7-11 BROADQUAY/6-22 MARSH STREET
BRISTOL

POST-EXCAVATION ASSESSMENT AND UPDATED PROJECT DESIGN

on behalf of

BEAUFORT HOMES AND REX DEVELOPMENT LIMITED

CA PROJECT: 9053
CA REPORT: 07147

SEPTEMBER 2008
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## CONTENTS

### SUMMARY ........................................................................................................................ 5

1. **INTRODUCTION** ........................................................................................................... 7

   - Location ......................................................................................................................... 7
   - Archaeological background ......................................................................................... 8
   - Previous Archaeological Work .................................................................................. 9

2. **AIMS AND OBJECTIVES** ............................................................................................ 11

3. **METHODOLOGIES** ...................................................................................................... 13

   - 2001 Evaluation ........................................................................................................... 13
   - 2006 Evaluation ........................................................................................................... 13
   - 2006 Excavation .......................................................................................................... 14

4. **RESULTS** .................................................................................................................... 15

   - Fieldwork Summary by Project ................................................................................ 15
   - Fieldwork Summary by Provisional Period .............................................................. 17
   - Period 1: Natural Alluvial Deposits and early medieval activity (late 12th – late
     13th/early 14th centuries) ......................................................................................... 17
   - Period 2: Construction of the town wall and Marsh Street (early 14th to mid
     16th centuries) ........................................................................................................... 19
   - Period 3: Post-medieval (mid 16th-late 18th centuries) ............................................. 23
   - Period 4: Early Modern (c.1800 – 1901) ................................................................. 24
   - Period 5: Modern ........................................................................................................ 26
   - Stratigraphic Record: factual data ........................................................................... 26
   - Stratigraphic record: statement of potential ............................................................ 27
   - Documentary sources: factual data .......................................................................... 27
   - Documentary sources: statement of potential ........................................................... 27
   - The Standing Buildings: factual data ....................................................................... 28
   - The Standing Buildings: statement of potential ....................................................... 28
   - Artefactual record: factual data ............................................................................... 29
   - Artefactual record: statement of potential .............................................................. 31
Biological record: factual data .................................................................33
Biological record: statement of potential ........................................35

5. SUMMARY STATEMENT OF POTENTIAL ...........................................37

6. STORAGE AND CURATION ...............................................................38

7. UPDATED AIMS AND OBJECTIVES ..............................................38

8. PUBLICATION .......................................................................................42
   Synopsis of Proposed Report ..............................................................43

9. PROJECT TEAM ....................................................................................44

10. TASK LIST ............................................................................................46

11. TIMETABLE .........................................................................................47

12. REFERENCES .......................................................................................48

APPENDIX 1: DOCUMENTARY RESEARCH BY ROGER LEECH ...............56

APPENDIX 2: STANDING BUILDINGS BY PETER DAVENPORT .............57

APPENDIX 3: THE POTTERY BY ALAN VINCE AND KATE STEANE .......58

APPENDIX 4: CLAY PIPE BY TERESA GILMORE ...................................73

APPENDIX 5: GLASS BY JOHN SHEPHERD ...........................................74

APPENDIX 6: THE LEATHER BY QUITA MOULD .....................................76

APPENDIX 7: METALWORK AND WORKED BONE BY E.R. MCSLOY .........80
APPENDIX 8: METAL RESIDUES BY VICTORIA TAYLOR .............................................83

APPENDIX 9: STONE BY KATHRYN PRICE ........................................................................83

APPENDIX 10: ANIMAL BONE BY SYLVIA WARMAN .............................................84

APPENDIX 11: FISH BONE BY HANNAH RUSS ..................................................................88

APPENDIX 12: MOLLUSCS BY SYLVIA WARMAN ............................................................90

APPENDIX 13: PLANT REMAINS BY JULIE JONES ..........................................................91

APPENDIX 14: WATERLOGGED WOOD BY ROWENA GALE ........................................99

APPENDIX 15: GEOARCHAEOLOGY BY K. WILKINSON .................................................102

LIST OF ILLUSTRATIONS
Fig. 1. Site location plan (1:25,000)
Fig. 2. Trench location plan (1:250)
Fig. 3. Period 1 – north (1:100)
Fig. 4. Period 1 – south-west (1:150)
Fig. 5. Period 2 – north (1:100)
Fig. 6. Period 2 – south-east (1:100)
Fig. 7. Section through deposits against town wall (1:20)
Fig. 8. Period 2 – south-west (1:100)
Fig. 9. Period 3 – north (1:100)
Fig. 10. Period 3 – south-west (1:100)
Fig. 11. Period 4 – north (1:100)
Fig. 12. Period 4 – south (1:100)
Fig. 13. The Marsh Wall and associated angled projections 2708 and 2783
SUMMARY

Site Name: 7-11 Broad Quay/6-22 Marsh Street
Location: Bristol City Centre
NGR: ST 58638 72790
Type: Evaluation & Excavation
Date: 9th February–23rd March 2001/9th June–19th December 2006
Planning Reference: 04/02769/F/C
Location of Archive: To be deposited with Bristol's Museums, Galleries and Archive
Accession no. BRSMG 2006/95
Site Codes: BQB 01 & BQB 06

A programme of archaeological investigation was undertaken by Cotswold Archaeology at 7-11 Broad Quay and 6-22 Marsh Street, Bristol in February-March 2001 for Beaufort Homes and 2006 at the request of Rex Development (Broad Quay) Limited in June-December. A total of twenty-one trenches (1-21) were excavated across the site in February and March 2001, followed by a further four trenches (24-27) between June and August 2006. The 2006 evaluation was followed by the excavation of three areas (1-3) in August and September 2006 and two further areas (4 and 5) in December 2006.

This document presents a quantification and assessment of the evidence recovered from the two evaluations and the subsequent excavation. It considers the evidence collectively in its local, regional and national context, and presents an updated project design for a programme of post-excavation analysis to bring the results to appropriate publication.

The evaluations and excavation established a sequence of occupation from the early 13th to the 20th century, with sparse evidence for activity in the late 12th to early 13th centuries. The earliest deposits encountered were the natural alluvial clays of the River Frome, overlain in places by accumulated marsh deposits. A possible former channel of the Frome with waterlogged deposits including preserved leather and wooden artefacts, was investigated. Following the diversion of the Frome in the mid-13th century, widespread dumping of clay had occurred across the site to reclaim the marsh for settlement. Medieval structures and deposits from the late 13th to early 14th centuries were recorded over this clay, although the evaluation
demonstrated that the complexity and depth of surviving archaeological deposits was variable across the tenements on Marsh Street. A stone-built structure interpreted as the remains of a slipway leading to the Frome was associated with the complex remains of medieval structures standing above ground to more than 7.5m high in the extant north wall of 16 Marsh Street; the greater part of the south wall of the property (which also survives above ground) was probably constructed in the 1620s, after the slipway had gone out of use.

Two of the evaluation trenches established the presence of the ‘Marsh Wall’ along the Broad Quay street front and uncovered the remains of two angled projections to the wall.

The north eastern quarter of the site was excavated in three areas. Area 1 exposed the lower parts of the standing medieval wall of 16 Marsh Street. Traces of a post-medieval culvert were noted immediately to the south of a modern sewer trench that runs east/west across the site. Some patches of post-medieval flooring as well as early modern floors and stub walls associated with later re-use of the medieval standing wall were noted in the strip of land between Trench 4 and the wall. Further medieval deposits sealing natural alluvium were revealed in excavations of two proposed pile caps (Areas 4 and 5) within Area 1.

Area 2 was located on the Marsh Street frontage and exposed former marsh deposits. The earliest activity recorded was a stone-lined well, and a medieval building. This building had two, possibly three periods of construction and was sealed by redeposited soil layers and a series of post medieval floor surfaces below an early modern cellar.

Area 3 exposed an in-filled channel running north/south, possibly associated with the former River Frome. This channel contained items of worked wood and leather, along with large amounts of medieval pottery and appears to have silted up, rather than being in-filled in one deliberate act. This was overlain by a number of redeposited soil and rubble layers below a rubble-filled early modern stone and brick-lined cellar with the remains of a former brick vaulted ceiling.
1. INTRODUCTION

1.1 Between February 2001 and December 2006, Cotswold Archaeology (CA) carried out a series of archaeological investigations at 7-11 Broad Quay and 6-22 Marsh Street, Bristol (centred on NGR: ST 58638 72790; Fig. 1). The 2001 work was undertaken for Beaufort Homes following a planning application to Bristol City Council (ref: 04/02769/F/C) for mixed-use development. Later work in 2006 was undertaken at the request of Rex Development (Broad Quay) Limited. The fieldwork and subsequent post-excavation analysis have been carried out under a Section 106 agreement.

1.2 The fieldwork 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 Mr Bob Jones, the Bristol City Council Archaeologist.

**Location**

1.3 The development area (Fig. 2) consists of a relatively flat parcel of land that lies at approximately 9m AOD in the northern half of the site with ground level dropping away slightly to c.8.5m AOD in the south western corner of the site on the former plots of 9-11 Broad Quay.

1.4 The underlying solid geology of the site is recorded as Triassic Redcliffe Sandstone and Mercia Mudstone (Geological Survey of England and Wales 1974). This is overlain by recent estuarine alluvium, which typically consists of a soft to very soft brownish-grey clay, becoming a dark, bluish-grey, silty-clay at depth. A geotechnical investigation by Wimtec Environmental in 2000 (Wimtec, 2000), combining trial-pitting and a borehole survey, confirmed the presence of sandstone deposits, at approximately 10-12m below existing ground level, overlain by sandy and silty-clays with peat traces.

1.5 The site lies within the historic centre of Bristol and is bordered to the north by a property fronting onto Marsh Street, to the east by Marsh Street itself and to the south and west by Broad Quay. The southern part of the application area contained the former Bristol and West Building Society office.
complex, consisting of a tower and underground car park, whilst the northern part of the site consists of buildings on the Broad Quay frontage dating from the 1960s (7-11 Broad Quay), together with a series of largely vacant 18th to 20th-century properties on the Marsh Street frontage (6-22 Marsh Street). The site also includes an open area, 12-14 Marsh Street, which was used until recently as a car park.

Archaeological background

1.6 The Marsh Street/Broad Quay site lies some 370 metres south-west of the centre of the traditional Saxon burh, the exact site of which has been debated by Ponsford (Ponsford 1979, 25-27) and Leech (Leech 1997a, 18-24). A Norman castle was constructed to the east of the burh in the 1080s, by which time the town was already an important seaport.

1.7 The present day course of the Frome, which runs along St. Augustine's Reach and is then culverted before it flows beneath Bristol City Centre, differs from its early medieval course. The Frome was diverted from its original course, traditionally believed to run along the south side of Baldwin Street, in the 1240s in order to improve harbour facilities (Harding 1930, 18-19). Leech (Leech 1997a) has argued for an alternative in that the line of King Street could have followed the original course of the Frome, which was then utilised as the extra-mural ditch for the Marsh Wall. Prior to the diversion the area to the south of Baldwin Street was a low-lying flood plain, known as St. Stephen's Marsh.

1.8 The digging of the new channel led to the development of the area known as the 'Key', now Broad Quay, as the major centre of maritime activity in Bristol from the thirteenth century. Prior to this, Welsh Back on the Avon, and possibly the north bank of the Frome, may have provided the port facilities (Bristol Urban Archaeological Assessment (BUAA)). This may have been in the form of informal landing places, such as tidal creeks (Price & Ponsford 1998, 32), rather than stone or timber wharves.

1.9 The importance of the new harbour facilities can be seen in the light of Bristol's major import – wine. In the thirteenth century Bristol was at times importing more than 3,000 tuns (750,000 gallons) of wine, and was second
only to the port of London in this respect (Lobel 1975). The new ‘Key’ would have been bristling with the day-to-day activities of building, victualling and repairing ships, and lodging their crews and numerous merchants. As well as the wine import trade Bristol was exporting food and raw materials, although it lay off the main routes of the raw-wool trade in the thirteenth century.

1.10 Following the diversion of the Frome, and creation of the new ‘Key’, around 1247, an area of around 7.5 hectares was reclaimed. This extended to the south and west of the earlier settlement, defined by Baldwin Street to the north, the ‘Key’ to the west, the new Marsh Wall to the south, and the Avon to the east. The new wall ran east to west from the Avon to the ‘Key’, before turning north along the inner edge of the ‘Key’ and possibly terminating at Viell’s Great Tower, at the west end of what later became Old Nick’s Entry (which ran approximately from 4-6 Marsh Street to 1-2 Broad Quay). Although the Marsh Wall remains undated through archaeological excavation, grants of murage exist to suggest a date in the third quarter of the thirteenth century (Cal Pat Rolls Henry III). This would tie in with deeds of the 1260s and 1270s which show ‘Scadepulle’ or Marsh Street and ‘Bast’ or Back Street were being built up at the same time. A bastion on the Marsh Wall survives at St. Nicholas’ Almshouses, along with a few other stretches of medieval walling and elements of the churches of St. Nicholas and St. Stephen, as the only known examples of medieval structures surviving above ground in this area of the city.

Previous Archaeological Work

1.11 Excavations on the line of the Marsh Wall up to 2006 had failed to produce conclusive dating evidence, but did offer some insight into the development of Broad Quay and Marsh Street. A 2.4m thick section of wall, constructed from Brandon Hill Grit, and pierced by two arched openings was found at the southern end of Broad Quay (Price 1991). This was interpreted as a ‘watergate’, offering openings through the wall beneath the ‘Key’. These effectively acted as a pair of slipways giving direct access between the inside of the town wall and the river. This differs from the numerous single slipways along the Redcliffe waterfront in that it forms part of the town wall; the only comparable example from Bristol is found at Temple Quay, where a
watergate on the mid thirteenth-century Portwall provided access to the extra-mural ditch (CAT, 2000, 25).

1.12 At the north end of the ‘Key’, at 1-2 Broad Quay, a structure at least 4.25m thick was recorded in 1972 (Bristol Urban Archaeological Database (BUAD) 3234), and could potentially be the site of Viell’s Tower. Further to the north a 1.7m thick section of wall was recorded at the end of Clare Street in c1771 (BUAD 246). Other excavations on the Marsh Wall include the semi-circular bastion at St. Nicholas’s Almshouses excavated in 1960 (Barton 1964; BUAD 441) for which a date in the third quarter of the thirteenth century, or later, has been suggested (CA 2000, 20).

1.13 During the construction of the Bristol Waterworks depot at No. 13 Broad Quay (by Little Tower Court) in 1936 the base of a tower on the Marsh Wall was exposed (BUAD 3378). A short section of the east face of the Marsh Wall was revealed on the site of the current Bristol and West House during construction work in 1970 (BUAD 405). The wall was of a massive scale, and lay on timber piles some 4 to 5 metres below the pavement level (3–4m OD). More recently the wall was recorded close to the south end of Marsh Street, where it was constructed on a platform of Brandon Hill Grit sitting directly above the alluvium with no timber piles beneath (Burchill 1996; BUAD 2456).

1.14 Previous archaeological excavations have revealed evidence for the earlier use, and subsequent reclamation and redevelopment of, the marsh. Excavations at Back Hall, Welsh Back, have produced evidence for activity in both the earlier and later thirteenth century. Excavations in 1958 on the western end of the site revealed a period of a timber-framed building or buildings replaced in the late thirteenth/early fourteenth century by larger stone-founded structures (Barton 1960; BUAD 3051). An evaluation by Cotswold Archaeological Trust slightly to the east of this in 1994 revealed dark brown or black ‘peaty’ deposits above the alluvium, containing Ham green pottery and animal and plant remains (Barber 1994; BUAD 1065). These were sealed by clay dumps cut by later medieval features.

1.15 Excavation followed the CAT evaluation in 1995 (BUAD 1579), revealing features of twelfth and early thirteenth-century date cutting the marshland
surface. In the second half of the thirteenth century a period of levelling preceded the construction of a timber building, which was rebuilt in stone toward the end of that century. A number of stone buildings of probable fifteenth-century date were subsequently erected. An elaborate fifteenth-century roof featuring cusped wind braces survived in one of the buildings until WWII. To the south-west, thirteenth-century development was noted during an excavation in 1973 (BUAD 318).

2. AIMS AND OBJECTIVES

2.1 The objectives of the various excavation stages of work were laid out in project designs produced by CA (2001-5) in accordance with brief specification, as follows:

2.2 The objectives of the 2001 evaluation were:-

- to establish the presence or absence of intact archaeological stratification;
- to identify existing cellars and to attempt to establish a date for such cellars;
- in the course of the above to date the main structural features encountered, including party walls that may define existing cellars, by means of detailed physical examination of related deposits. Such examination to also be carried out within cellars of known modern origin to check for the reuse of earlier party walls;
- to characterise the nature and date of the standing archaeological elements within the site – in particular the main structural elements of 22 Marsh Street, its party wall with 20 Marsh Street and the northern party wall of 18 Marsh Street with 16 Marsh Street;
- to survey in detail the internal faces of the northern and southern standing walls of 16 Marsh Street, to include the survey undertaken previously of the external elevation of the northern wall of the property;
- to assess the potential for the survival of waterlogged deposits and palaeo-environmental data;
• to assess the degree of destruction likely to be caused by the proposed
redevelopment, and of the need for and possible scope of any further
mitigation action that might be required.

2.3 The objectives of the 2006 evaluation were:-

• to provide detailed information about the nature, extent (including depth below
ground) and significance of buried archaeological remains beneath and south
of 8-10 Marsh Street and 11 Broad Quay, where the existence and extent of
earlier basements had yet to be established;

• to locate the position and line of the medieval town wall or 'Marsh Wall' along
the Broad Quay frontage.

2.4 The objectives of the 2006 excavations were:-

• To ensure that a full and detailed record of the archaeological site was
compiled;

• To analyse the primary data appropriately, and provide an interpretative
synthesis of the data for dissemination (publication);

• To ensure dissemination is achieved and that the archive is deposited with
the appropriate repository.

2.5 Within this broad framework were several site-specific objectives;

• To understand the nature of the archaeological resource within the site,
including layout, function, development and use of the buildings, water
courses, lanes/slipways and other features identified during the evaluation,
from the earliest period of activity, to the present;

• To initiate a programme of environmental sampling to elucidate the early
environment of the River Frome floodplain, the courses of any associated
palaeochannels and their relationship with the medieval and later
development of the area;
• To consider the site within its local and regional landscape, and to consider its national significance.

3 METHODOLOGIES

2001 Evaluation

3.1 The 2001 evaluation methodology followed that set out within the evaluation project design (CAT 2000; Volume II, Appendix 3) with the methodology for Trench 3 added as an agreed variation to that design. Machining was halted at the top of the first significant archaeological horizon, with investigation then proceeding by hand-excavation. Confirmation was obtained during fieldwork that it was not necessary to excavate Trench 2 since sufficient information had become available from adjacent trenches. Trench 10 could not be excavated because of the presence of live services.

3.2 Trenches 12 to 23 were requested by the client’s structural engineers, in order to provide additional engineering information (Fig. 2). During fieldwork Trenches 14, 15, 18, 19, 22 and 23 were abandoned, and the positions of other trenches were adjusted, due to structural restrictions and live services, following consultation with the client’s structural engineer. These trenches were of limited depth and extent did not provide any detailed archaeological information not recovered from nearby trenches.

2006 Evaluation

3.3 The 2006 evaluation methodology comprised the excavation of four trenches (Trenches 24-27, Fig. 2) and was intended to be an extension of the 2001 evaluation program with trenches numbered on the same sequence. Trenches 24 and 25 were both located in the area of 8-10 Marsh Street in the northern half of the application area, Trench 24 was aligned north-west/south-east and Trench 25 roughly north/south while both measured 10m long by 4m wide. Trenches 26 and 27 were located on the western...
edge of the development area in the region of 7-11 Broad Quay. Trench 26 was aligned roughly north/south and measured 5m long by 4m wide. Trench 27 was aligned east/west and originally measured 12m long by 7m in width. Trench 28 was not excavated due to the presence of previously unknown chambers associated with the underground car park that lies below the Bristol and West tower, as well as live services. Instead it was agreed with the Bristol City Archaeologist to expand the western end of Trench 27 about 6m northwards and about 2m to the south, in order to further establish the survival and location of the medieval town wall.

**2006 Excavation**

3.4 The 2006 excavation methodology initially consisted of three areas to be cleared (Fig. 2). Area 1 extended over an area of approximately 110m² and was intended to investigate the medieval and post medieval structures associated with the standing medieval wall at the former 16 Marsh Street that had been identified in Trench 4 of the 2001 evaluation. Area 2 was selected to further evaluate and examine an area of medieval tenements on the Marsh Street frontage identified during previous archaeological evaluation, and measured 72m² in area. Area 3 was located immediately to the north of Area 1. It covered an area of approximately 48m² and was positioned to investigate a possible medieval channel that had been located by the 2001 evaluation (Trench 3). Areas 4 and 5 were excavated six weeks after the completion of work on Areas 1-3 on the sites of two proposed pile caps, positioned within one metre of the standing medieval wall of the former 10 Marsh Street. Both pile cap locations were positioned over known archaeological deposits which had been previously noted, though not excavated, during work in Area 1.

3.5 All five areas were excavated by mechanical excavator equipped with a concrete breaker as well as toothed and toothless grading buckets. All machine excavation was undertaken under constant archaeological supervision to the top of the first significant archaeological horizon. Where archaeological deposits were encountered they were excavated by hand in accordance with CA Technical Manual 1: *Fieldwork Recording Manual* (2005).
3.6 Deposits from both evaluations and the excavation period were assessed for their palaeoenvironmental potential and, where appropriate, sampled and processed in accordance with 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 CA Technical Manual 3: Treatment of Finds Immediately After Excavation (1995).

3.7 The archive and artefacts from the evaluations and the excavation 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’s Museums, Galleries and Archive under accession number BRSMG 2006/95.

4. RESULTS

The results of each stage of the fieldwork are briefly summarised first, followed by a synthesised discussion of the results as a whole by provisional period.

**Fieldwork Summary by Project**

*2001 Evaluation (Trenches 1-21)*

4.1 The principal objective of the 2001 evaluation was to determine the depth below ground level at which sensitive archaeological deposits might survive across the site and this aim was largely achieved. The evaluation results broadly correlated with assessments contained within a preceding desk-based study (Borthwick & Chandler 2000, Appendix 1). Trenching also identified evidence of medieval and later occupation within a low-lying early suburb of Bristol, alongside the former course of the River Frome, where little previous archaeological investigation had occurred.

4.2 It was clear from the 2001 evaluation that the complexity and degree of survival of the archaeological remains across the site were variable. In the areas investigated some modern basements had destroyed archaeological
deposits. Within the plots of 10-22 Marsh Street, the degree of survival varied by plot. Only within 14 and 16 Marsh Street was a complex sequence of medieval and post-medieval structures recorded.

2006 Evaluation (Trenches 24-27)

4.3 This evaluation firmly established the position and course of the medieval town wall or ‘Marsh Wall’ along the Broad Quay frontage and uncovered the remains of two previously unknown and unsuspected angled projections. Further medieval activity survived below the floors of modern concrete basements to depths in excess of 2m below current ground level, despite intrusion from modern piles and cellars. The course of the Marsh Wall appeared more or less to conform to the projected line established by 20th-century investigations (Price 1991 and Burchill 1996).

4.4 The presence of modern cellars was established across much of the north-eastern quarter of the site to a depth of 2.5 below current ground level. However, isolated areas of stratigraphy survived beginning at around 0.55m below current ground level. These results reflected intensive use of the site in the post-medieval and early modern periods following the reclamation of previously marginal land behind Marsh Street.

