previous archaeological investigation

12th-century riverfront
13th-century riverfront
14th-century riverfront
(APPROXIMATE POSITIONS, AFTER INSOLE 2001, FIG. 6)

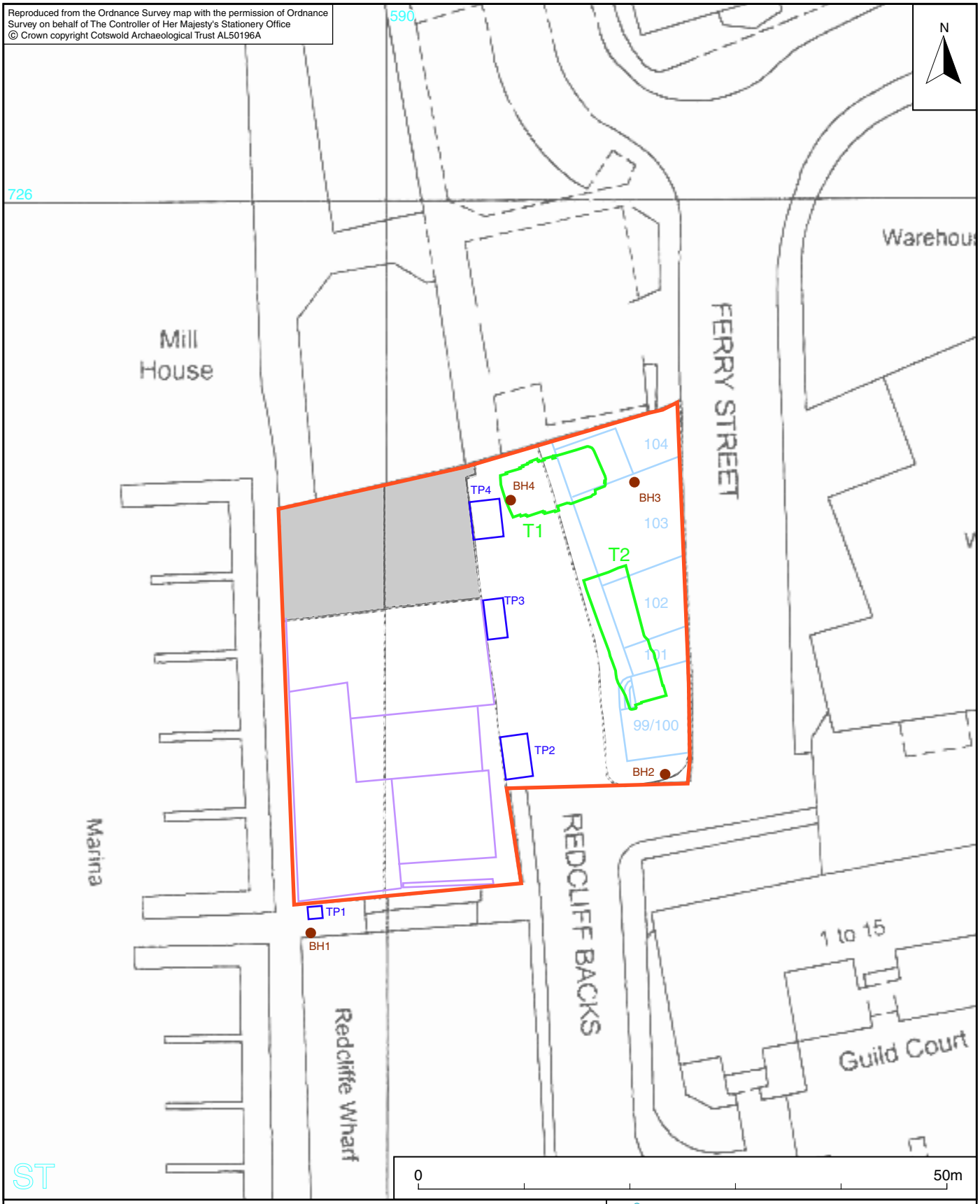
0 100m

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Recorded archaeological sites within and around the site

SCALE	*PROJECT NO.*	*FIGURE NO.*
1:1000@A4	1833	**2**



site

evaluation trenches

borehole

mid 19th century surviving

early 20th century surviving

recorded in 1884, demolished early 20th century

recorded in 1884, demolished 1960s

100 Redcliff Street tenement numbers

geotechnical trial pit

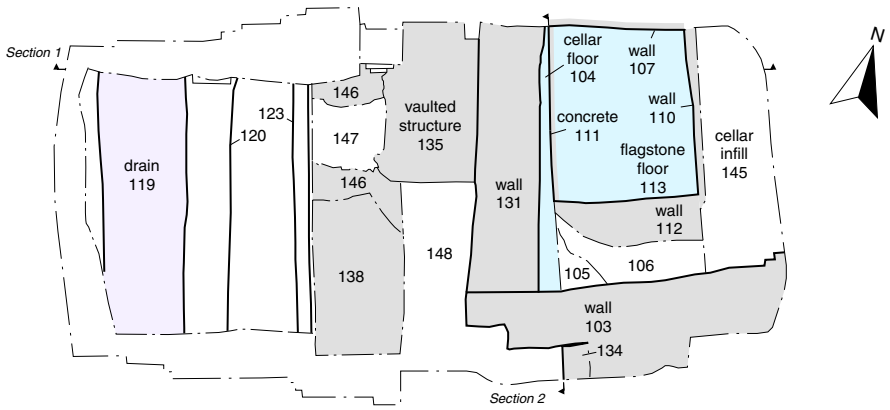
COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

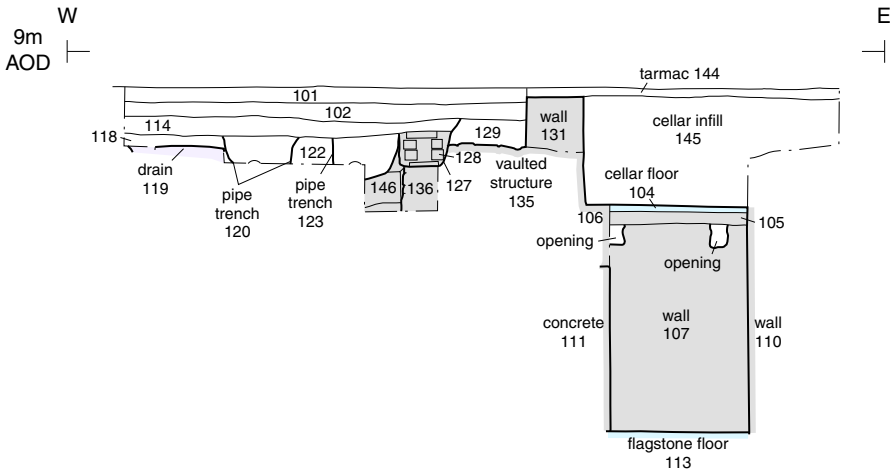
FIGURE TITLE
Trench and borehole location plan