4.5 Overall the evaluation indicated that despite extensive modern intrusion archaeological deposits in some parts of the site had survived somewhat better than predicted from the 2001 evaluation results.

2006 Excavation

4.6 The 2006 excavations further investigated the surviving areas or ‘islands’ of archaeological stratigraphy that had been identified by the two evaluations between and below the modern and Victorian cellars that cover much of the site. The excavations were limited to the north-east corner of the development site, on the former frontage of 8-10 Marsh Street and at the rear of the former no. 14.

4.7 The excavations established that medieval and post-medieval features and deposits had survived extensively where not truncated by later cellars and foundations. They also confirmed the impression from the 2006 evaluation
that deposits and features had also survived in places below these cellars and foundations. The medieval channel in Area 3 appeared to be largely untouched below the floor of a Victorian cellar while the medieval and post medieval remains in Areas 1, 2, 4 and 5, although heavily truncated in places, have survived well enough to be identified and interpreted.

Fieldwork Summary by Provisional Period

Period 1: Natural Alluvial Deposits and early medieval activity (late 12th – late 13th/early 14th centuries)

4.8 A bluish-grey alluvial clay (3116), assumed to represent the former marsh was found across the site and constituted the natural substrate. Variations in the levels of the natural clay suggested the possible presence of a complex of former drainage or palaeo-channels, but the sample was too limited to be conclusive. There was a gentle trend in the clay from east to west, and from south to north. Natural clay was encountered in Trench 1 at 6.49m OD, almost level with the top of the medieval activity and flooding deposits noted in Trench 27 to the south-west, where the natural clay was not encountered until c.4.5m OD.

4.9 Humic clay deposits were noted in Trenches 3A, 6 and 9 (305, 625, 636, 910, 911, 912) (Figs. 3 and 4), directly overlying the natural alluvium suggesting an open, marshy area prior to the development of the site following the diversion of the River Frome. Undulations within this clay hinted at a pattern of tidal channels, or drainage rhynes, crossing the marsh. There was no evidence for eleventh-twelfth century rubbish dumping episodes as seen to the east at Welsh Back during excavations in 1995 (BUAD 1579).

4.10 The earliest dated deposits to be identified were wooden posts (18 -22), the remains of medieval timber structures in Area 2 (Fig. 3). These timbers were dated from the late 12th – 13th centuries from pottery sherds recovered from an associated context (3115). Timbers 19, 21 and 22 were located within cuts 3123, 3121 and 3119 respectively while Timbers 18 and 20 appear to have been driven into the alluvial clay natural. These timbers formed no coherent pattern and were sealed below a general layer of redeposited clay and soil (3042). The timbers pre-dated a stone-lined well (3105), and fragments of two
medieval stone walled buildings (3040 and 3076), which were located on Marsh Street (Fig.5).

4.11 Waterlogged deposits within what appeared to be re-worked alluvial deposits in Trench 3, 304 and 320, suggested deposition within a periodically flooded environment, such as the bank of a tidal creek or channel, or on the associated flood plain (Fig. 5). Unfortunately, the 2001 evaluation evidence was too limited to be able to conclude whether this was associated with the south bank of the former Frome channel, or a tributary or associated drainage rhyne. The dating of finds (late 13th to early 14th centuries) from context 305 suggested that the possible channel may have been open to tidal influence beyond the creation of the new ‘Key’ to the west, and was not filled in until the fourteenth century. Broadly contemporary with this, the Marsh Street frontage to the north was being built up, as shown by the fourteenth-century construction levels that were initially found in Trench 1, then explored further as part of Area 2 during the 2006 excavation.

4.12 A series of interleaving alluvial and peaty layers were recorded in Trench 27 (2721-2733) located immediately to the east of the Marsh Wall (Figs. 3 and 7). These layers are suggestive of periodic changes in the original marshland between episodes of inundation, and drier periods when vegetation began to develop prior to the construction of the Marsh Wall. These deposits were c.1.3m thick in total although no datable material was recovered from any of them. Their stratigraphic location however would suggest that they pre-dated the late 13th century and the construction of the Marsh Wall.

4.13 Area 3 exposed the eastern edge of a deep, steep-sided, north/south aligned channel (5023). This was 1.7m deep and at least 2.6m in width, although its full extent was not established by the excavations (Fig. 3). This channel appeared to have been in-filled in a deliberate act with redeposited soils and domestic waste, including wood, animal bone and leather fragments (5024-6 and 5030-21). From the pottery fragments recovered from the upper channel deposits (5026, 5004 and 5025), the feature appears to have been in-filled at some point in the 14th century. The lower two fills of the channel, 5030 and 5031, contained sherd s of pottery dating from the mid 12th to 13th centuries, suggesting that these deposits are contemporary with the timber posts in
Area 2 and that the channel may well have been flowing during this earlier period. The lid of a leather case of a type previously unrecorded on archaeological sites was also recovered from the channel fill. As was the case with the humic deposit 305 found at the bottom of Trench 3 in 2001, too little of the channel and its deposits was exposed for its function to be determined fully, but it seems probable that the deposits in Trench 3 and Area 3 are part of the same feature.

Period 2: Construction of the town wall and Marsh Street (early 14th to mid 16th centuries)

The Marsh Wall

4.14 The remains of the medieval Marsh Wall (2707, 2623) along with some associated structures (2708 and 2783) were located in Trenches 26 and 27. These remains were located almost precisely on the projected line of the wall shown on Ordnance Survey mapping (Fig. 8).

4.15 A 5.7 metre long section of a north/south aligned stone wall (2707) was exposed at the western end of Trench 27. The wall was constructed from roughly worked sandstone blocks that were randomly coursed and bonded together by a pale yellowish grey mortar. The wall was at least 1.8m wide and survived to a height of around 950mm. The inner eastern face of the wall appeared to bow outwards slightly to the east which appeared to have been caused by the driving of a 20th-century concrete pile through the structure around 750mm to the west. The wall was connected to and may have been integral with an angled, pointed buttress on the south, like the cut-water on a bridge (2708). This was set at an angle of around 45° to the wall and appeared to have been greatly damaged by 20th-century concrete. It measured 4.5m across at its estimated base and projected eastwards about 1.2m from the wall face. It survived to a height of c.400mm. A similar projection (2783) was exposed some 3m to the north-west and measured 5m along its base and extended 2.1m from the wall face. This second projection survived to a height of at least 400mm, although its base was not exposed (Fig.13). A further section of the wall (2623) was exposed in Trench 26 to the north-west. This was 1.3m in width and 2.3m long in total. A part of this
section had survived to a height of 1.8m although the remainder of the wall to
the east had been truncated by later activity. No indications of angled
projections were found in Trench 26.

4.16 Pottery recovered from the rubble foundation of structure 2708 suggested a
late 13th-century date for its construction. The fact that both projections were
keyed into the core of the main wall also suggested that they formed part of
the original construction, and were not from some later period of
development. Both survived at a depth of between 6.44 and 6.07m AOD or
2.1 – 2.47m below current ground level.

4.17 The pottery assessment (Appendix 1) has identified an intrusive sherd of
post medieval pottery in the alluvial deposit (2711) through which the Marsh
Wall construction trench was cut. Pottery dating from the mid 14th century
and a clay pipe fragment was also recovered from layer 2709, the backfill of
the construction trench. These finds will require more detailed analysis
before final phasing of these contexts can be conducted.

4.18 The outer (western) face of the wall was not exposed within Trench 27
(although sections of it may survive just beyond the western limit of
excavation) while the inner (eastern) face had survived. The opposite was
the case in Trench 26, where a small section of the outer face survived, while
the inner face had been destroyed by the construction trench of an early
modern cellar. This absence of equivalent faces made it difficult to precisely
project the line of the wall further to the north-west, although it seemed likely
that the outer face would be aligned with the current street-front wall of 7,
Broad Quay, agreeing with the projected alignment shown on the Ordnance
Survey map.

4.19 A slipway found in Trench 6 (623) with an associated wall, 638, raised the
possibility of an opening penetrating the wall somewhere beneath nos. 9-10
Broad Quay (Figs. 6 and 8). The historical evidence suggested an opening in
the Marsh Wall at number 10 Broad Quay by 1583 (Borthwick and Chandler
2000).
4.20 An area adjacent to the north side of the slipway in Trench 6 was probably open, and may have formed a lane or area of wharfage beside the slip. This has interesting implications for the usage of this space, and the interpretation of the previously excavated ‘watergate’ at Broad Quay. The historical evidence pointed tentatively to the existence of a lane between 14 and 16 Marsh Street (Borthwick and Chandler 2000), and this could have been the reason for the open space beside the slip. A lane may have run east-west alongside the slip to provide pedestrian and possibly vehicular access through the Marsh Wall and onto the quay. The evaluation clearly showed that the level of the slip itself would make it very difficult to use as pedestrian access, and almost certainly impossible for vehicular access, as it would often have been water-filled, or at least very damp and slippery. It seemed likely, therefore, that there would have been other openings through the wall for such access from the adjacent lane/wharf, with the slipways perhaps providing access for the drawing up of lighters or pedestrian access at the lower end of the tidal range.

Medieval activity post-dating the construction of the Marsh Wall

4.21 The deposits found close to the centre of Trench 27 (2749-50, 2754-7, 2760-5 and 2771-2779) survived from a depth of 6.35m AOD or 2.19m below current ground level, down to 4.91m AOD or 3.63m below current ground level. This compared to dumping activity on the east side of the site in Trench 1 where medieval dumping prior to construction along Marsh Street raised ground level to around 7.1m OD. Like those pre-dating the construction of the wall in Trench 27, these layers were also indicative of interleaving periods of inundation and drier episodes experienced in the marsh prior to the construction of the Town Wall. However, unlike the earlier deposits these layers could be securely dated to the 13th and 14th centuries from the recovery of pottery sherds (see Appendix 1), as well as by the recovery of the remains of a side lacing boot dated to the late 13th or early 14th century in layer 2755. By this time the area would have been enclosed behind the Marsh Wall, but, it seems, still not permanently settled like the Marsh Street frontage to the north east.
The laying out of Marsh Street

4.22 It was clear from the 2001 evaluation that the reclamation of marshland was taking place in the eastern half of the site by the late 13th/early 14th century. A series of compact sandy clay layers were dumped over the earlier humic clay marsh surfaces, raising the ground surface to a consistent level of around 7.1m OD in the new properties springing up along Marsh Street. A similar period of raising and levelling took place at Welsh Back to the east (BUAD 1579).

4.23 The early timber structures in Area 2 (Period 1) were covered by a general layer of re-deposited silty clay (3042 and 3096) which appears to represent the reclamation of land and setting out of Marsh Street in this part of the site. This same period of medieval reclamation was also noted in Area 4 (layers 6040-6043), (Fig.5).

4.24 The reclamation period was followed by the construction of up to three phases of medieval stone walled buildings fronting onto Marsh Street. These three phases were represented by walls 3040, 3076 and 114 respectively (Fig. 5).

4.25 A single north/south aligned stone wall, 6039, was exposed within Area 4 (Fig. 5). This wall was at right angles to the standing medieval wall that exits immediately to the south of Area 4 and it was assumed that wall 6039 once formed part of a structure built on to the standing wall.

4.26 The evaluation and building recording produced corroborative evidence for the layout of medieval tenements at right angles to the Marsh Street frontage. The road was undoubtedly widened in recent centuries and it seems likely that the original street frontage lay some way out beneath the centre of the modern street. Medieval walls running both parallel and perpendicular to the street were revealed in Area 2 and Trench 4 suggesting that the plots were of a fairly consistent width of around five metres, and that they stretched back as much as c.13m from the modern frontage (Fig. 5).

4.27 Further medieval structures were uncovered in Area 5 and Trench 4, represented by walls 7013, 7030 422 and 426 and by associated layers
7015, 7017, 7039 and a stone-lined culvert 7031 (Fig. 5). These walls were physically connected to the currently standing medieval wall of the former 10 Marsh Street that is located immediately to the south of Area 5.

Period 3: Post-medieval (mid 16th-late 18th centuries)

Reclamation

4.28 Despite development of Marsh Street in the medieval period, the area to the rear, covering the western half of the site, appears to have remained largely unoccupied and marginal land. This land was reclaimed however in the 17th-18th centuries with the deposition of a series of soil and rubble deposits such as those found in Trench 25 (2532, 2535 and 2536) (Fig. 9). A similar set of layers was exposed in section only beneath Period 4 walls 2715 and 2718. These deposits were around 1.5m in depth in Trench 27 and at least 1.2m deep in Trench 25 and were made up of a series of thin layers of compacted re-deposited soil and rubble.

Industrial use

4.29 The 2001 evaluation, in combination with the historical study and building recording, showed that the medieval tenements had a long history of use and re-use, prior to more radical redevelopment from the eighteenth century onwards. In Trench 4 walls 427, 459, 463 appear to incorporate medieval foundations, and were ultimately re-built on a similar alignment (434), re-using the original medieval drain (424) (Fig. 9). The survival of medieval elements in the northern wall of number 16 Marsh Street was also testament to the longevity of the medieval pattern.

4.30 It was clear from the historical evidence that the focus of development switched from the Marsh Street frontage to the Broad Quay frontage, with the opening up of numerous doors and windows through the Marsh Wall from the late-sixteenth century onwards. This appears to have led to the fairly rapid degradation of the Marsh Wall as a barrier between Marsh Street and the quay. By the late-eighteenth to nineteenth century the Marsh Wall appeared to have largely disappeared, and the area east of the quay was apparently raised and redeveloped, becoming occupied by large warehouses with the characteristic large cellars that occupied the site by 2001. This
inevitably led to the reordering and subsequent loss of much of the medieval pattern and, where cellars were inserted, loss of medieval deposits and structures to the level of the earliest recorded activity on the site, the reclamation of the marsh.

4.31 Area 2 revealed no post medieval structure on the Marsh Street frontage at this point. Instead a series of post medieval floor layers, 3069, 3072, 3084 and 3099 are recorded as sealing wall 3040, but with no associated walls (Fig. 9). A small fragment of a construction cut, 3097 was identified to the east of these layers with a further lens of dumped material, 3093 to the south-east.

4.32 A wall (6007) and a series of post medieval floor surfaces (6025-6031, 6033-6037) were exposed within Area 4 immediately to the north of the standing medieval wall of the former 10 Marsh Street (Fig. 9). These are assumed to be associated with the post medieval buildings that were constructed against the standing wall, some of which (428 and 459) were recorded in Trench 4 of the 2001 Evaluation.

Period 4: Early Modern (c.1800 – 1901)

4.33 The Early Modern period saw construction across the back plots between Marsh Street and Broad Quay with the building of a flagstone floored cellar (2508), (located at 8.09m AOD or 560mm below current ground level) as part of a stone-walled building represented by wall 2509 in Trench 25, (Fig. 11), and the construction of brick and stone walls 2715, 2717 and 2718 in the centre of Trench 27 (Fig. 12). Also recorded was development on the Broad Quay Street front (2618) as well as the construction of a flagstone area 2796 at the foot of medieval buttress 2708. The building facing Broad Quay (2618) was the first indicator that the former Marsh Wall had completely fallen out of use, as its walls and cellar cut directly through the fabric of the medieval wall.

4.34 Two large stones (2514 and 2515) were placed on top of the reclamation layers in Trench 25 (Fig. 11). These appeared to have been used as foundations for some form of industrial process. Iron bars set into both stones suggest that these were used to anchor some kind of machinery. The pottery
assessment has noted 19th-century wares within the construction material (2546). The remains of possible settling tanks or cisterns (2526 and 2547) located immediately to the east and south-east of stone 2515, as well as the presence of a number of drains and culverts carrying water around the site, suggested that it may have been connected with some form of metal working although the historical record (Borthwick and Chandler 2000) suggests that the area was mainly the site of merchants houses and stores. The fact that the stones were so large and difficult to move is illustrated by the fact that they were incorporated into the floor of an early modern cellar rather than being cleared away.

4.35 Wall 2509 was also located in Trench 25 (Fig. 11). It was stratigraphically above the large stones and culverts and appeared to be aligned with similar structures on Broad Quay to the west that were still standing in 2006 and appeared to been made of the same sandstone and mortar.

4.36 It was unclear whether the building in the centre of Trench 27 (walls 2715 - 2718) (Fig. 12) was built to the rear of Marsh Street or was the rear of a property facing onto Broad Quay. A fragment of an early modern wall (2702) was noted in the east-facing section of Trench 27, cut on both sides by modern piles and cellar walls. This wall appeared to be located along the outer face of the former town wall and may have been the remains of a building that backed onto the medieval wall.

4.37 The depth of structure 2796, which appeared to be 19th century in origin, suggested that it may have been part of a cellar, perhaps connected to the Victorian building represented by wall 2702, which was noted in the west facing section of Trench 27. The fact that 2796 (Fig. 12) respected the edge of medieval buttress 2708 also suggested that the medieval feature may have been incorporated into a Victorian building, possibly as a part of its cellar.

4.38 Areas 1-3 revealed the remains of a series of cellared buildings dating from the early 19th century, both on the Marsh Street frontage and to the rear. Some fragments of structural wall (3025 and 3101) were noted in Area 2, (Fig. 11) with a near-complete cellar exposed in Area 3. Some fragments of wall were also noted in Area 1, attached to the standing medieval wall of 10
Marsh Street. Further 19th century walls (7019) and a stone culvert (7012), also associated with the standing wall, were exposed within Area 5 (Fig. 11).

**Period 5: Modern**

4.39 The Victorian buildings within the evaluated area all appeared to have been demolished either during or at sometime after the Second World War. Both evaluations and the excavation areas recorded the remains of a number of large reinforced concrete buildings, set on a series of reinforced concrete piles and beams that were constructed across the site in the mid 1960s. These buildings were demolished in the early part of the 21st century, when their cellars were filled with rubble and then covered with concrete surfaces and/or hardcore.

**Stratigraphic Record: factual data**

4.40 Following the completion of the excavation an ordered, indexed, and internally consistent site archive was compiled in accordance with specifications presented in the *Management of Archaeological Projects* (EH 1991). A database of all contextual and artefactual evidence and a site matrix was also compiled and cross-referenced to spot-dating. The 2001 and 2006 evaluations along with the 2006 excavation comprise the following records:

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4.41 The survival and intelligibility of the site stratigraphy was good with archaeological remains having survived as structures, deposits and negative features. Due to generally good stratigraphic relationships across the site as a whole, all features and deposits have been assigned a preliminary period.
Stratigraphic record: statement of potential

4.42 A secure stratigraphic sequence is essential to elucidating the form, purpose, date, organisation and development of the various periods of activity represented. This can be achieved through detailed analysis of the sequence and further integration of the artefactual dating evidence. The refined sequence will then serve as the spatial and temporal framework within which other artefactual and biological evidence can be understood.

4.43 The medieval and early post medieval stratigraphic sequence is fragmented, due to the separate trenches and areas that were excavated, and also due to truncation and dissection by modern intrusions. Despite this, a reasonably coherent series of stratigraphic sequences has been recorded and it is believed that they can be related to each other via an overarching site analysis based on finds, documentary/topographical work and physical cross-reference. Within each sequence residuality or intrusion does not seem to be a major problem and analysis of the sequence contains the potential for elucidating the function and development of the site to a significant and useful degree.

Documentary sources: factual data

4.44 The desk-based assessment (Borthwick & Chandler 2000), reviewed archaeological and historical sources, including maps, photographs, property records and other related documents. The research drew substantially on previous work by Roger Leech (Leech 1997).

Documentary sources: statement of potential

4.45 There is potential to extend the property histories back through time, using the taxation documents housed in the Bristol Records Office. Establishing the street sequence for Marsh Street is made difficult by the late implementation of a street property numbering system, but further research will help more medieval property records to be linked to identified properties. Using the watercolours and drawings, and related notes, for the parish of St Stephen in the Braikenridge Collection, Bristol Museums, Galleries and Archives, not
consulted in the desk-based assessment (Borthwick and Chandler 2000), further buildings on or close to the area of study may be identified.

**The Standing Buildings: factual data**

4.46 A careful assessment and preliminary analysis has shown that the two walls that survive between 14 and 16, and 16 and 18, Marsh Street are certainly of medieval origin. The north wall is also substantially of medieval fabric to its full height of three, or possibly four storeys. Both walls have undergone many changes, including, for the south wall, a substantial rebuild or extension in the 17th century. Evidence was retrieved, and supported by documentary research, showing that between the walls of the building now represented by no 16, was an open space, incorporating a slip way to the Frome, later converted to a building. In consequence, the standing walls are large fragments of two and then three medieval and post-medieval buildings, 14 and 18 and then 16, Marsh Street, respectively, with a structural history continuing to the present day, reflecting their history and that of the infill building. The buildings were probably merchants’ houses and warehouses. The distinction would not be so sharp as today, but the residential and office sides would probably be at Marsh Street – the front – and the warehouses to the Quay side – the rear. This arrangement is exemplified and more clearly formalized in the lease plans for no. 10, Broad Quay/18, Marsh Street from 1823.

**The Standing Buildings: statement of potential**

4.47 Detailed plotting and full analysis of the photographs, drawings and survey data has the potential to elucidate the structural history of these walls. Combining the above-ground analysis with the study of the buried archaeological traces, especially in the trenches abutting or close to the walls, has the potential to delineate and interpret some significant medieval building lines. Use of the documentary records and in particular the detailed plans of buildings surviving in the 19th century leases will lead to a rounded interpretation of the examples of medieval mercantile buildings on the Broad Quay and their subsequent history of construction and use.
**Artefactual record: factual data**

4.48 All finds collected during the excavation have been cleaned, marked, quantified and catalogued by context. All metalwork has been x-rayed and stabilised where appropriate.

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4.49 A small proportion of the pottery assemblage dates to the earlier medieval period, before c. 1250. The earlier material comprised mainly handmade wares including redware jars and glazed jugs of local Ham Green ware with quantities of Bath A coarsewares, and glazed pitcher/jug fabrics from non-local sources including Minety (north Wilts) and Worcester. A larger quantity (over 600 sherds) dates to the later medieval period, the later 13th and 14th centuries. The later group comprises mainly Bristol-made jug fabric but includes moderately high proportion of imported wares, mainly from southwest France.

4.50 One hundred and forty-eight sherds of pottery types dating between the late 16th and the mid 18th centuries were recorded. Most common are coarsewares of North Devon Gravel-tempered South Somerset glazed earthenware. Of note are two sherds of Isabella Polychrome and one sherd of Melado ware. These two types were both produced in Seville in the later 15th and 16th centuries and their presence at Broad Quay reflects the strong links which Bristol maintained with southwest Spain at this time.
Clay pipe

4.51 A small assemblage amounting to 85 fragments, was recovered from 24 deposits. The assemblage includes 22 complete or partially complete bowls, four of which preserve identifiable maker’s marks. Approximately half of the bowls are small, roulette-decorated forms dateable c.1640-70. The remainder mainly date to between the late 17th and 18th centuries. The identifiable makers all belong to Bristol-based pipe makers known from the 17th and 18th centuries.

Glass

4.52 Twenty-two fragments of glass were recovered. Seven of the fragments come from the upper part of a medieval jug and the remainder are all post-medieval or modern bottle and window glass fragments. The medieval vessel is a jug in free-blown natural green glass with out-splayed, fire-rounded rim tooled into a small spout and has an applied narrow strap handle. It probably dates to the 14th century.

Leather

4.53 Twenty-three shoe parts, seven other items, four pieces of secondary waste and single fragment of leather scrap were present. A complete decorated knife sheath dating to the late 13th to mid 14th century was found in a reclamation deposit in Area 3. Of particular interest was the lid of a wide, sheath-like container. The lid, made of two joining panels, is an unusual item, rarely found during excavation and an object type not previously recognised in the archaeological record. All the independently datable leather recovered is medieval dating from the late 12th/mid 13th centuries and late 13th/early 14th centuries.

Metalwork

4.54 A total of 48 metal objects, comprising items of iron (including 26 nails or nail fragments), copper alloy and lead were recovered. The condition of the metalwork is variable. Iron finds are typically heavily corroded and brittle. Copper alloy and lead items exhibit lesser degrees of corrosion and retain surface detail. The majority of objects were derived from post-medieval and later deposits. Few items other than nails were identifiable to form. An item of intrinsic interest is an oval-form copper-alloy seal matrix of a type dateable to
between the mid 13th and mid 14th centuries. An inscription in Lombardic script on this object is visible only from the x-ray and almost certainly refers to the seal's owner. Other items of note include a tanged iron object tentatively identified as a woodworker’s spoon bit and a copper-alloy bar mount of a typically medieval form.

Metallurgical residues

Quantities of metallurgical residue were recovered from eleven deposits, largely restricted to the medieval phases 1 and 2. The residues comprise mainly ironworking slags which are unattributable to a specific process. ‘Tap’ slag, characterised by a ‘ropey’ appearance and indicative of iron smelting, was recovered from one deposit.

Stone

Seven fragments of building stone were recovered from deposits attributed to Phases 2 and 3. Five fragments are of local Pennant sandstone, in use commonly as roofing tiles in the medieval period. A single small fragment of slate, probably from Delabole, north Cornwall, and used as roofing material in the post-medieval period, was also identified.

Artefactual record: statement of potential

Pottery

Two groups of pottery from the Broad Quay site have high potential for further study: the late 13th to 14th century pottery from Period 2 and the later 17th- to early 18th-century material from Period 3, Evaluation Trench 25.

Representative material among the medieval assemblage warrants at the most 45 illustrations, with 30 illustrations being more reasonable estimate. The later 17th to early 18th-century assemblage consists of seven illustratable vessels.

The remaining pottery is useful for confirming the dating and phasing of the site put forward on stratigraphic grounds but does not amplify either the history of pottery use in Bristol or the history of the Broad Quay site in
particular. The information provided in this report can be used without further input to provide this dating information.

*Clay pipe*

4.60 The small size of the assemblage limits potential. Limited further analysis is recommended on material relating to Phases 2 and 3 to consist of systematic recording and research to confirm identification of makers.

*Glass*

4.61 The medieval jug is worthy of publication, to include description and illustration. Such thin-walled examples rarely survive to be recovered in the archaeological record. The text can be supplied by using the catalogue and brief discussion above. No further work, therefore, is required other than the extracting of relevant description from this text and one illustration.

*Leather*

4.62 The leather comes from well-dated deposits and as so little has been published previously from Bristol is of some interest both locally and regionally. It shows the shoe styles worn by the local population and provides a small amount of evidence for the cobbling trade in Bristol at this time. Two shoes and the knife sheath, though relatively common finds nationally, are well preserved and might be considered for display. The container lid is also well preserved and is of wider interest due to its rarity. The shoes should be studied to note constructions and styles and working drawings prepared of those selected for illustration. The knife sheath and container lid should be studied and illustrated. A basic record should be made of the total assemblage and the information entered onto a database. This will form part of the site archive. The leather assemblage should be summarised for inclusion in the publication of the site narrative. This will require a brief description of the shoes, knife sheath and container lid with a catalogue of the illustrated items. The shoes and the container lid will be accompanied by a reconstruction drawing as appropriate.

4.63 The leather cannot be stored wet indefinitely. Without conservation the leather will deteriorate and is potentially hazardous to health being liable to fungal and bacterial infection. If it is not possible for the entire assemblage to
be conserved, it is recommended this be reserved for items of greatest interest, with the remainder allowed to air-dry under controlled conditions.

**Metal finds**

4.64 A limited number and restricted range of metal objects was recovered. Included are a small number of items of intrinsic interest which merit additional attention including investigative conservation work and illustration (appendix 7). Cleaned items should be re-examined following conservation work and described for publication. Little further work is recommended: for the purposes of the archive, items other than nails will require a short catalogue basic description.

**Metallurgical residues**

4.65 The small quantities of metallurgical (ironworking) residues recovered suggests limited activity of this nature in the area of the excavations. This, together with the largely process-undiagnostic nature of the recovered material inhibits potential for additional analysis and none is recommended.

**Stone**

4.66 The stone assemblage is restricted in size and range and it presents no potential for further analysis. No further work is recommended.

**Biological record: factual data**

4.67 All ecofacts recovered from the excavation have been cleaned, labelled, quantified and catalogued by context. A 10-litre sub-sample of each environmental sample taken was processed for the purposes of this assessment.

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Animal and Fish Bone

Animal bone was recovered from 109 deposits excavated during the 2001 evaluation and the 2006 evaluation and excavation. A total of 1242 fragments from 1184 bones weighing 20kg were hand collected. Additionally 270 fragments from 266 bones weighing 214 grams were recovered from the residues of processed samples. The species identified were; horse, cattle, roe deer, deer (not identified to species), sheep/goat, sheep, pig, dog, rabbit, goose and chicken. Animal bone was found in deposits of all periods, but was most frequent in Period 4 deposits. The fish bone which totalled 225 fragments included; cod, conger eel, thornback ray, salmon family and European eel and derived mainly from Periods 1 and 2.

Molluscs

A substantial quantity, of mostly marine mollusc shells was recovered by hand collection and from sample residues. The assemblage totalled 431 fragments weighing 8.6kg. The species identified were; oyster (*Ostrea edulis*), mussel (*Mytilus edulis*), cockle (*Cerastoderma edule*) and scallop (Pectinidae). The only land snail identified was the garden snail (*Helix aspersa*).

Plant Remains

A series of environmental samples for palaeoenvironmental investigation were taken in association with monolith tins from the channel fill. In addition one sample 3117 was taken from around two posts and 6029 from a post-medieval floor surface. The assessment has shown that the organic content was higher from samples at the top of the channel 5004, 5026 and 5025, with the abundance of plant macrofossils and range of species also greater at this level. The plant remains in the channel samples are from a number of habitat groups, most of which are unlikely to have occurred naturally in the alluvial marsh adjacent to the channel. Wetland taxa, including sedge (*Carex*) and rush (*Juncus*) may have grown locally where the water table remained high, with some of the disturbed and waste ground taxa established in areas of disturbance to the ground surface associated with human activity. Many of the plants however, are from habitats which would not have occurred on a river floodplain. Some of the most abundant are weed taxa from arable fields. There are also several charred grains of wheat (*Triticum*), barley (*Hordeum*) and oat (*Avena*), with waterlogged cereal chaff present in five of the samples. This group of plants is likely to have been brought into the city as straw for
animal fodder or bedding. The small suite of heath-land taxa may also be linked to animal feed/bedding or as fuel.

Waterlogged Wood

4.71 The assessment comprised the species identification of 15 samples of wood from timber posts, artefacts, small wood and charcoal recovered from medieval deposits. The wood samples were mostly waterlogged although six had dried out during storage. With the exception of the post sample 19 and wood from context 2755, the identified wood samples were named as oak (Quercus sp.). Sample 19 was identified as a member of the hawthorn/Sorbus group (Pomoideae). Context 2755 included two pieces of desiccated wood, one of which was probably blackthorn (Prunus spinosa); the second was too collapsed for identification, although its diffuse porous structure confirmed that it was not oak. A fragment of desiccated wood in context 5004 was also too degraded to identify.

Geoarchaeology

4.72 Three borehole cores were drilled using a Pioneer rig in a transect across the site (BH1, BH 2 and BH 3). The cores penetrated medieval occupation levels, marsh and underlying alluvial/intertidal sediments. Four major formations were present, the surface of the lowest deposits of Mercia Mudstone were encountered at between -4 and -12m OD. This was overlain by a member of the Avon Formation beneath the Wentlooge formation. The upper formation was composed of made ground.

Biological record: statement of potential

Animal and Fish Bone

4.73 The assemblage is not large and much of the animal bone is derived from early modern and modern deposits. The potential for further analysis is limited, in particular by the high level of fragmentation. No further work is recommended. A summary of these results should be included in any future publication. The range of animal bone is consistent with that previously seen in medieval and post medieval assemblages from Bristol, dominated by domestic mammals but with a small contribution from wild taxa. The fish bone is also consistent with other assemblages from Bristol with marine species being dominant.
Molluscs
4.74 No further work is required on this material. A short summary should be included in the publication.

Plant Remains
4.75 The assessment of the samples recovered from the 2006 excavation at Broad Quay has shown that there is good preservation of the plant macrofossil remains originating from a range of habitat groups, from the upper fill of the channel in Area 3, with a lower abundance of material from the lower fills. While some of these may reflect the local environment of the marsh at Broad Quay during the 12th or 13th centuries, other groups of taxa clearly represent other habitats and reflect plant material brought into the city. It is therefore recommended that full analysis is carried out on samples from each of the contexts within the channel. These analyses will allow identification of full macrofossil assemblages and allow interpretation of the background flora of the site to illustrate the local environment of this marshland area during the 13th and 14th centuries. It should also allow discussion of activities associated with the plant based economy during this period.

Waterlogged Wood
4.76 Of the three pieces selected for dendrochronology, sample 22 (1003) is the only worthwhile sample. The sample includes wide oak roundwood with between 80 and 100 growth rings (although some areas were difficult to examine). Sample 21 is oak heartwood, with the outer areas trimmed to form a squared post (and the central axis of the trunk/branch off-centre). The widest region of wood from the central axis to the outermost surface was examined and although it is difficult to provide an accurate count of the growth rings, there were probably no more than about 45. At least 50 rings are required for dendrochronology (preferably including the bark/wood interface). Although this sample is probably not suitable for dating it might be worth discussing the possibilities with the dendrochronology laboratory.

Geoarchaeology
4.77 Deposits of high archaeological and palaeoenvironmental potential were found at the base of the Made Ground in BH 2. At present it is uncertain whether these organic deposits are the same as those that have been interpreted as marsh sediments during the evaluation and if so, how old the
marsh is and how deposition of the organic sediments relates chronologically to deposition of sediments of the Wentlooge formation. To resolve these issues, a programme of AMS $^{14}$C dating is suggested which would both date the marsh sediments and deposits of the uppermost part of the Wentlooge formation. There is a possibility that charcoal fragments noted at the base of BH 1 and BH 2 may be indicative of human activity on the surface of the gravels of the Avon Formation. It is recommended that a single AMS $^{14}$C date be obtained on charcoal from this part of the stratigraphy in BH 1. Should the result indicate that the charcoal is of Early Holocene or Late Pleistocene age, then it is highly likely that the site contains evidence for hunter-gatherer activity prior to inundation of the site by alluvial/intertidal waters. It is recommended that the results of the AMS $^{14}$C programme is combined with the stratigraphic data outlined in this document in a new analytical report. The resultant data can then be incorporated in the final publication text resulting from the conventional archaeological works.

5. SUMMARY STATEMENT OF POTENTIAL

5.1 The potential for further analysis and understanding of the site as a whole, and of the various individual datasets within it, can be judged when the artefactual and biological data are combined with the stratigraphic record. This potential varies both between types of data and between the chronological periods represented. Further analysis of the borehole data will help to define the formation, date and nature of the sediments that comprise the strata that precede the excavated deposit sequence. Although the stratigraphic record is fragmented and truncated, analysis of the stratigraphic sequence has the potential to elucidate the function and development of the site. A fuller understanding of the infill of the channel in Area 3 and a limited understanding of the nature contemporary deposits from the medieval sequence (Periods 1 and 2) may be assisted by analysis of the environmental data. The pottery assemblage from Periods 2 and 3 will be used to refine and interpret the stratigraphic sequence, which will be further assisted in the post-medieval period by documentary and historical research.
6. STORAGE AND CURATION

6.1 The archive is currently held at CA offices, Kemble, whilst post-excavation work proceeds. The site archive and artefactual collection will, with the agreement of the legal landowner, be deposited with Bristol's Museums, Galleries and Archive, which has agreed in principle to accept the complete archive upon completion of the project.

7. UPDATED AIMS AND OBJECTIVES

7.1 The objectives of the 2006 excavations are stated in section 2, paragraphs 2.4 and 2.5. The generalised aims in 2.4 are a given and will not be further discussed. The site-specific aims in 2.5 are largely achievable, with some variations. Therefore, the principal objectives remain as per the CA Project design. To achieve this, the following updated objectives have been set out:

Objective 1. To investigate the nature of the environment of the alluvial valley bottom before its colonisation and its relationship to wider conditions in the Frome and Avon valleys in the early medieval period and before.

7.2 The samples taken from the boreholes are considered to be of high archaeological and palaeoenvironmental potential. Clear correlation of the layers from which these samples were taken with the lowest layers reached in excavation, and interpreted as alluvium, would allow extrapolation of the results of analysis, as recommended, to be applied to the sediments immediately below the anthropogenic layers investigated in the excavation. Analysis of the borehole samples would provide dating for the formation processes of the Frome alluvium and the nature of the “marsh” deposits. Datable material from the bottom of Borehole 1 has the potential to date the beginnings of the alluviation in the Frome/Avon valleys. Adequate samples of bioarchaeological material could not be retrieved from the boreholes at the interface of made ground with alluvial deposits so no further work of that kind is possible.
Objective 2. To characterise and date the earliest activity on the “marsh” in Period 1, and whether this is part of the reclamation process or of a separate early phase.

7.3 The plant macrofossils and other environmental samples from the early channel in Area 5 should be analysed to provide information on the character of the infill process of this channel. Unfortunately dating material from these fills is restricted to the leather items datable from the late 12th to the early 14th centuries. It seems more likely that this will refer to the early occupation of the area rather than the pre-colonization period, although it is possible that the channel was cut as part of the preparatory works of reclamation and colonisation.

7.4 One timber from the early timber structures in the alluvium, before the widespread dumping of material is considered suitable for dendrochronological dating. If datable, this would give a date for this activity, which seems to be part of the early medieval activity in the area, and so it should be submitted for dating.

7.5 The thin interleaved deposits of silt and peat noted in BH2 as anthropogenic at the base of the medieval sequence need no further analysis but should be considered to see how they may add to our understanding of human activity on the marsh at the beginning of the reclamation process.

7.6 There appears to be no other dating evidence from Period 1, but the dating of the pottery from the immediately overlying layers of Period 2 will provide a TAQ for Period 1.

Objective 3. To understand the date, design, character and function of the Marsh Wall.

7.7 The slight direct archaeological evidence for the date of the wall is nonetheless consistent both with other archaeological excavations along the wall and the documentary evidence from murage grants. Completing the pottery analysis will therefore be of considerable value in confirming the date of the wall’s construction.
7.8 The wall uncovered in the excavations has two unusual angular projections, like bridge cut-waters or mini-bastions, on the interior. The wall between them may be a later addition. Careful analysis of the site records will be needed to confirm the actual design and contemporaneity of these parts of the wall which should lead to an interpretation of their function. It is possible that this is the site of an opening in the wall, a substantial water gate. This will need careful investigation and comparison with other sites in Bristol and elsewhere.

Objective 4. The layout, function, development and use of the buildings, lanes/slipways and other features of the urban development of the area.

7.9 The various trenches and areas of excavation have revealed that there are very few medieval contexts on the west of the site, and that post-medieval deposits occur at a low level. This has led to claims that the western part of the site was not built up like the eastern half until the post medieval period. This seems, prima facie, unlikely, as this would mean that the parts of the tenements inside the wall would be at a lower level than the Quay (although this itself is not well established). While slip ways ought to be at this lower level, the very existence of the latter presupposes a higher level quay. Careful attention will be paid to establishing the degree of truncation of medieval layers at the west side of the site to at least establish whether absence of evidence is in this case evidence of absence. Evidence for the medieval ground level at various periods will be carefully looked for and compared to that in the east.

7.10 The detailed layout of properties from the late 13th century onwards is not likely to be very clearly evidenced from the fragmentary structural remains found in the excavation. Nonetheless the remains do indicate that the property alignments were those of the earliest detailed mapping. The various structural remains will be analysed to try to evidence and assemble elements of the buildings and property boundaries so as to test the general thesis that the earliest mapping reflects the medieval layout. Significant variations from this simplistic view will also be studied and compared with the documentary and topographic evidence. Changes to the buildings over time will also be studied from the stratigraphic relationships.
7.11 The poor survival of floors and occupational layers from the medieval structures also hinders understanding of the functions of these buildings. However, analysis of the standing walls at 18/16/14 Marsh Street should much improve the functional understanding of these properties and probably allow a reasonable estimate of where ground floor level was as well. Therefore full analysis of the standing structure as recorded during the field work should be undertaken. Such analysis will also provide evidence for the development over time of the structures on Marsh Street to add to that from the analysis of below ground remains.

7.12 The relationship of the properties on the Marsh Street frontage to the wharf is clearly of great importance in understanding how they functioned. There is no direct archaeological evidence to throw light on this, but the slipway in Trench 6 clearly communicated with the Frome and it may be that analysis of the floor levels may allow some estimation of the level at which it would have emerged at the river side.

7.13 For the post-medieval period, documentary and topographic evidence is likely to provide the framework for elucidation of the layout and functions of the buildings here, but the archaeological remains will provide information on the details and dating of changes and reconstructions of the fabric of these properties. As in the medieval period, changes to the buildings over time will also be studied from the stratigraphic relationships.

**Objective 5. To further artefact typologies and artefact-based dating sequences for Bristol.**

7.14 The artefact collection from this site was not in general outstanding. However, while full analysis is recommended for the later medieval and earlier post-medieval pottery (to clarify the pottery supply to the city), only the medieval glass jug, the leather items, and a small element of the metal finds merit further analysis.

**Objective 6: To consider the overall pattern of development elucidated for the suburb from the archaeological and documentary evidence, from its medieval origins to its 21st-century redevelopment, to**
understand the changing role that the suburb played in the development of Bristol, and to compare the development of the suburb within the broader analysis of urban development in Britain.

7.15 This final objective pulls together the conclusions and interpretations for all of the preceding objectives in order to summarise and establish the significance of the results in as wide a context as is appropriate. This section will provide an appropriately detailed summary of the development of this part of Broad Quay in all periods. Consideration of the changing role of the suburb will cover the different and changing land-uses of the various areas of the site through time and, where possible, what the economy, status, diet and health of the population were.

7.16 These overall patterns and general trends will be compared (where possible) with other areas of the city, particularly those peripheral to the historic core, to elucidate the changing role that the suburb played in the development of the city. The development of the Broadmead suburb will also be considered within the broader analysis of urban water front development, in particular the influence and legacy of river channels (and topography in general), industrialisation, and the ebb and flow of economic growth and urbanisation.

8. PUBLICATION

8.1 The results from this excavation, merit publication and are of obvious regional significance, it is proposed that a full report be published in the Transactions of the Bristol and Gloucestershire Society
Synopsis of Proposed Report

Broad Quay, Bristol:
by Peter Davenport & Mary Alexander

Abstract
Brief summary of main findings of the project 600 words

Introduction
Project background, archaeological background, topography, geology 500 words

Excavation Results
Chronological discussion of the major phases and features of the site 4,000 words

Documentary Evidence (Roger Leech) 4,000 words

Building Recording 2,500 words

The Finds
Pottery (Alan Vince) 4,500 words
Metal Artefacts (E. R. McSloy) 500 words
Clay Pipe (Teresa Gilmore) 400 words
Leather (Quita Mould) 2000 words
Glass (John Shepherd) 200 words

Environmental Evidence
Animal & Fish Bone (Sylvia Warman) 1,200 words
Shell (Sylvia Warman) 150 words
Plant Remains (Julie Jones) 2,500 words
Waterlogged Wood (Rowena Gale) 500 words
Geoarchaeology (Keith Wilkinson) 1,500 words

Discussion
Paleoenvironmental Deposits 500 words
Medieval 2,000 words
Post-Medieval 1,500 words

Acknowledgements & Bibliography 1,800 words

TOTAL 30,850 words (c. 39 pages)

Illustrations:
Location of site 1 page
Plan of site showing areas of excavation 1 page
Phase plans and sections, site photographs 10 pages
Building elevations 2 pages
Standing buildings elevations (photos) 1 page
Documentary maps & archive photos 3 pages
Pottery 5.5 pages
Leather 2.5 pages
Glass vessel and metal seal matrix 1 page

27 pages

Tables:
Pottery: 3 pages
Animal Bone 2 pages
Plant remains 2 pages
Boreholes 2 pages

Total 9 pages

Total Publication Estimate: 75 pages

9. PROJECT TEAM

9.1 The post-excavation and publication programme will be under the management of Mary Alexander (PX Manager), who will co-ordinate the work of the following personnel:

Peter Davenport (Senior Project Officer: SPO):
Post-excavation phasing, draft report preparation, research and archive.

E. R. McSloy MIFA (Finds Officer: FO):
Specialist report preparation and liaison, post-excavation phasing.

Peter Moore (Senior Illustrator: SI):
Production of all site plans, sections and artefact drawings (exc. pottery).
Contributions by the following external consultants will be managed by the Finds Officer:

- **Alan Vince** (Vince Archaeological Consultancy)  
  Pottery
- **Julie Jones** (Freelance)  
  Plant remains
- **Quita Mould** (Freelance):  
  Leather
- **University of Waikato (New Zealand)**  
  Radiocarbon dating
- **Wiltshire County Council**  
  Metalwork conservation

Contributions by the following external consultant will be managed by the Project Manager:

- **Roger Leech** (Southampton University)  
  Documentary Research

9.3 The final publication report will be edited and refereed internally by CA senior project management.
10. **TASK LIST**

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Proofs
Typeset
Printing
Archive
Research archive completion
Microfilm
Deposition

11. **TIMETABLE**

11.1 For a publication project, CA would normally aim to have completed a publication draft within one year of approval of the updated publication project design. A detailed programme can be produced on approval of the updated publication project design.
12. REFERENCES


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APPENDIX 1: DOCUMENTARY RESEARCH BY ROGER LEECH

The research already undertaken by John Chandler and Alison Borthwick drew substantially upon the data in the BRS volume 48 (1997), *The Topography of Medieval and Early Modern Bristol part 1* by Roger Leech. This will be taken further in the following ways:

1. The property histories in BRS48 will be extended backwards in time through the use of taxation documents (all in the BRO) listing properties in sequence for the 17th and 18th centuries, notably the assessments for the Hearth Tax, Poor Tax, Land Tax and Lamp and Scavenging Rates, all for the parish of St Stephen. These will be augmented through the use of manuscript material in antiquarian collections in Bristol City Reference Library. Establishing the street sequence for Marsh Street is made difficult by the late implementation of a street property numbering system. Where appropriate, properties will be traced back in time from the Goad surveys of the 1880s and the City Valuation Survey of 1837. This research will possibly enable more medieval property records to be linked to identified properties.

2. More use will be made of the watercolours and drawings, and related notes, for the parish of St Stephen in the Braikenridge Collection, Bristol Museums, Galleries and Archives. Some of these, evidently not consulted at first hand for the earlier report by Chandler and Borthwick, are likely to be of buildings on or close to the area of study – locating these will be facilitated through the documentary research outlined above.

Further Work

It is estimated that the above will take three days (BRO 1 day, Museum and Art Gallery 1 day, report preparation 1 day.)
APPENDIX 2: STANDING BUILDINGS BY PETER DAVENPORT

Nos 14 to 18. Marsh Street.