SCALE	*PROJECT NO.*	*FIGURE NO.*
1:500@A4	1833	**3**

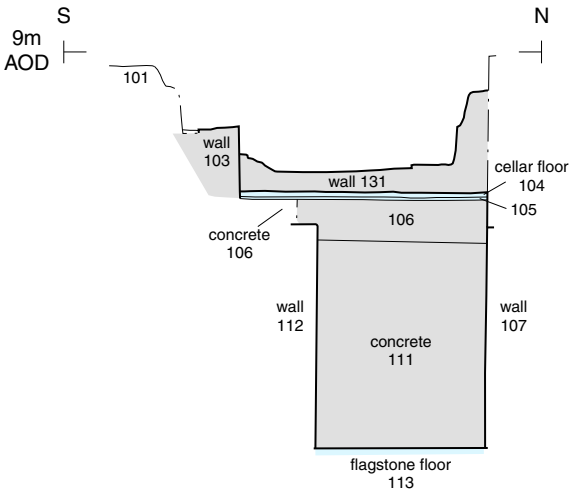
Trench 1 Plan



Trench 1 Section 1



Trench 1 Section 2



0 10m

walls/structures

surface

drain

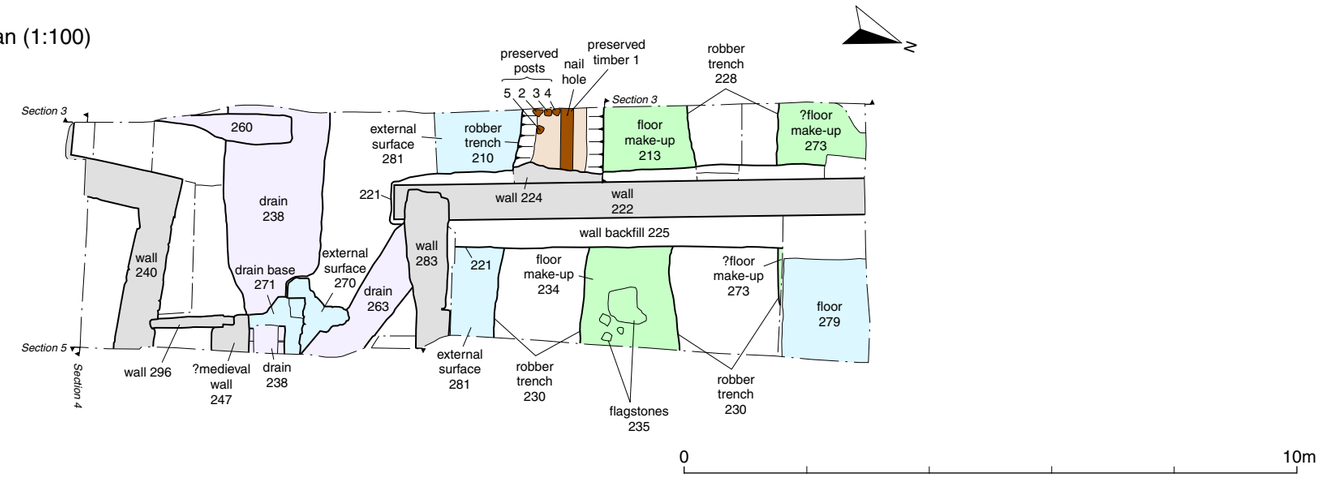
COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

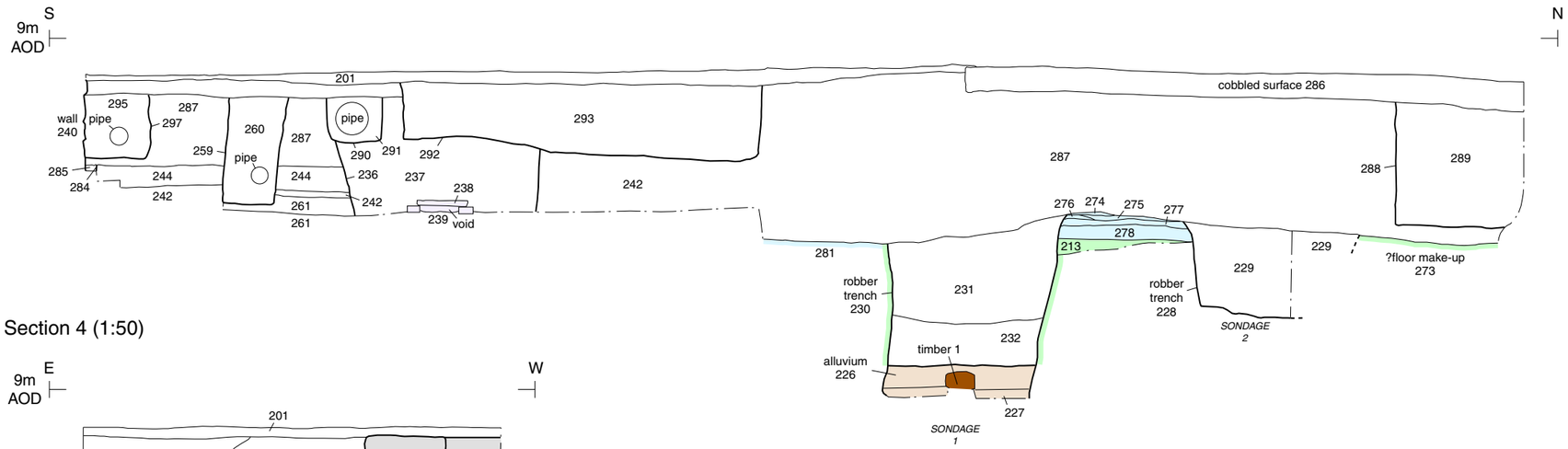
FIGURE TITLE
Trench 1; plan and sections

SCALE	*PROJECT NO.*	*FIGURE NO.*
1:100@A4	1833	**4**

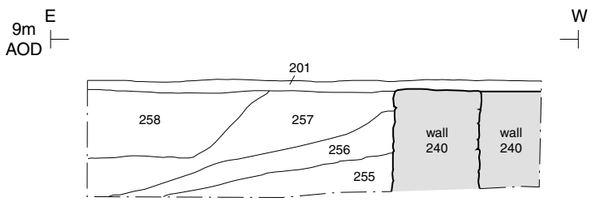
Trench 2 Plan (1:100)