Results
A careful assessment and preliminary analysis has shown that the two walls that survive between 14 and 16 and 16 and 18, Marsh Street are certainly of medieval origin. The north wall is also substantially of medieval fabric to its full height of three, or possibly four storeys. Both walls have undergone many changes, including, for the south wall, a substantial rebuild or extension in the 17th century. Evidence was retrieved, and supported by documentary research, showing that between the walls of the building now represented by no 16, was an open space, incorporating a slip way to the Frome, later converted to a building. In consequence, the standing walls are large fragments of two and then three medieval and post-medieval buildings, 14 and 18 and then 16, Marsh Street, respectively, with a structural history continuing to the present day, reflecting their history and that of the infill building. The buildings were probably merchants’ houses and warehouses. The distinction would not be so sharp as today, but the residential and office sides would probably be at Marsh Street – the front – and the warehouses to the Quay side – the rear. This arrangement is exemplified and more clearly formalized in the lease plans for no. 10, Broad Quay/18, Marsh Street from 1823.

When these results are combined with the below ground information retrieved from the trenches dug against these walls, it is clear that the remains are of considerable importance. They are certainly of high importance for Bristol, being rare (or at least rarely recognized and recorded) examples of medieval mercantile buildings on the Broad Quay surviving several storeys and exemplifying the exploitation of the trading opportunities provided by the creation of the new Frome and quay in the later 13th century. The above ground remains, important and informative as they are, are of increased value because of the way datable archaeological layers and indeed events, can be tied into them. Such remains are relatively rare in ports that continued in importance into the modern period, but can be compared to remains in other medieval ports where buildings of similar function have been recorded. It is likely, that in that context, especially given the archaeological evidence for a late 13th or early 14th century date for the construction of both walls, the remains will prove to be of national importance.

Further work and analysis
The basic outline of the walls and openings have been surveyed, and the positions of some structural breaks and details have been indicated in a generalized way on the surveyed background. Detailed plotting of the walls should now be carried out. This will consist of completing the photo montage of rectified photographs and using this, calibrated against the overall survey measurements, to more accurately and precisely delineate the structural elements, breaks, repairs etc. that make up the structural history of these walls. It is not intended to draw up a stone by stone record from these photographs, but the boundaries and other elements need to be recorded in more detail. The north side of the north wall, difficult to analyse in its present state, may particularly benefit from this approach.
In the PXA report, reference was made to further recording to be done before final building work and stripping out. The results of this work may be informative.

The drawings in the PXA report, while a useful indicator of the various breaks and changes in the building are somewhat generalized. Other potential breaks and changes are evident in the photographs but have not yet been analysed, or finally recorded. While the original and early mortars of the walls are much obscured by later pointing, the various pointing and other repair episodes evident in the photographs are not yet analysed. All this information should be recorded on the drawings done from the photo-montages. The analysis of the walls should be done in concert with the study of the buried archaeological traces, especially in the trenches abutting or close to the walls, as these seem to indicate some significant medieval building lines.

Documentary records have been assessed and have already been shown to be of considerable value in interpreting these building remains. The detailed plans of buildings in the lease of 1823 for 18/20, Marsh Street and 10, Broad Quay should be scaled and overlaid on the modern site plans and archaeological trenches to assist the analysis of the development of the building layout and the same should be done for historic mapping to relate the findings to the historic property layout before the major changes of the later 19th and 20th centuries. Any other relevant topographical or cartographical material, the existence of which has been suggested by Roger Leech (ref), should also be incorporated.

APPENDIX 3: THE POTTERY BY ALAN VINCE AND KATE STEANE

Excavations at Broad Quay, Bristol, revealed a sequence of land use starting in the mid 13th century and continuing, intermittently, to recent times. The pottery associated with this sequence was submitted to the authors for identification and assessment. It includes a moderately high proportion of imported wares, mainly from southwest France and Portugal, and a number of highly-decorated medieval Bristol ware vessels whose shape and decoration should be reconstructable. The pottery both confirms the suggested dating of the sequence and informs us about the trading contacts of this part of Bristol in the later 13th century and later.

Description

Medieval wares earlier than the mid 13th century

Few examples of the late Saxon and Saxo-Norman wares found at sites such as St Mary le Port and Bristol Castle were present (Watts and Rahtz 1985; Ponsford 1974). These types were certainly current prior to the Norman Conquest and probably well into the 12th century.

The only example is a handmade ware which was current during this period but continued in use later, Bristol C (BRISC; BPT 2, 10, 194 and 309). This group of fabrics contains carboniferous limestone, and one of the distinctive characteristics is the presence of crinoid stems. The source of this ware could
therefore be very close to Bristol, since such limestone outcrops at Clifton and Long Ashton. Three featureless body sherds from handmade jars were present; all had been used for cooking.

A single sherd from a handmade jar whose fabric includes sandstone fragments was recorded (MEDLOC). Handmade redware jars and whiteware jugs of Ham Green ware were present (HGR; BPT 32, 48 and 65 and HG; BPT 26, 27, 65, 241 and 248 respectively). The sherds come from vessels paralleled closely by material from Ham Green excavated by Barton (Barton 1963). Most of the jug sherds could come from the later, Ham Green B, vessels which have horizontal grooving and applied self-coloured strip decoration, with thumbed bases as opposed to the potentially earlier Ham Green A vessels which have diamond roller stamping and plain sagging bases. However, two roller-stamped sherds were present.

Other wares of probable later 12th to mid 13th century date consist of Bath Fabric A handmade jars (BATHA; BPT 46, 73 and 134). These vessels were made from a silty micaceous clay tempered with polished quartz sand of lower Cretaceous origin. The nearest potential source to Bristol would have been in west Wiltshire and placename evidence suggests that Potterne and Crockerton, near Warminster, are potential sources. Vessels of this type were present at Bath in pre-conquest period deposits but they first appear in Bristol in quantity in the later 12th century, and were redistributed from there to sites in the Severn valley, Wales and Ireland (Vince 1984). In addition to sherds from no more than 76 jars, two examples of “west country vessels” were present. These vessels have similar diameters and rim forms to the jars but are much shallower with acute base angles. Examples with pre-firing circular holes in the body are known.

Handmade Minety ware jars with glaze on the inside of the rim and base were present together with a single tripod pitcher (MINETY; BPT 18, 18E, 84 and 145). The jars are sometimes known as Selsley Common ware as a result of the publication of material from this site by Dunning (Dunning 1949). This type was probably produced at Minety, on the Gloucestershire/Wiltshire border, from the early 12th to the mid 13th centuries when these handmade vessels were superceded by wheelthrown vessels produced in the same fabric.

Five sherds of South-East Wiltshire ware were recorded (SEW; BPT 17, 18C, 249, 363). Four come from handmade jars in a similar fabric to that used to produce scratch-marked ware in the late 11th to 13th centuries. However, none of the sherds has this distinctive decoration. A single sherd from a wheelthrown jug of similar source was recorded. Such vessels were produced at Laverstock but are coarser in texture than the true Laverstock ware (Musty and Ewence 1969).

Five sherds of Worcester sandy ware jugs were recorded (HERC2; Vince 1985a). These vessels were produced in the suburbs of Worcester in the early to mid 13th century and the industry went into sharp decline in the later 13th century as a result of competition with potters based in the Malvern Chase. Two of the sherds have roller-stamped decoration. The industry is notable for the use of complex roller-stamping, often covering the entire exterior of the vessel.
Late 13th to 14th-century wares

Six hundred and twenty-eight sherds of wares of later 13th to 14th-century date were recorded. By far the most common of these wares was Bristol medieval ware (AKA Bristol Redcliffe ware). This ware fired to an off-white colour and is tempered with quartzose sand, a distinctive feature of which is the presence of a dull red coating on the majority of the grains. Pellets of relict clay are also present and in some instances have a blue or dark grey core as a result of an organic content (BR; BPT 67, 67A, 68, 72, 74, 85, 103, 117, 118, 120, 123, 125, 126, 154, 166, 208, 230, 242, 247, 294, 316, 324 and 357).

Three distinct phases in the production of Bristol medieval ware vessels can be discerned. In the first, the vessels have elaborate plastic decoration, often in both a self-coloured and red-firing clay. At least three vessels of this type were recorded from Broad Quay, but none come from stratified medieval deposits, and it is possible that they were introduced to the site in the post-medieval period with dumped make-up.

In the second phase, the decoration became more standardised and was used more sparingly. Bases in this second phase were often flat with a footing rather than the thumbed sagging base found on the first phase vessels. A good example of this phase is the use of moulded face bridge spouts (Ponsford 1979, Fig 22.2). Several examples of this type were recorded at Broad Quay including one from a Period 2 dump from Evaluation Trench 27. The third phase consists of the complete absence of decoration and often the use of an internal glaze with the exterior left unglazed. No examples of this third phase were noted at Broad Quay.

The second most common ware in this phase was wheelthrown Minety ware. Sherds from no more than 20 vessels were recorded. Most of these were jugs but one was the base of a footed vessel, either a cistern or a skillet. Such vessels are usually late medieval in date and the stratigraphic context of this example should be examined closely (context 2755).

Four examples of a sandy wheelthrown glazed redware were present. The sand consists of red-coated polished quartz, derived from lower Cretaceous sandstone, and this indicates that these vessels came from the Nash Hill, Lacock, kilns (McCarthy 1984).

The remaining wares in this group are imported wares. They consist of 142 sherds of south-western French whiteware, usually known in British and Irish literature as Saintonge ware. Eighty-nine sherds, from no more than 74 vessels, have a mottled copper-green glaze. Most of these are from baluster jugs but two come from mortar, with added quartzose gravel temper. Eleven sherds from no more than seven vessels were decorated in the polychrome style (SAIP); 12 sherds from no more than 9 vessels have a homogenous copper-green glaze (sometimes known as all-over-green). The use of this glaze was contemporary with the polychrome style and some polychrome vessels have an all-over-green internal glaze. Lastly, 28 sherds have either no glaze at all or mere spots of copper-green glaze. These must come from vessels with either a sparse glaze or no glaze. Such vessels are particularly characteristic of the later medieval period and are not found in mid to late 13th-century deposits on the Thames waterfront in London (Vince 1985b). Dendrochronologically-dated assemblages at Billingsgate Lorry Park and Swan Lane in the City of London suggest that the first Saintonge whitewares appear in
the mid 13th century and that in large deposits of c.1270 there are no polychrome or all-over-green vessels, just mottled green-glazed ones and rare sgraffito-decorated vessels (a type absent from Broad Quay). The Period 2 deposits at Broad Quay therefore seem to be later than c.1270.

Single sherds of Iberian Red Micaceous ware (Hurst 1977; SPAM; BPT 282) and unattributed “Spanish” oil jars (Hurst 1977; SPOW) were recovered from medieval deposits. The red micaceous ware vessel is probably a standing costrel. Sherds of similar vessels are known from the city of London from late 13th century deposits but they are much more frequent in deposits of mid 14th century and later date (Vince 1985b). In total, 22 sherds of these types were recorded, from no more than 15 vessels. Some of the red micaceous ware vessels are of large bowls, of the lebrillo type (i.e. large conical bowls, similar to British pancheons). Red micaceous ware vessels other than standing costrels are mainly found in late medieval and early post-medieval contexts and it is therefore possible that these vessels, none of which is stratified in a medieval deposit, are of early post-medieval date. However, the similarity in appearance between their fabric and that of the stratified example suggest that one might expect them to be of similar date. It may be that the Period 2 example is intrusive, or that the date of the Period 2 deposits is slightly later than expected.

**Later medieval wares**

Twenty-three sherds of late medieval date were recorded. They consist of sherds of wheelthrown, glazed Malvern Chase ware vessels (Vince 1985a; HERB4; BPT 168 and 197) and a single sherd of Valencian lustreware (Hurst 1977; VALE; BPT83). Malvern Chase glazed wares were produced from the later 13th century onwards but their production rose during the 14th century. Some of those stratified in Period 4 deposits are probably of later 15th or early 16th century date whereas those from Period 2 and 3 deposits could possibly be of later 13th century date although they are interpreted here as being probably intrusive. Valencian lustreware was first produced in the later 14th century but continued to be produced into the later 16th century. This example has lost any lustre decoration and does not have a distinctive datable form and can only be dated late 14th to late 16th century.

**Post-medieval wares**

One hundred and forty-eight sherds of types dating between the late 16th and the mid 18th centuries were recorded. They represent no more than 100 vessels. The most common ware is North Devon Gravel-tempered ware (NDGT). Several of the vessels present can be reconstructed and none are present in the typology of North Devon Gravel-tempered ware published by Allan (Allan 1984). Most of these come from two contexts, 2535 and 2541.

The next most common ware was South Somerset ware. This is an untempered silty red earthenware. Similar wares were produced at several centres utilising both lower Cretaceous Gault clay and Quaternary silts from the Somerset Levels. Without further analysis it is not possible to assign any of these vessels to a source but the sherds lack the fine fragments of siltstone and slate which characterise Nether Stowey products and also do not contain the abundant rounded black iron-rich grains found in Crockerton products. The most likely sources are Donyatt, near Ilminster, which is certainly the source of much of the late 17th and later slipware found in Bristol, and Wanstrow, near Shepton Mallet, which is about 25 miles south of Bristol. None of the Broad Quay examples are slip-decorated and the most likely date for these vessels, as a group, would be early to mid 17th century,
since they lack the large jugs decorated with a sgraffito band which are characteristic of the later 16th century (Coleman-Smith and Pearson 1988).

Twelve North Devon Gravel-free ware vessels were present (NDF; BPT 108 and 222). Most of these were slipware bowls but jugs were also present. This fabric appears to have been introduced in the early 17th century but is common from then until the end of the industry in the early 20th century.

Ten examples of Malvern Chase pink ware were present (HERB5; Vince 1985). This fabric was in use in the Malvern Chase potteries by the 1530s and is present in groups from Acton Court which are probably associated with the renovation of the house in preparation for a royal visit in 1535 (Vince and Bell 1992; Vince and England 2004; Bell and Rodwell 2004). The industry seems to have collapsed at the time of enclosure of the chase in the 1632 but evidence from Hereford and Gloucester suggests that the industry was in decline for some decades before this.

Ten tin-glazed vessels of probable English manufacture were present (TGW; BPT 99). Three were undecorated vessels, a chamber pot, a bowl and a cup or jug. The remainder had painted decoration, either blue on a white or pale blue ground or in one case blue and green. One of the vessels was a plate whose back was glazed with a lead glaze with less tin content than the front. This is a mid 17th-century style whereas the remaining vessels are likely to be of later 17th to early 18th century.

The remaining post-medieval wares are represented by a handful of sherds each and are briefly listed in Table 3.1. The various English wares follow the pattern of supply typical of Bristol and its environs and are, for example, paralleled in close detail at the East Gate in Gloucester (Vince 1983). Of note, however, are two sherds of Isabella Polychrome and one sherd of Melado ware. These two types were both produced in Seville in the later 15th and 16th centuries and their presence at Broad Quay reflects the strong links which Bristol maintained with southwest Spain at this time.

Early Modern wares
Fourteen vessels of later 18th century or later date were recovered. They are briefly listed in Table 3.2

Stratigraphic Context
Evaluation Trench 25
A total of 87 sherds of pottery were recovered from evaluation trench 25.

Period 3
Eighty-one sherds of pottery of post-medieval or later date were recovered from eight Period 3 deposits (Table 3.2). The terminus post quem for deposition of each deposit, based solely on the pottery recovered from the layer is given in Table 3.1. In most cases, the date depends on a single sherd, which on a complex urban excavation might easily be redeposited or intrusive. However, contexts 2535 and 2541 produced joining sherds of several vessels which are therefore more likely to have been contemporary with the period of deposition. The two deposits between them produced seven vessels which could be illustrated, providing a good example of late 17th to early 18th-century ceramics. As a group, the two deposits indicate the importance of the southwest (North Devon and South Somerset).
Period 4
Context 2514 is phased by the excavators to the post medieval early modern period but the only pottery found is medieval in date and therefore presumably residual.

Evaluation Trench 27

Period 1
A single sherd of Saintonge polychrome jug was recovered from context 2757. Unless intrusive, it indicates that the flood deposits were still accumulating in this area into the late 13th or early 14th centuries.

Period 2
Seven contexts assigned to Period 2 produced pottery (Table 3.3). A total of 222 sherds, representing no more than 108 vessels and weighing in total 4.236Kg was recovered. A single sherd of North Devon gravel-tempered ware from context 2711 is presumably intrusive and the remaining pottery in this context and others provides a late 13th century deposition date. The presence of Saintonge polychrome and all-over-green ware in contexts 2709, 2749, 2750, and 2755 dates the deposition of these deposits to the very end of the 13th century at the earliest and the sherds of unglazed Saintonge ware from context 2709 are more consistent with a mid 14th century or later date, as is the Iberian micaceous ware vessel from context 2755. The presence of sherd families (smashed vessels) in contexts 2709, 2711, 2745, 2749, 2750 and 2755 suggests that these assemblages at least are contemporary with the period of deposition.

Given that much of this material is probably associated with or at least stratigraphically related to the construction of the Marsh Wall, these groups deserve to be fully catalogued and analysed.

Period 3
A single context, 2748, assigned to Period 3, produced a small assemblage of pottery which dates to the later 18th century or later.

Period 4
A single context, 2716, a make-up layer assigned to Period 4 produced an assemblage of medieval and post-medieval sherds together with a single sherd of Pearlware which dates deposition to the late 18th century or later.

Area 2

Period 2
Two contexts assigned to Period 2 produced pottery: 3102 and 3115. In both cases the contexts produced single small sherds for which a later 12th century or later date is likely.

Period 3
Two contexts assigned to Period 3 produced pottery. 3084 produced a small assemblage of medieval pottery which is presumably all residual whilst 3099 produced an assemblage of 90 sherds, most of which are of medieval date. The exceptions are a sherd of Surrey-Hampshire border ware of later 16th-century or later date and five sherds from three Malvern Chase vessels (two bowls and a jug) which might date to any period between the later 14th and the mid 16th centuries.

Period 4
Fourteen contexts assigned to Period 4 produced pottery. A total of 217 sherds were recovered, the majority of which were of medieval date. Late medieval and later pottery consisted of 78 sherds and
using these sherds only TPQs for the deposition of eleven contexts were given (Table 3.5). None of these contexts produced large coherent assemblages of later medieval or post-medieval date and it is quite likely that the actual deposition date for these deposits is much later, or that the late date is based on a small number of possibly intrusive sherds. Context 3038 is a case in point, where a single sherd of Creamware provides a TPQ of late 18th century but the latest remaining pottery could be a century earlier. As a group, these late sherds do not have the high frequency of North Devon wares seen in some of the post-medieval assemblages and do include types which were current in the later 15th and 16th centuries (such as Isabella Polychrome and Melado wares and South Netherlands maiolica). Nevertheless, seven of the deposits do include sherds which are no earlier than the later 17th century in date and it may be that this late 15th to 16th century element is itself redeposited.

Period 5
Four contexts assigned to Period 5 produced pottery. Context 3001 produced a mixed assemblage in which the latest sherds are of later 16th century or later date. Context 3028 produced an assemblage of early 13th century date. Context 3029 produced a sherd of North Devon gravel-tempered ware, dating the deposit to the later 16th century or later and context 3080 produced a sherd of North Devon gravel-free ware which dates deposition to the late 16th century or later.

Area 3
One hundred and forty sherds of pottery were recovered from Area 3.

Period 2
Six contexts assigned to Period 2 all are associated with reclamation or alluvial deposits.

Two of the three alluvial deposits produced pottery of later 12th to mid 13th century date (5030 and 5031) which might therefore indicate that these deposits pre-date the reclamation of the marsh. The third, 5026, produced a group of later 13th century or later date. However, in total these three deposits only produced 10 sherds.

The three reclamation deposits include one, 5003, which produced two sherds which could be of later 12th to mid 13th-century date, and two which produced small groups of later 13th century or later date (contexts 5004 and 5025). Of these one (5025) included sherds of unglazed/sparsely-glazed Saintonge ware which are more common in the 14th than the 13th century.

Period 3
A single context, 5001, assigned to Period 3 produced pottery. The assemblage consisted of a later 13th century or later assemblage together with two sherds of mid 19th-century or later refined whiteware.

Period 4
A single context, 5000, assigned to Period 4 produced pottery. The assemblage consists of 28 medieval sherds of mid 13th century date or later and four sherds of early modern date, the latest of which is a sherd of refined whiteware of mid 19th century or later date.
Area 4

Period 2
Two contexts (6040 and 6041) were assigned to Period 2, both levelling deposits. Both produced small assemblages which can be dated to the mid 13th century or later.

Period 3
Ten contexts assigned to Period 3 produced pottery. Most produced small assemblages of medieval pottery dating to the later 13th century or later (6003, 6005, 6025, 6026, 6027, 6030 and 6037). Three, however, produced sherds of South Somerset ware (and in one case a sherd of Cistercian ware) which date deposition to the later 16th century or later. These are 6011, 6028 and 6033. Each is dated by a single sherd.

Area 5

Period 2
Four contexts assigned to Period 2 produced pottery (a total of 54 sherds, representing no more than 53 vessels and 485 gm). That from deposit 7031 (and probably 7031) can be dated to the very late 13th century or later by the presence of Saintonge Polychrome ware whilst that from deposit 7032 could be slightly earlier, but still mid 13th century or later.

Discussion

Early Exploitation of the Marsh
The only pottery assigned to a pre-Marsh Wall phase from the excavations came from Evaluation Trench 27 and consisted of a single sherd of Saintonge Polychrome ware which is no earlier than the very late 13th century.

There is also a complete lack of material dating to the Saxo-Norman period residual in later contexts on the site and nothing which need be dated to the 12th century.

A small quantity of material is of types which are probably of later 12th to mid 13th century date and in some cases this material occurs in deposits which contain no later types. It may represent disturbed material from pre-Marsh Wall contexts but also might have been brought onto the site with levelling material at a much later date.

The Marsh Wall
The only material which is said to be stratigraphically related to the construction of the Marsh Wall comes, again, from Evaluation Trench 27. This material includes types which might have been current in the very late 13th century but are more commonly found in 14th-century deposits. The pottery is therefore important, either in demonstrating that these types are indeed present before the end of the 13th century or that the Marsh Wall in this area was not actually built until the 14th century.

The pottery assigned to Period 2 from other trenches and areas mainly comes from deposits which are described as alluvium or levelling and these too are likely to be roughly contemporary with the construction of the Wall. The material from Areas 3 and 5 includes earlier 13th-century types which are less common or even absent in Evaluation Trench 27 whilst that from Areas 6 and 7 is more similar to that from Evaluation Trench 27. This suggests that there might be earlier activity in Areas 3 and 5.
Medieval Activity post-dating the construction of the Marsh Wall

None of the contexts assigned to Period 2 which produced pottery appear to be related to later medieval activity on the site, unless some of the alluvium and levelling layers described above actually post-date the construction of the wall. Furthermore, there is no real evidence for the substantial presence of later medieval activity on the site, even as disturbed or residual material.

Post-medieval reclamation

Pottery was recovered from Period 3 contexts but much of this was residual medieval material of similar types to that present in Period 2. Material from Area 6 includes late 16th or later pottery which includes no definite later 17th-century or later types. This material is therefore likely to reflect reclamation in the later 16th or earlier 17th century. However, the quantity of post-medieval pottery in any group is very low and therefore it would be difficult to refine this dating.

Industrial use

Some of the Period 3 contexts in Evaluation Trench 25 consists of smashed vessels, mainly of North Devon wares. They indicate the use of this part of the site in the later 17th to early 18th centuries and provide a collection of probably near-contemporary wares. None of the other areas have material of this date.

Victorian

Later 18th century and later pottery was rare on the site and was found only in three contexts in Evaluation Trench 25, one in Evaluation Trench 27 and one in Area 5.

Recommendations

Only two groups of pottery from the Broad Quay site have high potential for further study: the late 13th to 14th century pottery from Period 2 and the later 17th- to early 18th-century material from Period 3, Evaluation Trench 25.

The Period 2 pottery consists of no more than 232 vessels. Of these, most are body sherds, some of which had applied decoration but most of which are probably not worth further study. Forty-five vessels are presented by featured sherds (rims, bases, handles, spouts and so on). At most, therefore, these might require 45 illustrations but 13 of these sherds are unremarkable Bristol medieval ware jugs bases and a more reasonable estimate would be 30 illustrations (Tasks 1 to 3).

The later 17th- to early 18th-century assemblage consists of seven illustratable vessels (Tasks 4 and 5).

The remaining pottery is useful for confirming the dating and phasing of the site put forward on stratigraphic grounds but does not amplify either the history of pottery use in Bristol or the history of the Broad Quay site in particular. The information provided in this report can use used without further input to provide this dating information, unless it is subsequently found that the stratigraphic phasing requires modification, in which case an input may be required (Task 6).
The one exception to this is the pottery of Iberian origin. A total of 26 sherds were recovered, of which only three were stratified in late 13th to early 14th century deposits. These are of two types (SPAM and SPOW). Material of similar character was found associated with other later 13th to 14th-century wares in post-medieval and later deposits and can probably be accepted as further examples of this early Iberian trade and are worthy of further study (Tasks 7 and 8). Four sherds of later 15th or 16th-century date were also recovered and these too are sufficiently unusual to warrant further work (Task 9).

The other major group of imported wares, from southwest France, includes 145 sherds from no more than 105 vessels. Here too, there is no real evidence that the material stratified in later deposits is different in character from that found in medieval deposits (apart from a sherd of chafing dish), but in this case only three sherds come from vessels not represented in the stratified collection: a mortar and a sherd of a possible perfume pot. Catalogue entries should be provided for these, together with illustrations (Tasks 10 and 11). Nevertheless, the residual French wares can, in the main, be excluded from further study.
Table 3.1: Fabrics list: medieval and post-medieval

<table>
<thead>
<tr>
<th>Code</th>
<th>source</th>
<th>description</th>
<th>date</th>
<th>reference</th>
<th>BPT</th>
<th>NoV</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>Ashton Keynes, North Wiltshire</td>
<td>Red sandy earthenware with sparse calcareous and iron-rich inclusions</td>
<td>Late 16th to Mid 18th centuries</td>
<td>Vince 1983, TF80</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>BORDG</td>
<td>Surrey/Hampshire Border</td>
<td>Border ware with a copper-green glaze</td>
<td>Late 16th to Mid 18th centuries</td>
<td>Pearce 1992</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>BORDY</td>
<td>Surrey/Hampshire Border</td>
<td>Border ware with a yellow glaze (i.e. lead glaze with no added colourants)</td>
<td>Late 16th to Mid 18th centuries</td>
<td>Pearce 1992</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>CHPO</td>
<td>China</td>
<td>Chinese export porcelain</td>
<td>Early 17th century onwards</td>
<td></td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>CSTN</td>
<td>South Gloucestershire</td>
<td>Cistercian ware</td>
<td>Early 16th to early 17th centuries</td>
<td>Vince 1983, TF60</td>
<td>93, 266, 275</td>
<td>3</td>
</tr>
<tr>
<td>ISAB</td>
<td>Seville</td>
<td>Isabella polychrome ware</td>
<td>late 15th to 16th century</td>
<td>Hurst, Neal, and van Beuningen 1986</td>
<td>333</td>
<td>2</td>
</tr>
<tr>
<td>MELADO</td>
<td>Seville</td>
<td>Melado ware</td>
<td>late 15th to 16th century</td>
<td>Hurst, Neal, and van Beuningen 1986</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>SAIG</td>
<td>Southwest France</td>
<td>Saintonge ware</td>
<td>Late 16th to Mid 18th centuries</td>
<td>Hurst 1974</td>
<td>40, 227</td>
<td>2</td>
</tr>
<tr>
<td>SNTG</td>
<td>South Netherlands</td>
<td>South Netherlands Maiolica</td>
<td>Early 16th to early 17th centuries</td>
<td>Gaimster 1999</td>
<td>344</td>
<td>1</td>
</tr>
<tr>
<td>STBRS</td>
<td>Bristol/Staffs</td>
<td>Brown stoneware of Staffordshire type</td>
<td>Late 17th to Mid 18th centuries</td>
<td>Home 1985</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>STCO</td>
<td>Bristol/Staffs</td>
<td>Press-moulded slipware with a light-coloured body of Staffordshire type</td>
<td>Late 17th to Mid 18th centuries</td>
<td>Vince 1983, TF72</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>STMO</td>
<td>Bristol/Staffs</td>
<td>Mottled ware of Staffordshire type</td>
<td>Late 17th to Mid 18th centuries</td>
<td>Vince 1983, TF74</td>
<td>211</td>
<td>1</td>
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<tr>
<td>STSL</td>
<td>Bristol/Staffs</td>
<td>Wheelthrown slipware with a light-coloured body of Staffordshire type</td>
<td>Late 17th to Mid 18th centuries</td>
<td>Vince 1983, TF58</td>
<td>100, 331</td>
<td>5</td>
</tr>
<tr>
<td>WEST</td>
<td>Westerwald</td>
<td>Westerwald stoneware</td>
<td>Late 16th to Mid 18th centuries</td>
<td>Hurst, Neal, and van Beuningen 1986</td>
<td>95</td>
<td>1</td>
</tr>
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</table>
Table 3.1 (continued): pottery fabrics: early modern

<table>
<thead>
<tr>
<th>cname</th>
<th>source</th>
<th>description</th>
<th>Date</th>
<th>BPT</th>
<th>NoV</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPW</td>
<td>Various, mainly the Staffordshire Potteries</td>
<td>Transfer-printed Ware</td>
<td>Late 18th century onwards</td>
<td>278</td>
<td>4</td>
</tr>
<tr>
<td>CREA</td>
<td>Various, mainly the Staffordshire Potteries</td>
<td>Creamware</td>
<td>Late 18th century onwards</td>
<td>202, 223, 326</td>
<td>4</td>
</tr>
<tr>
<td>ENGS</td>
<td>Unknown but possibly Bristol</td>
<td>Misc English Stoneware</td>
<td>Late 17th century onwards</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>PEAR</td>
<td>Various, mainly the Staffordshire Potteries</td>
<td>Pearlware</td>
<td>Late 18th century onwards</td>
<td>202</td>
<td>2</td>
</tr>
<tr>
<td>WHITE</td>
<td>Various, mainly the Staffordshire Potteries</td>
<td>Misc Refined Whiteware</td>
<td>Mid 19th century onwards</td>
<td>202</td>
<td>3</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
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</table>
### Table 3.2: Trench 25/Period 3 occurrence of fabrics by deposit (quantities shown as sherd counts)

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
<th>TPQ</th>
<th>AK</th>
<th>CREA</th>
<th>HERB5</th>
<th>NDF</th>
<th>NDG</th>
<th>PEAR</th>
<th>SPOW</th>
<th>SSOM</th>
<th>STBRS</th>
<th>STSL</th>
<th>TGW</th>
<th>TPW</th>
<th>WEST</th>
<th>WHITE</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2521</td>
<td>Reddish brown clay silt deposit</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td>2</td>
</tr>
<tr>
<td>2528</td>
<td>Lower fill of possible service trench 2533</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>2</td>
</tr>
<tr>
<td>2532</td>
<td>Homogeneous deposit</td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>2534</td>
<td>Ash deposit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td>5</td>
</tr>
<tr>
<td>2535</td>
<td>Black ash deposit</td>
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<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>2540</td>
<td>Sandy silt deposit</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>2</td>
</tr>
<tr>
<td>2541</td>
<td>Dark brown silty sand deposit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>2546</td>
<td>Bedding layer for large limestone block 2514</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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</table>
Table 3.2: Trench 27/Period 2: occurrence of fabrics by deposit (quantities shown as sherd counts).

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
<th>TPQ</th>
<th>BR</th>
<th>NDG</th>
<th>HG</th>
<th>HGR</th>
<th>MEDX</th>
<th>MINETY</th>
<th>SAIG</th>
<th>SAIM</th>
<th>SAIN</th>
<th>SAIP</th>
<th>SAU</th>
<th>SPAM</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2709</td>
<td>Back fill of construction cut 2710</td>
<td>Late 13th century</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>2711</td>
<td>Alluvial deposit</td>
<td>Late 16th century (or late 13th century)</td>
<td>11</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>2745</td>
<td>Mortar deposit</td>
<td>Late 13th century</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>2749</td>
<td>Thin clay deposit</td>
<td>Late 13th century</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>2750</td>
<td>Charcoal rich dumped deposit</td>
<td>Late 13th century</td>
<td>66</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>69</td>
</tr>
<tr>
<td>2755</td>
<td>Occupation deposit</td>
<td>Late 13th century</td>
<td>49</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>17</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td>94</td>
</tr>
<tr>
<td>2801</td>
<td>Rubble foundation layer for buttress 2708 and also possibly city wall 2707</td>
<td>Late 13th century</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td>151</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>11</td>
<td>20</td>
<td>10</td>
<td>9</td>
<td>1</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>222</td>
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</tbody>
</table>
Table 3.3: Area 3/Period 4: context TPQs and sherd totals

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
<th>TPQ</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3025</td>
<td>Cellar wall</td>
<td>Late 17th Century</td>
<td>5</td>
</tr>
<tr>
<td>3035</td>
<td>Clay base of 3034</td>
<td>Late 17th Century</td>
<td>2</td>
</tr>
<tr>
<td>3038</td>
<td>Clay levelling layer</td>
<td>Late 18th century or Late 17th Century</td>
<td>7</td>
</tr>
<tr>
<td>3046</td>
<td>Brick drain</td>
<td>Early 16th century</td>
<td>1</td>
</tr>
<tr>
<td>3047</td>
<td>Dump deposit</td>
<td>Late 16th century</td>
<td>1</td>
</tr>
<tr>
<td>3063</td>
<td>fill of 3062</td>
<td>Early 17th century</td>
<td>5</td>
</tr>
<tr>
<td>3065</td>
<td>Reddish brown make up layer</td>
<td>Late 16th century</td>
<td>2</td>
</tr>
<tr>
<td>3078</td>
<td>Bedding layer</td>
<td>Early 17th century</td>
<td>2</td>
</tr>
<tr>
<td>3079</td>
<td>Backfill of 3100</td>
<td>Late 16th century</td>
<td>30</td>
</tr>
<tr>
<td>3091</td>
<td>Rubble backfill of 3090</td>
<td>Early 17th century</td>
<td>10</td>
</tr>
<tr>
<td>3092</td>
<td>Bedding layer for 3101</td>
<td>Late 17th century</td>
<td>6</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td>78</td>
</tr>
</tbody>
</table>

Table 3.4: summary of potential for further analysis

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>AVAC/CA</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Selection and cataloguing of Period II vessels for illustration</td>
<td>AVAC</td>
</tr>
<tr>
<td>2</td>
<td>Illustration of Period II vessels</td>
<td>CA</td>
</tr>
<tr>
<td>3</td>
<td>Production of publishable report</td>
<td>AVAC</td>
</tr>
<tr>
<td>4</td>
<td>Selection and cataloguing of Period III vessels for illustration</td>
<td>AVAC</td>
</tr>
<tr>
<td>5</td>
<td>Illustration of Period III vessels</td>
<td>CA</td>
</tr>
<tr>
<td>6</td>
<td>Revision of dating and stratigraphic interpretation on receipt of revised stratigraphic phasing</td>
<td>AVAC</td>
</tr>
<tr>
<td>7</td>
<td>Cataloguing and study of Iberian imports</td>
<td>AVAC</td>
</tr>
<tr>
<td>8</td>
<td>Illustration of Iberian imports</td>
<td>CA</td>
</tr>
<tr>
<td>9</td>
<td>Cataloguing of late/post-medieval Iberian imports</td>
<td>AVAC</td>
</tr>
<tr>
<td>10</td>
<td>Cataloguing of unusual French imports</td>
<td>AVAC</td>
</tr>
<tr>
<td>11</td>
<td>Illustration of unusual French imports</td>
<td>CA</td>
</tr>
<tr>
<td>Total (excluding CA input)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* excludes CA input
APPENDIX 4: CLAY PIPE BY TERESA GILMORE

A total of 85 fragments of clay tobacco pipes, weighing 504g from 24 deposits were recovered. Of 22 bowl fragments identified, four preserve maker’s marks and three displayed floral moulding. The remaining 63 fragments consisted of unfeatured stem fragments.

Bowl types have been matched, where possible to Oswald’s simplified general typology (Oswald 1975, 37–40) and maker’s marks where possible using Jackson and Price (Jackson and Price 1974).

Twelve bowl forms were identified, the earliest being of Oswald Type 17 from 3025 which is consistent with c.1640-70 dating. Others include Type 6, Type 10 (two examples), Type 11, Type 14, Type 18, Type 19 (three examples), Type 20, Type 21, Type 22, Type 23 (two examples) and Type 24 (three examples).

Type 24 bowls (datable to c.1810-40) demonstrate floral ridging along the mould lines, similar in style to those pipes attributed to Bristol pipe maker, James White, operating in the early 19th century.

Four makers marks were present, three in relief style and one consisting of incused initials. An Oswald Type 20 (datable to c. 1690-1730) bowl from deposit 2535, exhibited a stamp reading R WILLIAMS. This is presumably either Robert I or II Williams, who were both working in Bristol during this period. Two bowls demonstrated initials RB either relief or incuse, an Oswald Type 23 (c. 1760-1800) from deposit 2748 and an Oswald Type 19 (c. 1690-1730) from deposit 3080. The final stamp reads R EDWARDS and was present on an Oswald Type 6 (c. 1660-80) from deposit 3063.

**Statement of potential**

The majority (65/85 fragments, 76.47%) of the clay tobacco pipe material is mainly from Periods 3 and 4, post-medieval to early modern. The single clay tobacco pipe stem present in Phase 2 (2709) is presumed to be intrusive. The clay pipe material present in Period 4 is potentially residual in nature, as the bowls present are consistent with Oswald Type 19, dating to c. 1690-1730.

The small size of the assemblage limits the archaeological potential but further detailed analysis on the material belonging to Phases 3 and 4 to complement the stratigraphic phasing of the pottery is recommended. Further analysis of the maker’s marks could be done, contributing to a short summary report.
APPENDIX 5: GLASS BY JOHN SHEPHERD

Twenty-two fragments of glass were submitted for identification. All, except part of a bottle (no.9), are very fragmentary. Seven of the fragments (nos.1-7) come from the upper part of a medieval jug and the remainder are all post medieval bottle and window glass fragments. The following archive catalogue lists all twenty-two fragments according to context order.

Catalogue

1-7. (2711)
Seven fragments from the rim and handle of a jug. Free-blown; natural green glass. Out-splayed, fire-rounded rim tooled into a small spout. Applied narrow strap handle. 14th century. Illustrate.

This is the most significant item from amongst this assemblage. It belongs to Tyson’s Type D1, green glass handled jug with no decoration (Tyson 2000, 115). She explains that fragments from such jugs are known from manufacturing sites in the Sussex and Surrey Weald but, with no good associated dating evidence, these date from the medieval period up to c. AD 1550. Dated examples come from a pit dated c AD 1330-80 on the General Post Office, middle site, London (POM79 [2048] <222> (Keys 1998, 229, no.655, fig 179) and an early 14th century pit at 228 Goldsmith Street, Exeter (Charleston 1984, 265, no. G2, fig 146).

8. (2748)

9. (3001)
The body of a machine-made cylindrical bottle. Green glass. Relief legend consisting of ‘Dunlop & Co Bristol’. Late 19th or early 20th century.

10. (3028)
The upper part of a machine-made beer or spirit bottle. Colourless glass with a green/blue tint. Late 19th or early 20th century.

11. (3028)
Fragment from the lower part of a machine-made beer or spirit bottle. Colourless glass. Late 19th or 20th century.

12. (3028)
The base of a machine-made spirit bottle. Green glass. Late 19th or 20th century.

13. (3029)
The base of a bulbous, flattened bottle. Probably from a whisky bottle. Amber coloured glass. Machine made, with legend ‘W & A Gilbey Ltd’ with the number ‘899’ above three small pellets on base. Late 19th or 20th century.

NB. Walter and Alfred Gilbey and a friend, Henry Gold, on returning from the Crimean War, set up the Gilbey company in 1857. Initially, they worked from a small cellar in London where they sold port, sherry and brandy.
With advertisements in the local papers their enterprise thrived to the extent they were able to open a branch in Dublin. It was in 1872 that they expanded further by opening a gin distillery (makers of the famous Gilbey’s London Gin), and fifteen years later, their first Scotch whisky distillery.

14. (3037)

15. (3038)
The rim and neck of a machine-made spirit bottle. Green glass. Late 19th or 20th century.

16. (3038)
Fragment from the body of a cylindrical bottle. Thick dark olive-green glass with surface decomposition. Probably late 18th or 19th century.

17. (3038)
Thick fragment of natural greenish blue glass, probably from a vessel of unknown form. Post-medieval.

18. (3047)
The rim and neck of a bottle. Thick dark olive-green glass with surface decomposition. Probably late 18th or 19th century.

19. (3065)
Fragment from the body of a machine-made spirit bottle. Green glass Late 19th or 20th century

20. (3092)
Fragment from the pushed-in, pointed base of a pharmaceutical phial. Natural green glass. 18th or 19th century

21. (3102)
Small fragment of natural green bottle glass. Post-medieval.

22. (6031)
Small fragment of colourless, drawn or floated, window glass. Late 19th or 20th century.

Statement of Significance and recommendations
Apart from the upper part of a medieval jug (nos.1-7), all of the fragments from this site are post-medieval in date, coming mainly from a variety of bottle shapes for alcoholic beverages. Many of these are machine-made, suggesting a mid 19th century or later date. None of the window glass fragments can be closely dated, other than being described as post-medieval. Unless there is a pressing need to publish the post-medieval sequence from this site in full, none of these fragments need to be described further.

The medieval jug is worthy of publication, especially including illustration. Such thin-walled examples rarely survive to be recovered in the archaeological record. The text can be supplied by using the catalogue and brief discussion above. No further work, therefore, is required other than the extracting of relevant description from this text and one illustration.
APPENDIX 6: THE LEATHER BY QUITA MOULD

The leather was identified, diagnostic pieces dated and the information correlated with the available contextual information.

Condition
The leather was received wet and as excavated. Before it could be examined the leather was washed to remove the surrounding soil matrix. It is currently packed in double, self-sealing polythene bags with a self-sealing plastic storage box. It was noted that the ink had faded from some of the water proof labels and one polythene bag (Ra.3) [2711].

Quantification
23 shoe parts, seven other items, four pieces of secondary waste and single fragment of leather scrap were present. Small fragments of wood were also noted. The number of leather items found within each context is given in the table below.

Table 6.1 Quantification of Leather Fragments

<table>
<thead>
<tr>
<th>Context</th>
<th>Shoe parts</th>
<th>Other items</th>
<th>Secondary waste</th>
<th>Scrap</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2711</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>Wood 2 frags</td>
</tr>
<tr>
<td>2755</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5001</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5004</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>Wood frag</td>
</tr>
<tr>
<td>5024</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5025</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>5026</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7031</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Date and provenance
A small amount of leather was recovered from Trench 27 and Area 3, principally from alluvial and reclamation deposits, a single context [2755] being considered an occupation deposit. A single, small, fragment of scrap came from a deposit [7031] in a stone-lined culvert in Area 5. All the independently datable leather recovered is medieval dating from the late 12th/mid 13th centuries and late 13th/early 14th centuries.

Range and variety
The shoes
Leather was recovered from eight individual contexts, see the table above. Parts of shoes of medieval date were found in each context. Turnshoe soles from a minimum of 6 shoes of adult size were present. The remains of an ankle shoe with a one-piece upper fastening with a drawstring likely to date to the late 12th to mid 13th century was found in a reclamation deposit [5001] in Area 3. A complete ankle shoe (SF13) with a side lacing one-piece upper was found in another reclamation deposit [5025] in Area 3 and the remains of a side-lacing boot were found in an occupation deposit [2755] in Trench 27. Side lacing footwear of these types date from the 13th to the mid 14th centuries. Shoe soles from two contexts [5001, 5024] in Area 3 had been cut up to salvage re-usable leather before being thrown away indicating that the shoes were discarded cobbling debris.

Sheaths
A complete decorated knife sheath dating to the late 13th to mid 14th century was found in a reclamation deposit [5004] in Area 3. Of particular interest was the lid of a wide, sheath-like, container used to house another type of
item. Lidded cases were used to house various implements such as a set of knives, known as a trousse, writing equipment or medical documents. The lid, made of two joining panels, is an unusual item, rarely found during excavation and an object type not previously recognised in the archaeological record. It was found in an alluvial deposit [5024] infilling a N-S channel in Area 3.

Other non-shoe items
Fragments torn from panels from now unrecognisable leather objects were found in an occupational deposit in Trench 27 [2755] and a reclamation deposit [5004] in Area 3. Straps were found in two reclamation deposits [5001, 5004] in Area 3.

Waste leather
A small amount of secondary waste leather, produced when cutting out pattern pieces during the manufacture of leather goods, was found in an occupation deposit [2755] in Trench 27 and a reclamation deposit [5004] in Area 3.

Comparative material
Local
A small shoe assemblage recovered from a timber-lined pit at 5–7 Welsh Back, Bristol (BUAD 3581) is of 14th-13th century date and comparable with the shoe with drawstring fastening found here (Mould 2001). Shoes from 42-3 Welsh Back are dated to the late 17th century (Mould 2007). The author is unaware of the recovery of any other leather of 13th–14th century date from Bristol in recent years. If any has been found the material does not appear to have been brought to publication or made available to a wider audience.

Regional
A rapid scan of the literature suggests that little comparable material from the West County has been published. While small groups of leatherwork of similar date have been found at Exeter (Friendship-Taylor 1984) and Oxford Castle (Jones 1976) none appears directly comparable. More recently, large leather assemblages have been studied from Gloucester, Exeter and Plymouth (Diana Friendship Taylor pers. comm.) but for the most part these await publication.

Potential for further research
The leather comes from well-dated deposits and as so little has been published previously from Bristol is of some interest both locally and regionally. It shows the shoe styles worn by the local population and provides a small amount of evidence for the cobbling trade in Bristol at this time. Two shoes and the knife sheath, though relatively common finds nationally, are well preserved and might be considered for display. The container lid is also well preserved and is of wider interest due to its rarity.

The shoes should be studied to note constructions and styles and working drawings prepared of those selected for illustration. The knife sheath and container lid should be studied and illustrated. The lid might be worthy of a short note in the Archaeological Leather Group Newsletter to bring it to the attention of a wider audience.
Conservation and illustration requirements

The leather cannot be stored wet indefinitely. Without conservation the leather will deteriorate and is potentially hazardous to health being liable to fungal and bacterial infection. Wet leather presents difficulties with short-term storage, transportation, study and illustration (English Heritage Guidelines 4, 6). The eventual repository of the leather is Bristol Museums. The organisation should be consulted regarding their discard and retention policy for wet organic material. It is usual for this to follow that recommended in the SMA Guidelines and unlikely that they will accept wet leather. The leather should be conserved, should this not be possible it is suggested that selected items (see below) are conserved and the remainder allowed to air-dry under controlled conditions. Once conserved the material can be safely stored and will come to no harm in the event of delay or postponement of any stage of the projected work. The necessary work can also proceed more quickly when the leather is dry. I will be happy to discuss the conservation requirements further with you and curatorial and conservation staff of Bristol Museums.