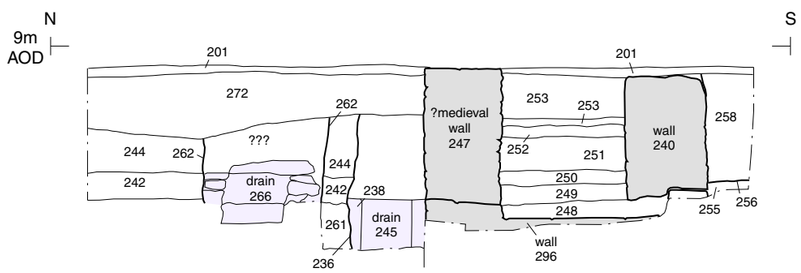
Trench 2 Section 3 (1:50)



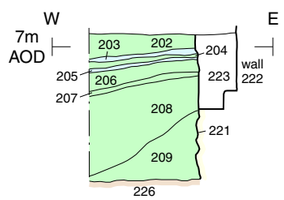
Trench 2 Section 4 (1:50)



Trench 2 Section 5 (1:50)



Trench 2 Section 6 (1:50)



0 5m

alluvium
preserved timbers 1-5
wall
surface
medieval make-up/ dump deposits
drain

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Trench 2; Plan and Sections

SCALE @ A3	PROJECT NO.	FIGURE NO.
1:100 & 1:50	1833	**5**

6

7

6 Trench 1: view looking east

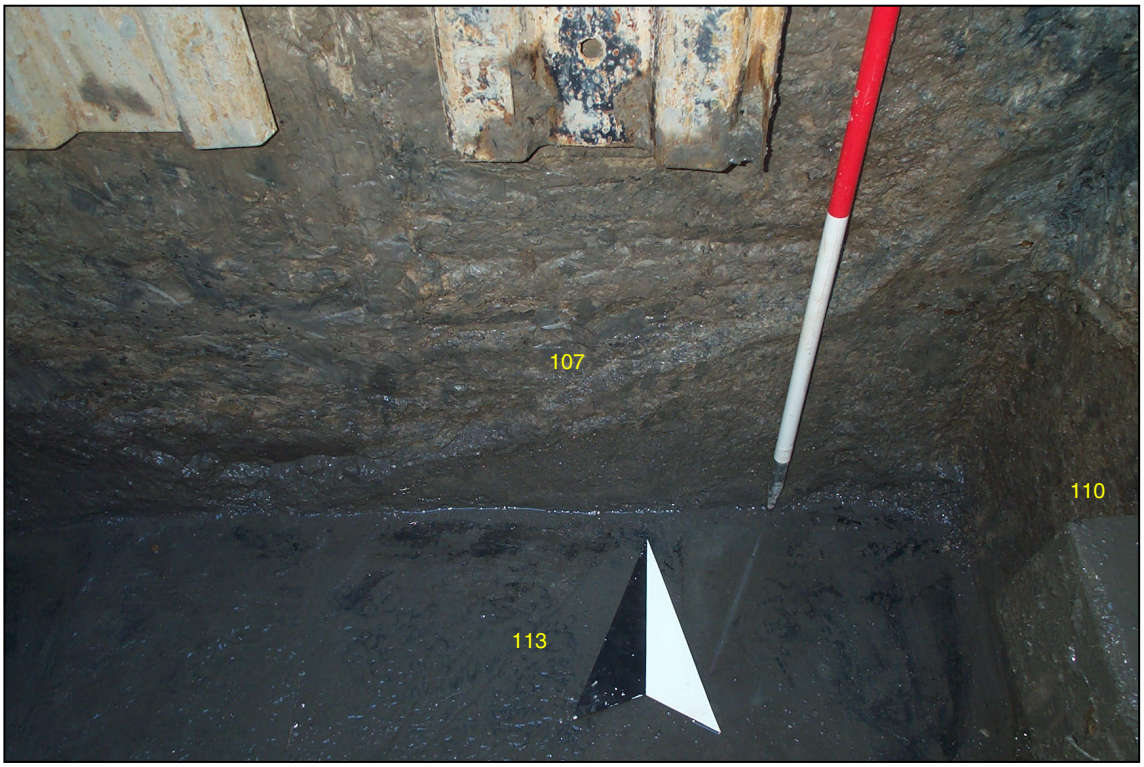
7 Trench 1: ?quayside structure, looking north