If it is not possible for the entire assemblage to be conserved it is recommended that the leather from contexts 2755, 5001, 5004, 5024, 5025, 5026 be conserved.

The minimum recommendation for conservation is
- The lid (context 5024)
- knife sheath (context 5004)
- shoe (SF13 5025)
- two shoes (context 5001)
- side lacing boot upper (context 2755)

Illustration requirements

The maximum number of items for illustration is six, as listed above, it may be that on analysis the number of shoes requiring illustration can be reduced by one. Working drawings will be provided showing views required, stitch and seam conventions etc at scale 1:1. These may be digitally scanned to provide illustrations for publication on request.

Work required

A basic record (as defined in RFG & FRG Guidelines 1993) should be made of the total assemblage and the information entered onto a database. This will form part of the site archive. The contextual information can then be correlated and the assemblage quantified by functional category within each stratigraphic group and site phase. This information will inform those studying the stratigraphic sequence and provide useful independent dating to compliment the ceramic and numismatic evidence. The leather assemblage should be summarised for inclusion in the publication of the site narrative. This will require a brief description of the shoes, knife sheath and container lid with a catalogue of the illustrated items. The shoes and the container lid will be accompanied by a reconstruction drawing as appropriate.

Costing of further work

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: compile basic record</td>
<td>1.5 days</td>
</tr>
<tr>
<td>Task 2: input onto database</td>
<td>0.5 day</td>
</tr>
<tr>
<td>Task 3: correlate with site data</td>
<td>0.5 day</td>
</tr>
<tr>
<td>Task 4: prepare summary for publication</td>
<td>2 days</td>
</tr>
</tbody>
</table>
Task 5: prepare reconstruction drawings 1 day
Task 6: check illustrations/edit text 0.5 day

Estimated cost of further work £1,500 excluding the cost of return carriage to Cotswold Archaeology current for the year 2008/9.
APPENDIX 7: METALWORK AND WORKED BONE BY E.R. MCSLOY

A total of 48 metal objects, comprising items of iron (including 26 nails or nail fragments), copper alloy and lead were hand-recovered (Table 7.1). All metal items have been x-rayed (Plates 10884-6 and 10904) and their condition assessed by a specialist conservator (Kelly Abbott of Wiltshire Conservation Service).

The condition of the metalwork is variable. Iron finds are typically heavily corroded and brittle. Copper alloy and lead items exhibit lesser degrees of corrosion and retain surface detail. All material is packaged appropriately with desiccating silica gel and is considered stable.

Summary description
The recovered metalwork is summarised by provisional period and material in Table 7.1. Few items other than nails were identifiable to form (Table 7.1). The majority of objects were derived from post-medieval and later deposits although some items, including a copper-alloy token and a bar mount (each of probable medieval date) are re-deposited.

With the exception of a modern cast steel nail from deposit 27, nails are of forged type and of form appropriate for dating between the medieval and post-medieval periods. Where complete, total length is indicated below (Table 7.1).

Twelve items, comprising mainly fragmentary iron objects, were recovered from medieval deposits. Of interest is an oval-form copper-alloy seal matrix which bearing an inscription (visible only from the x-ray) referring to the seal's owner. Seals of this form typically date between the mid 13th and mid 14th centuries and were in use among the property owning and mercantile classes. The inscription, in Lombardic script beginning ‘SIGILL’ (“the seal of”) is of typical form, with the latinised personal name STEP[HEN] BUI[?] following. The central design which in this period might be a heraldic device or foliate or other motif, is indistinct.

Objects from post-medieval and early modern phases comprise mainly nails and fragmentary iron objects (Table 7.1). The x-radiograph of a heavily corroded and encrusted object from deposit 3095 revealed this to be a tanged object of unusual form, possibly a woodworker's spoon bit. As noted above, a small number of medieval items were deposited in stratigraphically later deposits. A token from deposit 3064 is heavily corroded and requires cleaning to allow identification. Its general characteristics (below) seen on the x-ray, suggest a medieval date. Similarly a bar mount from deposit 3079 is of a typically medieval form for suspension of a purse or similar from a belt. A rim fragment from a cast copper-alloy vessel from deposit 3065 probably derives from a cauldron or skillet and might date any time between the 14th and 17th centuries.

Statement of Potential and Requirements for Further Analysis

A limited number and restricted range of metal objects was recovered. Included are a small number of items of intrinsic interest which merit additional attention including investigative conservation work (below) and illustration. Cleaned items (below) should be re-examined following conservation work and described for publication. Little further work is recommended: for the purposes of the archive, items other than nails will require a short catalogue basic description.
<table>
<thead>
<tr>
<th>Task</th>
<th>Duration (By)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning of 3 items (token, seal matrix, ?spoon bit)</td>
<td>fee (conservator)</td>
</tr>
<tr>
<td>Description for publication</td>
<td>0.5 day (FO)</td>
</tr>
<tr>
<td>Drawing of seal matrix</td>
<td>0.5 day (SI)</td>
</tr>
<tr>
<td>Catalogue preparation</td>
<td>1 day (FO)</td>
</tr>
</tbody>
</table>
Table 7.1: Provisional catalogue for metalwork

<table>
<thead>
<tr>
<th>Context</th>
<th>Phase</th>
<th>Class</th>
<th>Count</th>
<th>Description/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7038</td>
<td>Medieval</td>
<td>Cua Obj</td>
<td>1</td>
<td>oval seal matrix: Inscription reads SIGILL STEP BUI</td>
</tr>
<tr>
<td>3115</td>
<td>Medieval</td>
<td>Fe nail</td>
<td>1</td>
<td>60mm</td>
</tr>
<tr>
<td>5003</td>
<td>Medieval</td>
<td>Fe obj.</td>
<td>1</td>
<td>rod</td>
</tr>
<tr>
<td>7031</td>
<td>Medieval</td>
<td>Fe nail</td>
<td>1</td>
<td>shaft</td>
</tr>
<tr>
<td>7031</td>
<td>Medieval</td>
<td>Fe obj.</td>
<td>1</td>
<td>bar</td>
</tr>
<tr>
<td>7031</td>
<td>Medieval</td>
<td>Fe obj.</td>
<td>4</td>
<td>shaft</td>
</tr>
<tr>
<td>7038</td>
<td>Medieval</td>
<td>Fe obj.</td>
<td>1</td>
<td>sheet frag</td>
</tr>
<tr>
<td>7038</td>
<td>Medieval</td>
<td>Fe nail</td>
<td>1</td>
<td>90mm</td>
</tr>
<tr>
<td>6041</td>
<td>Medieval</td>
<td>Pb obj</td>
<td>1</td>
<td>bar</td>
</tr>
<tr>
<td>3095</td>
<td>Post Medieval</td>
<td>Fe obj.</td>
<td>1</td>
<td>tanged object, lanceolate head. ?spoon bit</td>
</tr>
<tr>
<td>3099</td>
<td>Post Medieval</td>
<td>Fe nails</td>
<td>2</td>
<td>1 x 30mm; 1 x 55mm</td>
</tr>
<tr>
<td>3099</td>
<td>Post Medieval</td>
<td>Fe obj.</td>
<td>1</td>
<td>rod</td>
</tr>
<tr>
<td>6003</td>
<td>Post Medieval</td>
<td>Fe nail</td>
<td>1</td>
<td>50mm</td>
</tr>
<tr>
<td>6033</td>
<td>Post Medieval</td>
<td>Fe obj.</td>
<td>5</td>
<td>horseshoe fragments</td>
</tr>
<tr>
<td>6033</td>
<td>Post Medieval</td>
<td>Fe nail</td>
<td>1</td>
<td>77mm</td>
</tr>
<tr>
<td>3064</td>
<td>Early Modern</td>
<td>Cua token</td>
<td>1</td>
<td>Cross/pelleted design. Indistinct</td>
</tr>
<tr>
<td>3065</td>
<td>Early Modern</td>
<td>Cua obj</td>
<td>1</td>
<td>cast vessel fragment</td>
</tr>
<tr>
<td>3079</td>
<td>Early Modern</td>
<td>Cua obj</td>
<td>1</td>
<td>bar mount. Single rivet.</td>
</tr>
<tr>
<td>3079</td>
<td>Early Modern</td>
<td>Cua obj</td>
<td>1</td>
<td>ring</td>
</tr>
<tr>
<td>5000</td>
<td>Early Modern</td>
<td>Cua coin</td>
<td>1</td>
<td>George V penny - dated 1912</td>
</tr>
<tr>
<td>3035</td>
<td>Early Modern</td>
<td>Fe nail</td>
<td>1</td>
<td>shaft</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe nail</td>
<td>1</td>
<td>shaft</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe nail</td>
<td>1</td>
<td>shaft</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe nails</td>
<td>2</td>
<td>1 x 65mm</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe obj.</td>
<td>1</td>
<td>whittle-tang knife (tang and small part of blade)</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe obj.</td>
<td>1</td>
<td>strip</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe nails</td>
<td>3</td>
<td>shafts</td>
</tr>
<tr>
<td>3038</td>
<td>Early Modern</td>
<td>Fe nail</td>
<td>1</td>
<td>41mm</td>
</tr>
<tr>
<td>3047</td>
<td>Early Modern</td>
<td>Fe nails</td>
<td>2</td>
<td>1 x 65mm</td>
</tr>
<tr>
<td>3064</td>
<td>Early Modern</td>
<td>Fe nails</td>
<td>2</td>
<td>1 x 45mm</td>
</tr>
<tr>
<td>3064</td>
<td>Early Modern</td>
<td>Fe obj.</td>
<td>1</td>
<td>curving strip</td>
</tr>
<tr>
<td>3079</td>
<td>Early Modern</td>
<td>Fe nail</td>
<td>1</td>
<td>70mm</td>
</tr>
<tr>
<td>3079</td>
<td>Early Modern</td>
<td>Fe obj.</td>
<td>1</td>
<td>fragment</td>
</tr>
<tr>
<td>3064</td>
<td>Early Modern</td>
<td>Pb obj</td>
<td>1</td>
<td>strip</td>
</tr>
<tr>
<td>27</td>
<td>unphased</td>
<td>Fe nail</td>
<td>1</td>
<td>Modern, cast: 80mm</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>48</strong></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 8: METAL RESIDUES BY VICTORIA TAYLOR

Quantities of metallurgical residue (3972g) were recovered from eleven deposits, largely restricted to the medieval phases 1 and 2. The residues are mainly ‘miscellaneous’ ironworking slags which cannot be attributed to a specific process. ‘Tap’ slag, characterised by a ‘ropey’ appearance, was recovered from one deposit. This type of material is indicative of smelting, although the small quantity present is not sufficient to confirm that smelting was taking place in the immediate area.

Statement of potential
The potential for further analysis is limited by the size of the assemblage and no further work is recommended.

APPENDIX 9: STONE BY KATHRYN PRICE

A total of seven stone fragments, weighing 1490 grammes were recovered from seven deposits. The four fragments of roof tile seem to all be of Pennant sandstone, including one burnt fragment (context 5003) and one fragment with a hole (context 3065) while the remaining pieces are unworked. The unworked pieces include a fragment of Delabole slate (context 7031). There are sources of Pennant sandstone within the geology of Bristol, while Delabole slate has its source in Cornwall.

Statement of potential
The majority of the stone assemblage dates to Phases 3 and 4, post-medieval to early modern. The size of the assemblage is very small and fragmentary, therefore limiting the potential for further analysis. No further work is recommended.
APPENDIX 10: ANIMAL BONE BY SYLVIA WARMAN

Animal bone was recovered from 109 deposits excavated during the 2001 evaluation, the 2006 evaluation and the 2006 excavation. A total of 1242 fragments from 1184 bones weighing 20kg were hand collected. Of these 398 were identifiable to species. Additionally 270 fragments from 266 bones weighing 214 grams were recovered from the residues of processed samples, 13 of these were identifiable to species. The animal bone was recovered from a range of deposits mostly dumps and make up layers, some of the earlier deposits were the result of natural alluviation.

Methods
The assessment conforms to the guidance on best practice as described by English Heritage (2002). The animal bone was rapidly scanned and the following recorded; number of bones, number of fragments, weight of bones in grams, number of bones identifiable to species, fragmentation and preservation, numbers of mandibles, epipyses and whole bones, species and body parts identified, age and state (including modifications such as butchery, burning, gnawing etc). The animal bone from the samples is derived from the volumes processed for assessment. The majority of the 2006 samples were waterlogged and 2-5 litres of each were processed by wet sieving; the animal bone was picked out and dried slowly. One sample was not waterlogged and 10 litres of it was processed by flotation. The samples taken during the 2001 evaluation were all of 10 litres in volume and were fully processed by wash-over flotation.

Results (Tables 10.1, 10.2)
Natural deposits
A small quantity of animal bone was recovered from the alluvium. It is unlikely that the animal bone is actually derived from natural deposits but rather that it has been pressed into them by the weight of overlying deposits. A cattle phalange and a sheep/goat lower limb were identified; the remaining material was more fragmented and assigned to cow-sized and sheep-sized categories. Signs of butchery were noted. Sample 5 from alluvial layer 312, contained fragmented skull, rib and vertebrate from cow-sized and sheep-sized animals.

Medieval Periods 1 and 2
The deposits which produced animal bone included alluvial, peat deposits, make up layers and levelling layers. A range of species were identified, horse, cattle, roe deer, deer (not identified to species) sheep, sheep/goat, pig, goose and chicken. The sieved assemblage also included dog. Cattle and sheep/goat exhibit the widest range of elements with other species displaying more restricted ranges. The deer remains include antler, skull, teeth and metapodials but no meat-bearing bones. Pig is represented by head (predominantly teeth and mandibles) and lower limb bones. The deposit richest in animal bone is 2755 an occupation deposit with a wide range of cattle and sheep/goat elements as well as a horse toe and a sheep skull. Much of the animal bone shows signs of butchery, and weathering is also common. Gnawing by dogs was also observed on some specimens.

Post-medieval Period 3
Deposits which produced animal bone comprised levelling layers, dumps, occupation layers, reclamation deposits and floors. Cattle was the dominate species and together with sheep/goat exhibited the widest range of body parts. The range of species is similar to that seen in Periods 1 and 2, but horse and deer are not present, whilst rabbit is. Pig continues to be present, showing only a restricted range of elements (head, lower limb and
foot bones). Goose and chicken form a small but significant part of the assemblage. Sample 22 from cess-like deposit 6029 contained fragmented mammal bone, of which the only identifiable specimen was a pig tooth.

**Early Modern Period 4**
Deposits from this phase produced the largest hand-collected animal bone assemblage. Deposit types included; dumps, backfills, clearance deposits and foundations. Species identified; cattle, sheep, sheep/goat, pig and rabbit. No bird bones were identified to species but chicken and goose-sized bird bones are present. Butchery is noted in animal bone from almost all deposits. A wide range of elements is seen within the cattle and sheep/goat bones. A wider range of elements of pig is seen than in the earlier phases, including meat bearing bones, largely derived from deposit 3038, a clay levelling layer.

**Modern Period 5**
These deposits comprised back fill and rubble; these produced a small assemblage comprising cattle sheep/goat and chicken.

**Unphased**
Two unphased deposits 27 and 431 produced animal bone; cow-sized rib and vertebra fragments.

**Age at death and Bone modification**
The majority of the specimens have been assigned to age groups adult and sub adult, a small number of juvenile species and occasional infant bones were also identified. Cattle and sheep/goat remains may be derived from butchery waste and food waste. Cattle and sheep horncores are present but not in large quantities and do not show any marks relating to the removal of the horn sheath thus there is no clear evidence for hornworking. The pig bones show a limited range of body parts, mostly extremities, which suggests waste from the early stages of the butchery process. Butchery evidence was seen in half of the animal bone examined. Bone which showed signs of damaged due to weathering, indicating that they had been exposed on the ground surface prior to inclusion within deposits, comprised 15% of the assemblage. Gnaewing was less common in the assemblage at (7%), most cases were identified as dog gnawing, but gnawing by rodents was also observed. Examples of pathology were at a level of 3% of the whole assemblage. From a medieval occupation deposit 2755 came a sheep skull a small stubby horncore although the skull was fully adult; it is not clear if this is a pathological condition or a morphology linked to breed or sex. From a medieval levelling deposit 6040, came the anterior part of a pig mandible with an area of new bone on the outer surface, suggestive of infection. From a post-medieval soil accumulation 613, a cow-sized long bone shaft fragment had periostitis, an infection of the growing surface of the bone. From an early modern layer 3038, came what appears to be a sheep-sized phalange entirely covered in disorganised new bone growth, suggestive of severe infection. Burnt bones were rare in this assemblage comprising at only 2% of the whole.

**Discussion**
The range of animal bone is consistent with that previously seen in medieval and post-medieval assemblages from Bristol, dominated by domestic mammals but with some contribution from wild taxa during the medieval period in the form of deer, and rabbit in the post-medieval. The deer remains could be related to antler working and the use of skins or hides as no meat-bearing elements are present. The fish bone (Appendix 10) is also consistent with other assemblages from Bristol with marine species being dominant including cod, conger eel and thornback ray (the dermal denticles of this species are often found in medieval and post-medieval deposits from
Bristol). Species which spend at least some parts of their life in fresh water were also present including the salmon family and European eel. This assemblage includes products of near shore, deep sea and river fishing.

**Recommendations**

The assemblage is not large and much of the animal bone is derived from early modern and modern deposits. The potential for further analysis is limited, in particular by the high level of fragmentation. No further work is recommended. A summary of these results should be included in any future publication.

To summarise the results of this assessment and the fish bone assessment will require 0.5 days (EO)
Table 10.1  Hand-collected animal bone by Period

<table>
<thead>
<tr>
<th>Period</th>
<th>no of fragments</th>
<th>no of bones</th>
<th>weight</th>
<th>No of bones ID to species</th>
<th>No of mandibles</th>
<th>No of epiphyses</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>7</td>
<td>7</td>
<td>128</td>
<td>3</td>
<td>3</td>
<td></td>
<td>Cattle, sheep/goat, cow-sized, sheep-sized</td>
</tr>
<tr>
<td>1/2 medieval</td>
<td>387</td>
<td>358</td>
<td>6781</td>
<td>118</td>
<td>18</td>
<td>57</td>
<td>Horse, Roe deer, Deer sp., cattle, sheep, sheep/goat, pig, rabbit, goose, chicken, cow-sized, sheep-sized, goose-sized, chicken-sized, unidentified</td>
</tr>
<tr>
<td>3 post medieval</td>
<td>226</td>
<td>215</td>
<td>4983</td>
<td>82</td>
<td>9</td>
<td>37</td>
<td>Cattle, sheep/goat, pig, rabbit, goat, cow-sized, sheep-sized, chicken-sized, unidentified</td>
</tr>
<tr>
<td>Period 4/5 modern</td>
<td>44</td>
<td>43</td>
<td>948</td>
<td>16</td>
<td>1</td>
<td>5</td>
<td>Cattle, sheep/goat, pig, rabbit, goose, cow-sized, sheep-sized, chicken-sized, unidentified</td>
</tr>
<tr>
<td>Unphased</td>
<td>3</td>
<td>3</td>
<td>41</td>
<td>0</td>
<td></td>
<td></td>
<td>Cow-sized</td>
</tr>
<tr>
<td></td>
<td>1242</td>
<td>1184</td>
<td>20803</td>
<td>398</td>
<td>45</td>
<td>158</td>
<td></td>
</tr>
</tbody>
</table>

Table 10.2  Sieved animal bone by Period

<table>
<thead>
<tr>
<th>Period</th>
<th>no of fragments</th>
<th>no of bones</th>
<th>weight</th>
<th>No of bones ID to species</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>9</td>
<td>9</td>
<td>21</td>
<td>0</td>
<td>Cow-sized, sheep-sized</td>
</tr>
<tr>
<td>1/2 medieval</td>
<td>49</td>
<td>46</td>
<td>163.5</td>
<td>12</td>
<td>Cattle, sheep/goat, pig, dog, chicken, cow-sized, sheep-sized, cat-sized</td>
</tr>
<tr>
<td>3 post medieval</td>
<td>212</td>
<td>211</td>
<td>29.3</td>
<td>1</td>
<td>Pig, cow-sized, sheep-sized, small mammal, unidentified</td>
</tr>
<tr>
<td></td>
<td>270</td>
<td>266</td>
<td>213.8</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 11: FISH BONE BY HANNAH RUSS

Fish remains were identified using reference material at the University of Bradford and identification guides (Gravendeel et al. 2002; Watt et al. 1997; Yee Cannon 1987).

Results
A large proportion of the material represented unidentifiable rib and spine fragments (76.6% of NISP). The assemblage is mainly composed of marine species with the catadromous species Anguilla anguilla (European eel) and the anadromous genus Salmo (salmon/trout) also present. Gadus morhua (Atlantic cod) is the most represented species within the assemblage based on NISP (15); (Table 11.1), with cranial and post-cranial elements present. Within any single context no species was represented by a minimum number of individuals (MNI) of more than one. Contexts 312, 2711 and 2755 produced only remains of large Atlantic cod. Context 6029 presented a much more diverse selection of marine species as well as those that migrate to or from the ocean to reproduce. Raja clavata (thornback ray) was represented in contexts 3038 and 6029 by dermal denticles, Conger conger (European conger) was recovered from contexts 804, 3038 and 5025 and was represented by cranial and post-cranial elements. A single distal cleithra of Melanogrammus aeglefinus (haddock) displaying hyperostosis was recovered from context 804. The swelling in the cleithra of haddock is well documented in archaeological and modern specimens, and generally associated with old age; however, the causes of this phenomenon are not yet known (von den Dreisch, 1994).

Preservation of material was good with many complete elements recovered and survival of scales in context 6029. Spines and ribs from context 6029 were more fragmented as a result of post-depositional processes. Burning was recorded on 7 fragments from context 6029; however, burnt fragments were unidentifiable.

Small bone fragments were only present for context 6029, where a range of smaller species were represented. This may result from differences in sample collection or processing, and potentially causes an under-representation of smaller boned species in other contexts.

Discussion and Statement of Potential
The Broad Quay fish bone assemblage presents a range of edible diadromous and marine fish species. The presence of European conger, a species that in adulthood spends much of its time on rocky or sandy ocean floors, may suggest deep-sea fishing, whilst clupeids and the presence of European eel suggest fishing in shallower, coastal waters. No evidence for fish processing was recorded, both cranial and post-cranial elements were present in most contexts suggesting the presence of whole fish.

Due to small sample size it is difficult to draw further reliable interpretation from the fish remains from Broad Quay. No future analysis would add to the information that can be gained from the Broad Quay assemblage. A short summary report will be combined with the animal bone report.
Table 11.1: Broad Quay Fish bone Number of identified specimens by Period and context.

<table>
<thead>
<tr>
<th>Period</th>
<th>Context</th>
<th>Gadus morhua</th>
<th>Anguilla anguilla</th>
<th>Conger conger</th>
<th>Raja clavata</th>
<th>Melanogrammus aeglefinus</th>
<th>Clupeid</th>
<th>Salmo sp.</th>
<th>Elasmobranchii</th>
<th>Unidentified</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>312</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>135</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>804</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>2711</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2755</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5025</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7031</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>6029</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>10</td>
<td>180</td>
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<td>4</td>
<td>3038</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>7</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>11</td>
<td>1</td>
<td>183</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 12: MOLLUSCS BY SYLVIA WARMAN

A substantial quantity, of mostly marine mollusc shells was recovered by hand collection and from sample residues. The assemblage totalled 431 fragments weighing 8.6kg. The species identified were: oyster (*Ostrea edulis*), mussel (*Mytilus edulis*), cockle (*Cerastodema edule*) and scallop (*Pectinidae*). The only land snail identified was the garden snail (*Helix aspersa*). Quantification by context and sample has been tabulated, and will form part of the archive. All phases produced shell but the bulk was recovered from medieval deposits. The marine species present are all edible and probably represent food waste. The garden snail is more likely to have become incorporated into the medieval occupation deposit 2755 by accident. Some of the oyster shells are quite large indicating advanced age at death. Some also had evidence of external parasites adhering to the outer surface of the shell. There were two main types, firstly Polydora which bore into the shell surface and a second unidentified type which have left worm like concreted deposits on the external surface of the shell.

Further Work

No further work is required. A short summary should be included in the publication. 0.25days (EO)
APPENDIX 13: PLANT REMAINS BY JULIE JONES

A series of environmental samples for palaeoenvironmental investigation were taken in association with monolith tins from the channel fill. In addition, one sample 3117 was taken from around two posts and one from 6029, from a post-medieval floor surface.

Methodology

The samples from the channel fill and the two additional samples were processed by wet sieving, with a minimum mesh size of 250 microns used. The wet flots were then scanned by the author to assess the preservation of plant macrofossil remains. The results, which are recorded on a scale of abundance, are shown on Table 13.1 and refer to seeds and fruits unless otherwise stated (flower/nut fragments etc). Nomenclature and habitat information is based on Stace (1991). Preservation was generally very good and was primarily by water-logging in the anaerobic conditions of the channel, with a few examples of charred cereal grain also present. Other organic inclusions are also recorded on the table and include animal and fish bone, oyster and mussel shell, moss and charcoal.

Results

The assessment has shown that the organic content was higher from samples at the top of the channel 5004, 5026 and 5025, with the abundance of plant macrofossils and range of species also greater at this level. Both the organic content and macrofossil abundance decrease slightly in 5024 and is lower again in the two basal deposits 5030 and 5031. Organic content and macrofossil preservation are low in 3117, with no macrofossils preserved in 6029.

The plant remains in the channel samples are from a number of habitat groups, most of which are unlikely to have occurred naturally in the alluvial marsh adjacent to the channel. Wetland taxa, including sedge (Carex) and rush (Juncus) may have grown locally where the water table remained high, with some of the disturbed and waste ground taxa established in areas of disturbance to the ground surface associated with human activity.

Many of the plants however, are from habitats which would not have occurred on a river floodplain. Some of the most abundant are weed taxa from arable fields, with examples of those most commonly occurring including stinking chamomile (Anthemis cotula), corncockle (Agrostemma githago) and corn marigold (Chrysanthemum segetum), all frequently associated with cereal crops. There are also several charred grains of wheat (Triticum), barley (Hordeum) and oat (Avena), with waterlogged cereal chaff present in five of the samples. This group of plants is likely to have been brought into the city as straw for animal fodder or bedding. Similarly the group of grassland taxa may have arrived with imported hay, although it is also possible these grew locally in less disturbed areas adjacent to the marsh. The small suite of heath-land taxa may also be linked to animal feed/bedding or as fuel. This group includes heather (Calluna vulgaris), present as both flowers and leaves, with gorse (Ulex) stem fragments and spines particularly abundant in 5025. Bracken (Pteridium aquilinum) may also have come from heath-land, but also occurs in woodland-edge locations.

A further group includes the remains of fruit and other cultivated plants. Hazel-nut (Corylus avellana) fragments, apple (Malus), sloe (Prunus spinosa), raspberry (Rubus idaeus) and bramble (Rubus glandulosus) may have been collected from hedgerow locations, although the apple and raspberry could equally have been cultivated...
varieties. Grape (*Vitis vinifera*) and fig (*Ficus carica*) are more likely to represent imported produce, while occasional charred wheat and barley grains may be from food debris.

**Conclusions and Recommendations**

The assessment of the samples recovered from the 2006 excavation at Broad Quay has shown that there is good preservation of the plant macrofossil remains originating from a range of habitat groups, from the upper fill of the channel, with a lower abundance of material from the lower fills. While some of these may reflect the local environment of the marsh at Broad Quay during the 14th century, other groups of taxa clearly represent other habitats and reflect plant material brought into the city. It is therefore recommended that full analysis is carried out on samples from each of the contexts within the channel as indicated in the list below.

<table>
<thead>
<tr>
<th>Context</th>
<th>Sample</th>
<th>Full analysis</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Fill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5004</td>
<td>7</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5026</td>
<td>8</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5025</td>
<td>9</td>
<td>Yes</td>
<td>not all samples from 5025 may need to be analysed.</td>
</tr>
<tr>
<td>5025</td>
<td>10</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>5031</td>
<td>18</td>
<td>Possible</td>
<td>may be best to amalgamate all these samples</td>
</tr>
<tr>
<td>5031</td>
<td>19</td>
<td>Possible</td>
<td>due to lower organic content</td>
</tr>
<tr>
<td>5031</td>
<td>20</td>
<td>Possible</td>
<td></td>
</tr>
</tbody>
</table>

**Additional samples**

<table>
<thead>
<tr>
<th>Context</th>
<th>Sample</th>
<th>Full analysis</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3117</td>
<td>21</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>6029</td>
<td>22</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Four samples were also assessed from an evaluation in 2001 (Jones 2001) from late 13th and early 14th century alluvial and organic rich deposits on the low-lying marshland. Similar habitat groups were recognised interpreted as reflecting the accumulation of waste material from various activities, as well as taxa representing the background flora of the site. The results of the 2001 assessment can be integrated with the more recent assessment.

These analyses will allow identification of full macrofossil assemblages and allow interpretation of the background flora of the site to illustrate the local environment of this marshland area during the 13th and 14th centuries. It should also allow discussion of activities associated with the plant based economy during this period.

**Sample processing**

<table>
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<th>Role</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Finds Assistant</td>
<td>1.25 days</td>
</tr>
<tr>
<td>Finds Supervisor</td>
<td>0.25 days</td>
</tr>
</tbody>
</table>

**Analysis & report**

| Julie Jones         | 9.5 days |
| Table 13.1 Plant Macrofossil Assessment |

<table>
<thead>
<tr>
<th>Context</th>
<th>5004</th>
<th>5026</th>
<th>5025</th>
<th>5025</th>
<th>5025</th>
<th>5024</th>
<th>5024</th>
<th>5024</th>
<th>5024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Sample size (litres)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Float size (ml)</td>
<td>350</td>
<td>200</td>
<td>200</td>
<td>400</td>
<td>240</td>
<td>330</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**DENNSTAEDTIACEAE**

- *Pteridium aquilinum* (L.) Kuhn (pinnules)
  - Bracken
  - Sample: 7
  - Float size (ml): 350

**RANUNCULACEAE**

- *Ranunculus acris/repens/bulbosus*
  - Meadow/Creeping/ Bulbous Buttercup
  - Sample: 8
  - Float size (ml): 200

- *Ranunculus sardous* Crantz Hairy Buttercup
  - Sample: 9
  - Float size (ml): 200

- *Ranunculus sceleratus* L.
  - Celery-leaved Buttercup
  - Sample: 10
  - Float size (ml): 400

**FUMARIACEAE**

- *Fumaria* sp
  - Fumitory
  - Sample: 11
  - Float size (ml): 240

**MORACEAE**

- *Ficus carica* L.
  - Fig
  - Sample: 12
  - Float size (ml): 330

**URTICACEAE**

- *Urtica dioica* L.
  - Common nettle
  - Sample: 13
  - Float size (ml): 100

**BETULACEAE**

- *Betula* sp
  - Birch
  - Sample: 14
  - Float size (ml): 100

- *Corylus avellana* L. (nut frags)
  - Hazel
  - Sample: 15
  - Float size (ml): 100

**CHENOPODIACEAE**

- *Atriplex* spp
  - Orache
  - Sample: 16
  - Float size (ml): 100

- *Chenopodium album* L.
  - Fat-hen
  - Sample: 17
  - Float size (ml): 100

**CARYOPHYLLACEAE**

- *Agrostemma githago* L. (frags)
  - Corncockle
  - Sample: 18
  - Float size (ml): 100

- *Scleranthus annuus* L.
  - Annual Knawel
  - Sample: 19
  - Float size (ml): 100

- *Silene latifolia/dioica*
  - White/Red Campion
  - Sample: 20
  - Float size (ml): 100

- *Stellaria media* (L.) Villars
  - Common Chickweed
  - Sample: 21
  - Float size (ml): 100

**POLYGONACEAE**

- *Fallopia convolvulus* (L.) A. Love
  - Black-bindweed
  - Sample: 22
  - Float size (ml): 100

- *Persicaria lapathifolia* (L.) Gray
  - Pale Persicaria
  - Sample: 23
  - Float size (ml): 100

- *Persicaria maculosa* Gray
  - Redshank
  - Sample: 24
  - Float size (ml): 100

- *Polygonatum aviculare* L.
  - Knotgrass
  - Sample: 25
  - Float size (ml): 100

- *Rumex acetosella* L.
  - Sheep’s Sorrel
  - Sample: 26
  - Float size (ml): 100

- *Rumex spp*
  - Dock
  - Sample: 27
  - Float size (ml): 100

**BRASSICACEAE**

- *Brassica/Sinapis/Raphanus* spp
  - Mustard/Rape/Cole etc
  - Sample: 28
  - Float size (ml): 100

- *Coronopus squamatus*
  - Swine Cress
  - Sample: 29
  - Float size (ml): 100
<table>
<thead>
<tr>
<th>(Forskaol)Asch</th>
<th>Wild Radish</th>
<th>rare</th>
<th>rare</th>
<th>rare</th>
<th>rare</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinapis arvensis (fruits - lower part of beak)</td>
<td>occ</td>
<td>rare</td>
<td>CD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ERICACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calluna vulgaris (L.)Hull (flower)</td>
<td>Heather</td>
<td>rare</td>
<td>occ</td>
<td>rare</td>
<td>Ewo</td>
<td></td>
</tr>
<tr>
<td>Calluna vulgaris (L.)Hull (leaf)</td>
<td>Heather</td>
<td>occ</td>
<td></td>
<td></td>
<td>Ewo</td>
<td></td>
</tr>
<tr>
<td><strong>ROSACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aphanes arvensis L.</td>
<td>Parsley-piert</td>
<td>occ</td>
<td></td>
<td></td>
<td>CGd</td>
<td></td>
</tr>
<tr>
<td>Malus domestica Borkh.</td>
<td>Apple</td>
<td>freq</td>
<td>occ</td>
<td></td>
<td></td>
<td>HSW</td>
</tr>
<tr>
<td>Malus sylvestris (L.)Miller</td>
<td>Crab Apple</td>
<td>freq</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prunus avium (L.).</td>
<td>Wild Cherry</td>
<td>rare</td>
<td></td>
<td></td>
<td>HW-edge</td>
<td></td>
</tr>
<tr>
<td>Prunus spinosa L.</td>
<td>Blackthorn</td>
<td>rare</td>
<td>freq</td>
<td>freq</td>
<td>rare</td>
<td>rare</td>
</tr>
<tr>
<td>Rosaceae indet (thorn)</td>
<td>Rose Family</td>
<td>rare</td>
<td>occ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus sect. Glandulosus</td>
<td>Bramble</td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td>Rubus idaeus L.</td>
<td>Raspberry</td>
<td>rare</td>
<td></td>
<td></td>
<td>EW#</td>
<td></td>
</tr>
<tr>
<td><strong>FABACEAE</strong></td>
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<td></td>
</tr>
<tr>
<td>Lathyrus/Vicia spp (charred)</td>
<td>Pea/Vetch</td>
<td>rare</td>
<td></td>
<td></td>
<td>DG</td>
<td></td>
</tr>
<tr>
<td>Trifolium spp. (calyx)</td>
<td>Clover</td>
<td>freq</td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
<td>DG#</td>
</tr>
<tr>
<td>Ulex sp (spine)</td>
<td>Gorse</td>
<td>freq</td>
<td>v.freq</td>
<td>v.freq</td>
<td>v.freq</td>
<td>freq</td>
</tr>
<tr>
<td>Ulex (stem fragments).</td>
<td>Gorse</td>
<td>occ</td>
<td>freq</td>
<td>v.freq</td>
<td>v.freq</td>
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</tr>
<tr>
<td><strong>VITACEAE</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Vitis vinifera L.</td>
<td>Grape-vine</td>
<td>rare</td>
<td></td>
<td></td>
<td>#</td>
<td></td>
</tr>
<tr>
<td><strong>LINACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linum usitatissimum L.</td>
<td>Flax</td>
<td>occ</td>
<td>rare</td>
<td>freq</td>
<td>occ</td>
<td>#</td>
</tr>
<tr>
<td><strong>APIACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aethusa cynapium L.</td>
<td>Fool’s Parsley</td>
<td>occ</td>
<td>rare</td>
<td>rare</td>
<td>occ</td>
<td>C</td>
</tr>
<tr>
<td>Apium nodiflorum (L.).Lag.</td>
<td>Fool’s Watercress</td>
<td>rare</td>
<td></td>
<td></td>
<td>PM</td>
<td></td>
</tr>
<tr>
<td>Chaerophyllum aureum L.</td>
<td>Golden Chervil</td>
<td>rare</td>
<td></td>
<td></td>
<td>G</td>
<td></td>
</tr>
<tr>
<td><strong>SOLANACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyoscyamus niger L.</td>
<td>Henbane</td>
<td>occ</td>
<td></td>
<td></td>
<td>D, maritime sand &amp; shingle</td>
<td></td>
</tr>
<tr>
<td>Solanum dulcamara L.</td>
<td>Bittersweet</td>
<td>freq</td>
<td>freq</td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td><strong>LAMIACEAE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Family</td>
<td>Species</td>
<td>Common Name</td>
<td>Context</td>
<td>5004</td>
<td>5026</td>
<td>5025</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------</td>
<td>---------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>PLANTAGINACEAE</strong></td>
<td>Plantago major L.</td>
<td>Greater Plantain</td>
<td></td>
<td>occ</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CAPRIFOLIACEAE</strong></td>
<td>Sambucus nigra L.</td>
<td>Elder</td>
<td></td>
<td>freq</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VALERIANACEAE</strong></td>
<td>Valerianella dentata (L.)Pollich</td>
<td>Narrow-fruited Cornsalad</td>
<td></td>
<td>rare</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ASTERACEAE</strong></td>
<td>Anthemis cotula L.</td>
<td>Stinking Chamomile</td>
<td></td>
<td>freq</td>
<td>freq</td>
<td>v.freq</td>
</tr>
<tr>
<td></td>
<td>Centaurea cyanus L.</td>
<td>Cornflower</td>
<td></td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Chrysanthemum segetum L.</td>
<td>Corn marigold</td>
<td></td>
<td>freq</td>
<td>freq</td>
<td>freq</td>
</tr>
<tr>
<td></td>
<td>Cirsium/Carduus spp.</td>
<td>Thistle</td>
<td></td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Hypochaeris spp.</td>
<td>Cat’s-ear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lapsana communis L.</td>
<td>Nipplewort</td>
<td></td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Leontodon sp</td>
<td>Hawkbit</td>
<td></td>
<td>rare</td>
<td>rare</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Picris echioides L.</td>
<td>Bristly Oxtongue</td>
<td></td>
<td>freq</td>
<td>occ</td>
<td>freq</td>
</tr>
<tr>
<td></td>
<td>Sonchus asper (L.)Hill</td>
<td>Prickly Sow-thistle</td>
<td></td>
<td>rare</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sonchus oleraceus L.</td>
<td>Smooth Sow-thistle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>JUNCACEAE</strong></td>
<td>Juncus sp</td>
<td>Rush</td>
<td></td>
<td>freq</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CYPERACEAE</strong></td>
<td>Carex spp</td>
<td>Sedge</td>
<td></td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Eleocharis palustris/uniglumis</td>
<td>Spike-rush</td>
<td></td>
<td>freq</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>POACEAE</strong></td>
<td>Avena sp (grain – charred)</td>
<td>Oat</td>
<td></td>
<td>rare</td>
<td>rare</td>
<td>rare</td>
</tr>
<tr>
<td></td>
<td>Bromus sp (caryopsis – charred)</td>
<td>Brome</td>
<td></td>
<td>rare</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cereal indet (grain – charred)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hordeum sp (grain – charred)</td>
<td>Barley</td>
<td></td>
<td>rare</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poaceae/Cerealia indet (stem fragments)</td>
<td>Grass/Cereal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poaceae indet (caryopses)</td>
<td>Grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Triticum sp (grain – charred)</td>
<td>Wheat</td>
<td></td>
<td>freq</td>
<td>freq</td>
<td>freq</td>
</tr>
<tr>
<td><strong>OTHER REMAINS</strong></td>
<td>Animal/fish bone</td>
<td></td>
<td></td>
<td>occ</td>
<td>occ</td>
<td>occ</td>
</tr>
<tr>
<td></td>
<td>Cereal chaff (waterlogged)</td>
<td></td>
<td></td>
<td>occ</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Charcoal</td>
<td></td>
<td></td>
<td>freq</td>
<td>freq</td>
<td>freq</td>
</tr>
</tbody>
</table>
### Oyster shell fragments
- occ occ occ occ occ

### Mineralised fragments
- freq

### Moss
- occ occ occ occ occ occ occ occ

### Mussel shell fragments
- occ occ occ occ occ

### Sphagnum (leaf)
- Bog Moss rare occ

### Wood fragments
- freq freq freq freq freq freq freq freq freq occ

<table>
<thead>
<tr>
<th>Context</th>
<th>5030</th>
<th>5030</th>
<th>5031</th>
<th>5031</th>
<th>5031</th>
<th>3117</th>
<th>6029</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Sample size (litres)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Float size (ml)</td>
<td>50</td>
<td>100</td>
<td>40</td>
<td>80</td>
<td>35</td>
<td>45</td>
<td>56</td>
</tr>
</tbody>
</table>

### DENNSTAEDTIACEAE
- Pteridium aquilinum (L.)Kuhn (pinnules)
  - Bracken occ

### RANUNCULACEAE
- Ranunculus acris/reps/bulbosus
  - Meadow/Creeping/Bulbous Buttercup occ occ
- Ranunculus sceleratus L.
  - Celery-leaved Buttercup rare occ occ

### BETULACEAE
- Betula sp
  - Birch occ
- Corylus avellana L. (nut frags)
  - Hazel freq occ occ

### CHENOPODIACEAE
- Atriplex spp
  - Orache occ occ CDn

### CARYOPHYLLACEAE
- Cerastium spp
  - Chickweed rare
- Stellaria media (L.)Villars
  - Common Chickweed rare

### Polygonaceae
- Polygonum aviculare L.
  - Knotgrass rare occ occ rare rare
- Rumex spp
  - Dock occ

### BRASSICACEAE
- Brassica/Sinapis/Raphanus spp
  - Mustard/Rape/Cole etc occ
- Coronopus squamatus (Forsskål)Asch
  - Swine Cress occ occ

### ROSACEAE
- Prunus spinosa L.
  - Blackthorn rare
- Rosaceae indet (thorn)
  - Rose Family rare
- Rubus sect. Glandulosus
  - Bramble occ freq freq

### FABACEAE
<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Context</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLANACEAE</td>
<td>Ulex sp (spine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOLanum dulcamara L.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAPRIFOLIACEAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sambucus nigra L.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTERACEAE</td>
<td>Anthemis cotula L.</td>
<td>5030</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Chrysanthemum segetum L.</td>
<td>5030</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Sonchus asper (L.)Hill</td>
<td>5031</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>JUNCACEAE</td>
<td>5031</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>CYPERACEAE</td>
<td>6029</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>POACEAE</td>
<td></td>
<td>3117</td>
</tr>
<tr>
<td></td>
<td>OTHER REMAINS</td>
<td></td>
<td>5030</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5031</td>
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<td>5031</td>
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<td></td>
<td>3117</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6029</td>
</tr>
</tbody>
</table>

**KEY Habitats**
- C: Cultivated/Arable
- D: Disturbed
- E: Heath/Moor
- F: Fens/Bogs
- G: Grassland
- H: Hedgerow
- M: Marsh
- P: Ponds, ditches - stagnant/slow flowing water
- a: acidic
- b: calcareous
- d: dry soils
- h: heavy soils
- l: light soils
- n: nitrogen rich soils
- o: open habitats
- p: phosphate rich soils

**Context**
- 5030
- 5030
- 5031
- 5031
- 5031
- 3117
- 6029

**Sample**
- 16
- 17
- 18
- 19
- 20
- 21
- 22

**JUNCACEAE**
- Juncus sp

**CYPERACEAE**
- Carex spp

**POACEAE**
- Glyceria spp

**POaceae/Cerealia indet (stem fragments)**
- Grass/Cereal

**POaceae indet (caryopses)**
- Grass

**OTHER REMAINS**
- Animal/fish bone
- Cereal chaff (waterlogged)
- Charcoal
- Oyster shell fragments
- Moss
- Mussel shell fragments
- Wood fragments

**Notes**
- occ: occasional
- rare: rare
- freq: frequent
- CD: Calcaraeous Depression
- DHS: Disturbed Hillside
- DHSWn: Disturbed Hillside with nutrient enrichment
- Ca: calcareous
- GMRw: Gravelly Moor with water
- GMPRW: Gravelly Moor with water and nutrient enrichment
- MPw: Mesotrophic Pool with water

**Charcoal**
- freq: frequent
- occ: occasional
- DHS: Disturbed Hillside
- DHSWn: Disturbed Hillside with nutrient enrichment
- Ca: calcareous
- GMRw: Gravelly Moor with water
- GMPRW: Gravelly Moor with water and nutrient enrichment
- MPw: Mesotrophic Pool with water

**Wood fragments**
- occ: occasional
- DHS: Disturbed Hillside
- DHSWn: Disturbed Hillside with nutrient enrichment
- Ca: calcareous
- GMRw: Gravelly Moor with water
- GMPRW: Gravelly Moor with water and nutrient enrichment
- MPw: Mesotrophic Pool with water
R:  Rivers, streams
S:  Scrub
W:  Woodland

w:  wet/damp soils
#  cultivated plant/of economic importance

Scale of abundance:
rare  vegetative material occurring only once or 1 seed
occ:  vegetative material occurring only a few times or 2-5 seeds
freq: vegetative material occurring regularly or 5-20 seeds
v. freq: vegetative material occurring in every portion of the sample examined or 20+ seeds
abun: vegetative material occurring in field of view all the time and dominating the sample or 40+ seeds.
APPENDIX 14: WATERLOGGED WOOD BY ROWENA GALE

The assessment comprised the species identification of 15 samples of wood from timber posts, artefacts, small wood and charcoal recovered from medieval deposits. The wood samples were mostly waterlogged although six had dried out during storage. In addition to species identification, comment was required on the potential of samples 1001, 1002 and 1003 for dendrochronology.

Methods
The waterlogged wood was generally firm and well preserved. In contrast, the desiccated samples were degraded and some fragments had undergone such severe structural collapse that identification was impossible. The charcoal was extremely degraded and crumbly.

The samples were prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using transmitted and incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (i.e., heartwood/sapwood).

Results
The taxa identified are presented in Table 14.1. With the exception of the post sample 19 and wood from context 2755, the identified wood samples were named as oak (Quercus sp.). Sample 19 consisted of wide roundwood or trunkwood from a member of the hawthorn/Sorbus group (Pomoideae). Context 2755 included two pieces of desiccated wood, one of which was named as probably blackthorn (Prunus spinosa); the second was too collapsed to include sufficient diagnostic features for identification, although its diffuse porous structure confirmed that it was not oak. A fragment of desiccated wood in contexts 5004 was also too degraded to name. The charcoal sample (context 3084) included two pieces of hand-collected material, which proved to be devoid of diagnostic features and may in fact be sooty compacted sooty/carbonized deposits rather than charcoal.