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photographs

SCALE	PROJECT NO.	FIGURE NO.
n/a	1833	**6 & 7**



8

9

8 **Trench 1: flagstone floor, and northern and eastern walls, of ?quayside structure, looking north**

9 **Trench 1: blocked-in vaulted structure, looking east**

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photographs

SCALE	*PROJECT NO.*	*FIGURE NO.*
n/a	1833	**8 & 9**

10

11

10 Trench 2: *in situ* waterlogged medieval timbers

11 Trench 2: medieval dump deposits and subsequent make-up and floor deposits, looking north

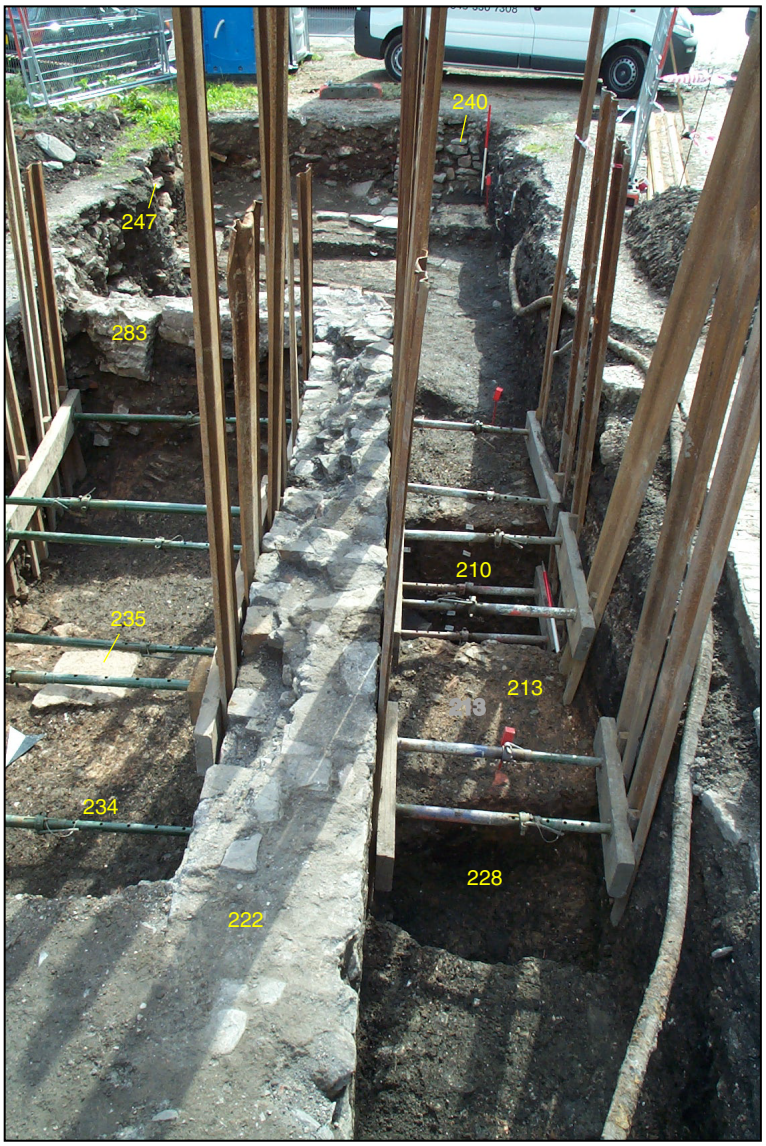
COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photographs

SCALE	PROJECT NO.	FIGURE NO.
n/a	1833	**10 & 11**

12



12 Trench 2: view looking south

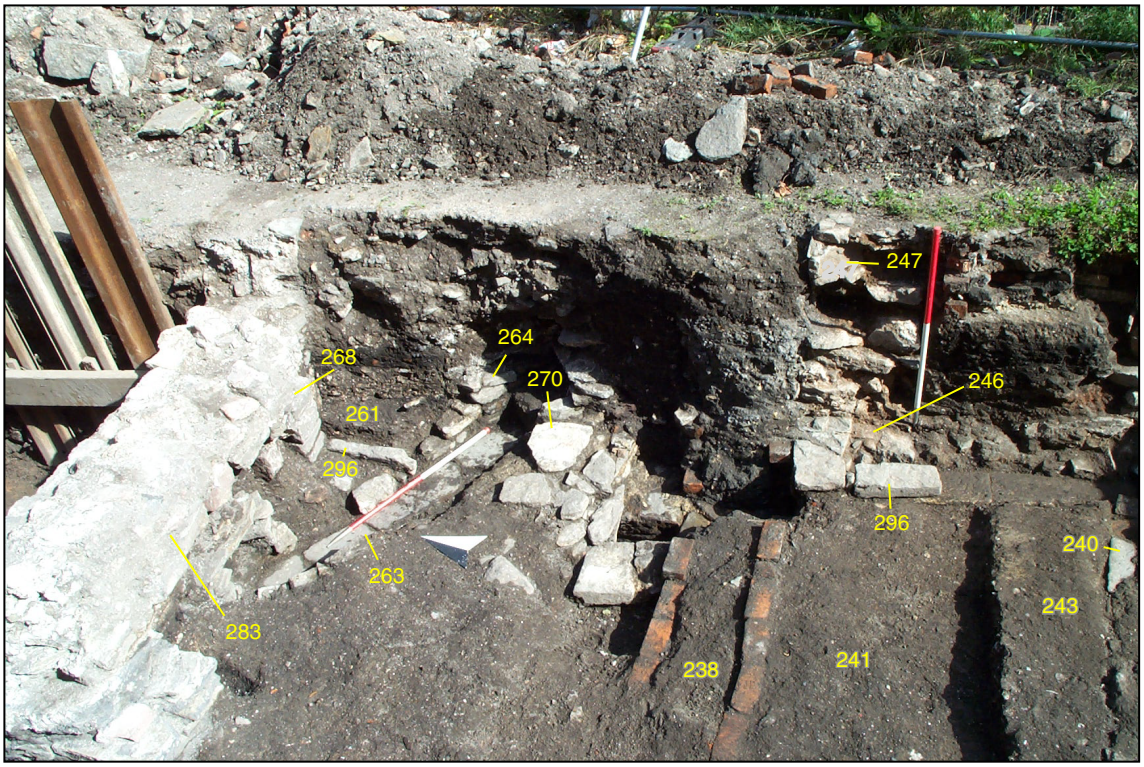
COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photograph

SCALE	PROJECT NO.	FIGURE NO.
n/a	1833	**12**

13



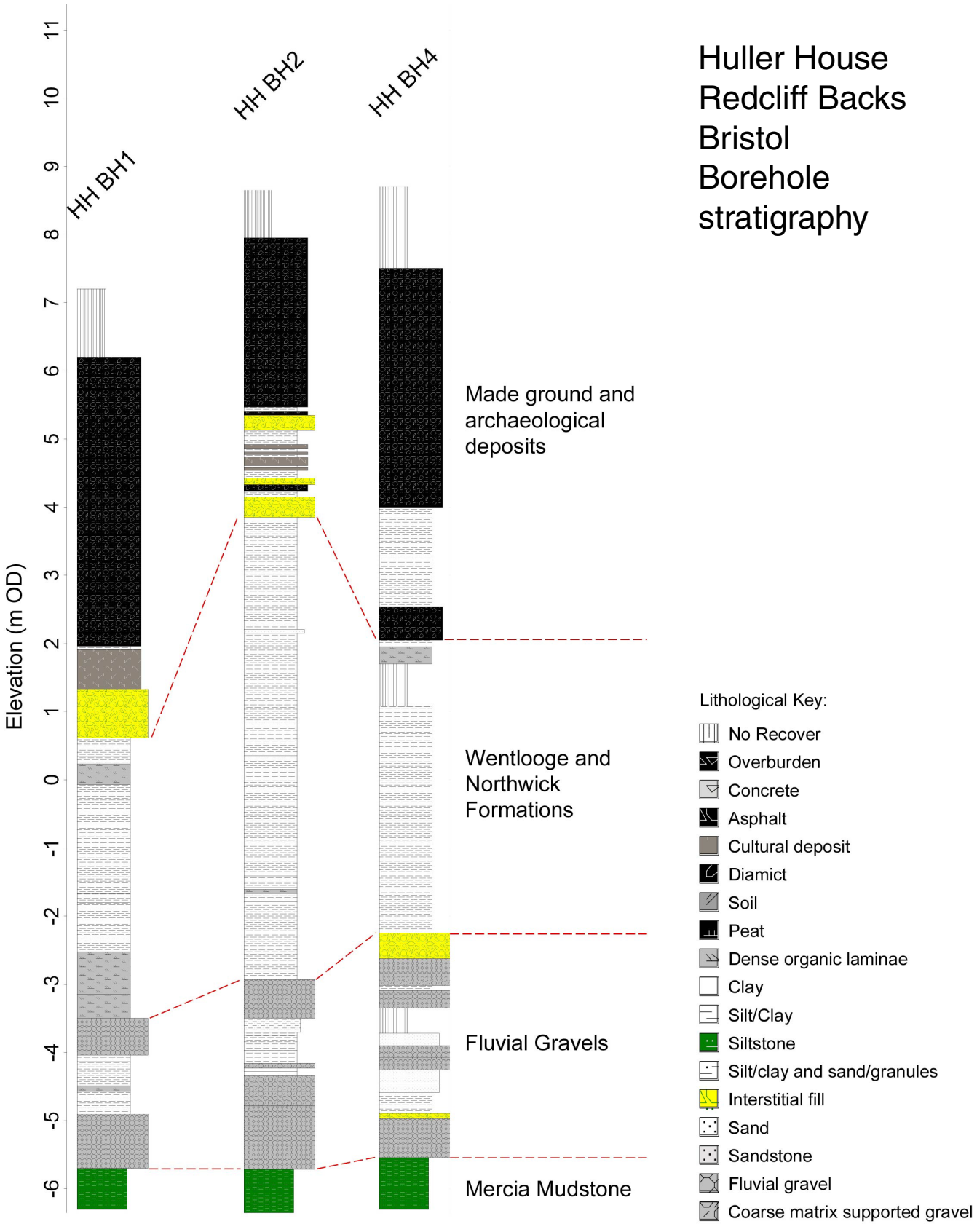
13 Trench 3: Medieval wall 247, looking east

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photograph

SCALE	PROJECT NO.	FIGURE NO.
n/a	1833	**13**



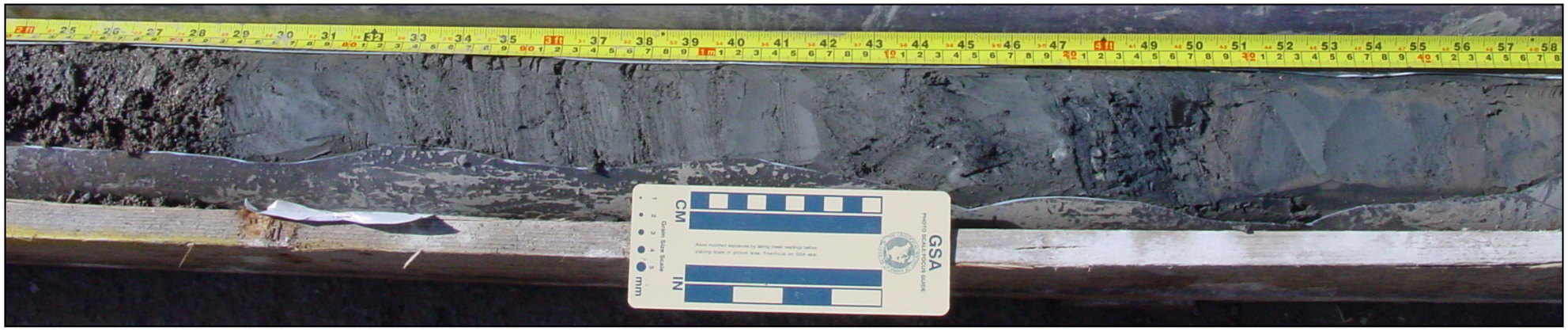
14 Schematic cross section through the stratigraphy beneath Huller House, as seen in boreholes 1, 2 and 4

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Transect

SCALE	*PROJECT NO.*	*FIGURE NO.*
n/a	1833	**14**



15 Laminated fine-grained deposits lying between tabular sets of fluvial gravels at -3.9m to -4.8m OD in borehole 1

COTSWOLD ARCHAEOLOGY

PROJECT TITLE
Huller House, Redcliff Backs, Bristol

FIGURE TITLE
Photograph

SCALE @ A3	*PROJECT NO.*	*FIGURE NO.*
n/a	1833	**15**