The oak heartwood (see Table 14.1) nearly all originated from largewood. Juvenile oak was recorded in samples 5 (slow-grown roundwood, diameter 10mm) and 18 (wide roundwood, diameter 75mm, fast-grown sapwood).

Of the three pieces selected for dendrochronology, sample 22 (1003) is the only worthwhile sample. The sample includes wide oak roundwood with between 80 and 100 growth rings (although some areas were difficult to examine). Sample 21 is oak heartwood, with the outer areas trimmed to form a squared post (and the central axis of the trunk/branch off-centre). The widest region of wood from the central axis to the outermost surface was examined and although it is difficult to provide an accurate count of the growth rings, there were probably no more than about 45. At least 50 rings are required for dendrochronology (preferably including the bark/wood interface). Although this sample is probably not suitable for dating it might be worth discussing the possibilities with the dendrochronology laboratory.

Dendrochronological analysis University of Nottingham (FEE)
### Table 14.1 Broad Quay Wood identification

<table>
<thead>
<tr>
<th>Sample</th>
<th>Context</th>
<th>Description</th>
<th>Taxa</th>
<th>Dendrochronology</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smaller timbers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2711</td>
<td>Twig fragment</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>From largewood</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Wood fragments</td>
<td>2 x oak (<em>Quercus</em> sp.) roundwood</td>
<td>-</td>
<td>Diameter 10mm; 22 growth rings. Possibly fragments from single piece.</td>
</tr>
<tr>
<td>16</td>
<td>5031/ 1004</td>
<td>Post</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>Wide roundwood, probably mostly fast grown wood</td>
</tr>
<tr>
<td>17</td>
<td>5023</td>
<td>Flat plank</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>Wood split/ sawn radially</td>
</tr>
<tr>
<td><strong>Larger timbers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>3116</td>
<td>Small post/ large stake</td>
<td>1 x oak (<em>Quercus</em> sp.) sapwood</td>
<td>-</td>
<td>Roundwood, diameter 75mm. Fast grown wood. Surface abraded, bark detached.</td>
</tr>
<tr>
<td>19</td>
<td>3122/ 1001</td>
<td>Post</td>
<td>1 x hawthorn/ <em>Sorbus</em> group (<em>Pomoideae</em>)</td>
<td>Not oak and therefore not suitable for dating</td>
<td>Wide roundwood/trunkwood</td>
</tr>
<tr>
<td>20</td>
<td>9116</td>
<td>Flat plank</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>Wood split/sawn radially</td>
</tr>
<tr>
<td>21</td>
<td>3120/ 1002</td>
<td>Block of wood</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>Probably about 45 growth rings and not suitable for dating</td>
<td>Large timber cut to a rectangle with outer surfaces trimmed.</td>
</tr>
<tr>
<td>22</td>
<td>3116/ 1003</td>
<td>Large post</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>80-100 growth rings. Suitable for dating</td>
<td>Wide roundwood</td>
</tr>
<tr>
<td><strong>Desiccated wood</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>2535</td>
<td>Wood fragment</td>
<td>1 x oak (<em>Quercus</em> sp.)</td>
<td>-</td>
<td>Thin sliver</td>
</tr>
<tr>
<td>-</td>
<td>2755</td>
<td>Wood fragments</td>
<td>1 x <em>cf.</em> blackthorn (<em>Prunus spinosa</em>)</td>
<td>-</td>
<td>1 x fragment too collapsed to identify, although the diffuse porous structure indicated that it was not oak</td>
</tr>
<tr>
<td>-</td>
<td>5001</td>
<td>Wood fragment</td>
<td>1 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>Possibly a segment from roundwood</td>
</tr>
<tr>
<td>-</td>
<td>5004</td>
<td>Wood fragment</td>
<td>5 x oak (<em>Quercus</em> sp.) heartwood</td>
<td>-</td>
<td>Oak from largewood. I fragment</td>
</tr>
<tr>
<td>Sample</td>
<td>Context</td>
<td>Description</td>
<td>Taxa</td>
<td>Dendrochronology</td>
<td>Comments</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>-------------</td>
<td>------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>-</td>
<td>3084</td>
<td>?charcoal</td>
<td>2 x unidentified fragments</td>
<td>-</td>
<td>Very friable and degraded. No recognisable structure.</td>
</tr>
</tbody>
</table>

**Charcoal**

1 x unidentified wood

too degraded to identify
APPENDIX 15: GEOARCHAEOLOGY BY K. WILKINSON

In October/November 2006 and March 2007 Geotechnical Engineering Ltd drilled three geoarchaeological boreholes on behalf of Cotswold Archaeology at the site of 7-11 Broad Quay, Bristol. The boreholes were a response to findings from an archaeological evaluation of the site undertaken in June-August 2006 (Cotswold Archaeology 2006). Both the 2006 evaluation and a previous investigation in 2001 had revealed organic-rich medieval deposits overlying estuarine/alluvial deposits at 2.20-3.65m below present ground level (c. +6.8m to +5.4m OD). The purpose of the bore hole survey outlined in this document was to investigate the distribution of the medieval deposits within the site and also to assess the palaeoenvironmental and archaeological potential of pre-medieval stratigraphy that had been revealed by geotechnical investigations undertaken in 2000 (Wimtec Environmental 2000).

This document has a twofold purpose. Firstly to report on the stratigraphy of the site, focussing particularly on the medieval occupation, marsh and underlying alluvial/intertidal sediments. Secondly, to assess the potential of the core record for addressing the aims outlined the Written Scheme of Investigation (WSI) approved by Bristol City Council (Wilkinson 2006), (see below) regarding palaeoenvironmental reconstruction and evidence for pre-medieval human activity in the sedimentary record. In order to do this the report is arranged as follows: A brief account of the geographic, geological and methodological background to the geoarchaeological project is presented first and the stratigraphy is then discussed in detail. The next part of the document assesses the potential of the sample resource collected in the boreholes to address the questions outlined in the WSI. Recommendations are then made for a programme of analytical works which would fully address the objectives left outstanding following the present phase of works. A bibliography and a single appendix containing lithological descriptions of the stratigraphy revealed in the three boreholes drilled in this phase of the project complete the document.

Broad Quay is located within the south-western part of Bristol’s city centre and immediately east of the Colston Avenue traffic island. The site is centred at NGR ST 58638 72790 and surface elevation varies between +8.5 and +9.0m OD (Error! Reference source not found.). The area proposed for development was formerly occupied by buildings of the Bristol and West Building Society and by other structures constructed in the 18-20th centuries. The planned development is for mixed use of the site, but focussed around a conversion of the former Bristol and West Building Society building to a hotel. At the time of the borehole survey the site was being worked by demolition contractors, but was otherwise vacant.

Previous geoarchaeological borehole surveys have not been undertaken in the vicinity of Broad Quay. Archaeological evaluation demonstrates that the city wall ran along the western side of the site and that the wall sat above organic deposits relating to an earlier marsh (Figure 15.2) (Cotswold Archaeology 2006). Historic data suggest that the marsh in the vicinity of Broad Quay was reclaimed in AD 1247 following diversion of the river Frome away from the site, while the city wall was built before the end of the 13th century (Cotswold Archaeology 2006). The organic-rich marsh deposits encountered during the evaluation contained artefactual and ecofactual material which suggest that people had been using its surface prior to the late 13th century. A prior course of the river Frome was found within the site during the 2001 evaluation (Cotswold Archaeological Trust 2001). This was partially filled with organic artefacts, presumably relating to pre-mid 13th century activity. Following reclamations in the mid-13th century it is thought that alluvial and intertidal silts/clays were deliberately dumped on the site to
prevent flooding. These redeposited sediments, pre-mid 13th century marsh deposits and subsequent medieval archaeological layers were truncated during cellar construction in the 19th and 20th centuries.

Broad Quay, as with much of central Bristol, sits on deposits mapped by the British Geological Survey as ‘alluvium’ (a catch-all term encompassing all late Quaternary sediments deposited by fluvial or estuarine means). The ‘alluvium’ overlies deposits of the Mercia Mudstone Group (MMG), a geological unit dating to the Triassic period. MMG deposits were encountered during the Wimtec Environmental (2000) geotechnical investigations at depths of between 10m and 12m below ground surface.

The objectives of the geoarchaeological borehole reported here were outlined in a Written Scheme of Investigation approved by Bristol City Council (Wilkinson 2006). They were to:

- Determine the extent of high archaeological potential organic deposits identified in previous evaluation;
- Determine whether palaeo land surfaces exist within the alluvial/intertidal stratigraphy overlying the gravel/sandstone substrate;
- Assess past human impact on the surrounding environment (both direct and indirect), particularly during episodes of soil development and accretion of organic deposits;
- Produce a detailed depositional model that can be used for both palaeo landscape reconstruction and prediction of the location of past human activity;
- Provide palaeoenvironmental reconstructions for the area of the site and its surrounds from both geoarchaeological and biostratigraphic datasets.

**Methodology**

Geotechnical Engineering employed a Pioneer rig to drill the three boreholes at 7-11 Broad Quay (Geotechnical Engineering Ltd 2007). The Pioneer equipment drills 128mm diameter boreholes and extracts continuous cores of 112mm diameter and 1500mm length. Cores are retained in plastic sleeves. In unconsolidated sediment of the type present at Broad Quay percussion techniques are used. However, the Pioneer rig is also capable of rotary drilling when lithified sediments are encountered. Such an approach was not necessary at Broad Quay.

Cores were labelled and sealed on site and transported to Geotechnical Engineering’s Gloucester laboratory for further study. Borehole locations were surveyed in relation to Ordnance Datum (OD) and Ordnance Survey National Grid Reference (NGR) by officers of Geotechnical Engineering and those data subsequently passed to Cotswold Archaeology.

Laboratory description was undertaken by the present author during visits to Geotechnical Engineering’s laboratories on 14 November 2006 and 19 March 2007. During these visits the plastic tubes containing the cores were sliced open and the sediments revealed were carefully hand-cleaned and described using standard geological criteria (Tucker 1982, Jones et al. 1999, Munsell Color 2000). Each core was then photographed and where appropriate, samples were collected for bioarchaeological examination and 14C dating.

Lithological descriptions were combined with positional information within a RockWorks database (Rockware 2006). Further stratigraphic information from the previous geotechnical investigation (WimTech Environmental 2000) and the 2006 archaeological evaluation were then added to the database. The software was then used to
combine lithological units into higher-level groupings (informal and formal ‘formations’) corresponding to geological/geographic and archaeological events. The RockWorks database was used to plot the cross sections presented in Figure 2.

The archive resulting from boreholes drilled at the 7-11 Broad Quay comprises a paper and digital record (a hard copy of the written component of the latter is included in the Appendix), and spot samples collected from the cores. The cores have not been retained.

**Stratigraphy**

Four major stratigraphic units (‘formations’) are present in the 7-11 Broad Quay site. These are reviewed below in chronological order.

**Mercia Mudstone Group**

Deposits of the MMG were encountered in all four Wimtech Environmental (WT BH) boreholes as well as in Geotechnical Engineering BH 3 (Figure 15.3). The elevation of the surface of the MMG varies between -4m and -12m OD, but the undulations in outcrop height that is seen in the borehole record are entirely the result of channel formation during the Pleistocene (see Avon Formation below). If it were not for the presence of channels filled by gravels of the Avon Formation, the MMG would have a reasonably consistent surface elevation of c. -4m OD.

The MMG dates from Middle Triassic (c. 230 my BP) and formed in a series of alluvial fans emanating from the Mendips and Bristol coalfields (Green 1992, 78). It therefore comprises sand and conglomerate facies, but as the name suggests is primarily made up of silts and clays. At Broad Quay the MMG outcrops as siltstone, sandstone and marl (Wimtech Environmental 2000).

**Avon Formation**

Gravels of an as yet unnamed member of the Avon Formation (sensu Campbell et al. 1999), unconformably overlie the MMG. The gravels comprise matrix and clast-supported sandstone and quartzite pebbles and cobbles, all of which are derived from the MMG. The top of the Avon Formation forms a gentle east to west sloping surface across the site between -3.7m (west) and -2.8m OD (east). Over most of the site the gravels would appear to have an outcrop thickness of between 1m and 1.5m (based on records in WT BH 2 and BH 3). However, at least one palaeochannel exists on the site in the vicinity of WT BH 4 and WT BH 5, and this/these is/are filled by 4-9m thick gravel deposits (Figure 15.3). These beds are recorded as being relatively homogeneous in the Wimtech Environmental borehole logs, although it should be emphasised that Wimtech Environmental’s engineers were recording the sediments for purely geotechnical purposes and may not therefore have recorded minor grain size variations or bedding properties. Given the absence of boreholes from anywhere except the periphery of the southern part of the site it is at present impossible to determine whether the palaeochannels seen in WT BH 4 and WT BH 5 are part of the same feature.

Given the relatively low elevation of their outcrop, the Avon Formation gravels seen on the Broad Quay site are likely to date from the latest part of the Late Pleistocene, i.e. the Devensian Late Glacial. Campbell et al. (1999) and Bates (2003) suggests that the Bathampton Member, which is at 3m above present river level, is of Marine Isotope Stage (MIS) 6 date or earlier and therefore as the gravels seen at Broad Quay outcrop below river level, they must be later (MIS 5e-1, 130-5 kya). If this hypothesis is correct it would suggest that the undulations in the
MMG had been filled by c 11,500 cal. BP and that Holocene sedimentation took place on a gravel surface at -3m to -4m OD. Avon Formation gravels have been found outcropping on a number of sites in central Bristol at similar elevations to those seen at Broad Quay. These include the Harbourside Development (Wilkinson and Tinsley 2005), Redcliff Backs (Wilkinson 2004), Welshback (Wilkinson 2007) and the Broadmead Development (Yendell and Stafford 2005). However, it is also highly likely that deposits of the Avon Formation has been removed from many areas of central Bristol by scouring processes.

**Wentlooge formation**

Silts, clays and fine sands of the informally defined Wentlooge formation (*sensu* Allen and Rae 1987), form the bulk of the sediment succession recovered in the Geotechnical Engineering boreholes on the 7-11 Broad Quay site. Deposits of the Wentlooge formation unconformably overlie the Avon Formation over the entire site and extend upwards from the contact with the Avon Formation at -3m to -4m OD to between +4.5m and +7m OD (Figure 15.3). As Figure 15.3 demonstrates the surface of the Wentlooge formation may slope slightly downwards from +6.2m to +5.8m OD on a south to north axis between WT BH 6 and WT BH 2. However, trends in the surface outcrop height of the Wentlooge formation on an east to west axis are more difficult to discern given the truncation resulting from cellar construction.

The Wentlooge formation at 7-11 Broad Quay can be divided into four lithofacies. By far the majority of the sequence comprises grey brown laminated silts and clays (Lithofacies 1) (Figure 15.4). These are found from the basal contact with the Avon Formation to the interface with the Made Ground (see Made Ground below). Laminal properties vary slightly in different parts of the sequence, but for the most part grey brown silt/clay strata are laminated with bundles of thin, wavy, parallel and non-parallel laminae of dark grey brown silts. Occasional charcoal and organic macrofossils are present as isolated inclusions, particularly towards the contact with the Avon Formation in BH 1 and BH 2, but otherwise this lithofacies is well sorted. Taphonomic processes such as autocompaction, emergence above the water table and truncation by human activity and channel processes have had an impact on the structural properties of deposits of Lithofacies 1 at the very top of the Wentlooge formation sequence. In BH 1 and BH 2 there is no trace of the lamina structure in the topmost units underlying deposits of Lithofacies 4. Although it is dangerous to suggest environments in which deposition occurred without examining associated biological proxies, it is nevertheless likely that the Lithofacies 1 accumulated on tidal flats at the margins of an intertidal creek.

The final lithofacies of the Wentlooge formation at 7-11 Broad Quay (Lithofacies 4) is found at the very top of the Wentlooge sequence in BH 1 and BH 2. It comprises clast-supported gravels of angular and sub-angular quartzite cobbles and pebbles in a rare grey brown silt/clay matrix. The deposit appears to be relatively well bedded, while the fact that artefactual material is entirely absent suggests that it formed as a result of fluvial processes. Indeed it is likely that Lithofacies 4 is the fill of a palaeochannel that once ran through the area of mudflats before the development of the medieval marsh. Human activity in the thirteenth century is likely to have removed the channel as a functioning part of the natural system at the same time the marsh was drained. Assuming that the hypothesis for the formation of Lithofacies 4 given above is correct, it is uncertain in which direction the channel ran as it is absence in the other boreholes, while none of the archaeological trenches extended down deep enough to encounter it.

Taken together the lithostratigraphic data from BH 1-3, supplemented by sediment description of the Wimtech Environmental boreholes, suggest that depositional environments on the Broad Quay changed from channel sedimentation at the base of succession to mud flats at the top. The medieval marsh (which is discussed in this
report under *Made Ground* below) deposited organic rich sediments on top of the mud flats. These changes took place first in the western part of the site. Conditions fluctuated between the two environments in the central part of the site, while the change to mud flat deposition occurred last in the eastern part. One or more episodes of hill slope erosion of surrounding MMG outcrops occurred during the channel depositional phase in the eastern part of the site, leading to the deposition of a colluvial lobe within a channel. Renewed channelling took place towards the end of Wentlooge formation sedimentation and a gravel-fill accumulated within one such channel in the area sampled by BH 1 and BH 2.

**Made ground**

Sediments relating to human activity unconformably overlie deposits of the Wentlooge formation at between +4.5m and +7m OD. These extend up to the present ground surface at +8m to +9m OD (Figure 15.3).

The ‘made ground’ sediments have been fully investigated by the archaeological evaluation (Cotswold Archaeology 2006) and both because of this, and also because it is extremely difficult to interpret made ground in boreholes, unless very closely spaced, little interpretation is offered here. However, it is notable that medieval deposits associated with, what is assumed to be, the early 13th century marsh were only found in BH 2. The medieval deposits at this location comprise horizontally bedded 20mm-thick layers of dark reddish brown wood peat separated by dark greyish brown silt/clay deposits, with occasional sub-angular quartzite and sandstone pebbles (Figure 15.3). Although no artefacts were noted in association with these deposits, the structural and morphological properties of the sediments suggest they were deposited by human action in a wet environment.

The upper parts of the made ground mostly comprise structural material such as brick, concrete and tarmac, as well as other post-medieval debris such as clinker, coal and charcoal. In BH 1 and BH 3 there is evidence of continued high water levels during deposition of the made ground. This takes the form of laminated silts, which in the case of BH 1 outcrop above a layer of concrete and must therefore date to the 19th or 20th centuries.

**Assessment**

**Extent of high potential organic deposits**

Organic deposits coincident with the base of the Made Ground were noted only in BH 2. They were definitely not present in BH 1 and BH 3, while the engineers descriptions of the stratigraphy in the Wimtech Environmental boreholes is unclear is unclear is respect of deposits of this nature. On the basis of the available evidence it would therefore seem probably that organic deposits relating to the marsh that predated construction of the 13th century defensive wall have a local distribution in the northern part of the site.

In making this hypothesis it should be emphasised that the area directly south of BH 1 and BH 2 has not been sampled by boreholes (Figure 15.1).

**Palaeo land surfaces**

There is no evidence in the borehole stratigraphy for the presence of buried landsurfaces in deposits of the Wentlooge formation. As outlined above, three of the four lithofacies comprising this unit formed in alluvial/intertidal environments and two of these in channel situations. Deposits of Lithofacies 1 formed on mud flats, but the absence of organic beds (as opposed to organic laminae, which are present locally) suggests that inundation by tidal/flood water was frequent and that there was little opportunity for plant communities to establish
themselves. Lithofacies 4 accumulated as a result of terrestrial processes, suggesting that dry land was present to the east of the site, but it would seem likely that the colluvial lobe represented by sediments in this lithofacies in BH 1 prograded into a channel, i.e. the final locus of deposition was an alluvial/estuarine environment.

A probable buried land surface was found at the base of the Made Ground in BH 2. Fine-grained organic deposits noted between +5.5m and +6.0m OD are likely to have been deposited in a marsh (Figure 15.2). It is probable that this is the pre-mid 13th century marsh noted by the 2001 evaluation and the historic records (Cotswold Archaeology 2006). These organic deposits have both a high archaeological and palaeoenvironmental potential. The possible distribution of the marsh deposits is discussed above.

**Past human impact on the surrounding environment**

There is very limited macroscopic evidence from the borehole stratigraphy for human activity around the site during deposition of sediments of the Avon Formation and the Wentlooge formation. Pebble-sized charcoal fragments were noted in gravels at the base of BH 1 (Avon Formation) - one example has been retained as a sample – and BH 2. It is possible that the charcoal may be intrusive (e.g. falling from the borehole walls) given that it was found in deposits that formed in a high energy fluvial environment where charcoal would be likely to degrade. However, the possibility remains that the charcoal could be indicative of Late Pleistocene or Early Holocene activity of the gravel surface left by the Avon Formation. It is perhaps no coincidence that the Wentlooge formation deposits that cap the charcoal-bearing gravels contain reworked organic clasts, suggesting local reworking of terrigenous deposits.

Microscopic study of biological proxies present within the borehole stratigraphy and sedimentological analyses (e.g. mineral magnetic measurements) to detect human activity in the wider environment did not part of this assessment. It is possible that study of such material in samples from the Wentlooge formation may provide indirect evidence of human activity in the wider Bristol region. However, it should be pointed out that no organic deposits suitable for palynological study were noted in the Wentlooge formation stratigraphy, while the potential to provide a chronology for the Wentlooge formation at Broad Quay is also low for the same reason.

The organic sediments noted at the base of the Made Ground in BH 2 and do, if they are the same as the marsh deposits investigated by the 2001 evaluation, contain macroscopic evidence reflecting human activity in the surrounding environment. It is also highly likely that microbiological proxies for reconstructing local environments (i.e. pollen grains, diatom frustules) are likely to be well preserved in these sediments.

**Depositional modelling**

Although it is technically possible to produce deposit models for the site based on the stratigraphic data recovered during the two previous evaluations and the two borehole investigations, such an exercise is considered pointless given the absence of stratigraphic data from the southern part of the site (Figure 15.1). This absence is likely to skew the model and produce results that are both uninformative and misleading. However, it is hoped that when further borehole investigations are carried out in this part of central Bristol, it will be possible to extend medium resolution models for the Harbourside/Deanery Road and Broadmead areas (Wilkinson and Tinsley 2005, Yendell and Stafford 2005) to the present site.

**Palaeoenvironmental reconstructions**

Palaeoenvironmental reconstruction relies both on the preservation of biological proxies and suitable deposits from which to recover those proxies. A bioarchaeological assessment has not formed part of the assessment.
phase of this geoarchaeological project and therefore it is uncertain whether microbiological remains such as pollen grains, diatom frustules and foraminferal test survive. As noted above macrobiological remains are rare in the Wentlooge formation at 7-11 Broad Quay. The stratigraphic assessment also highlights the fact that no suitable deposits exist on the site in either the Wentlooge formation or the Avon Formation from which meaningful (i.e. taphonomically sound) palynological information can be extracted. The sand-rich deposits (Lithofacies 2) of the Wentlooge formation are likely to contain Foraminifer (should they be deposited by estuarine or marine conditions) and the silt/clays (Lithofacies 1) will probably include diatoms. However, at present neither of these lithofacies is linked with human activity.

The organic deposits at the base of the Made Ground are likely to contain biological proxies (both macro- and microscopic) suitable for palaeoenvironmental reconstruction. As stated above bioarchaeological assessment of these deposits has not been carried out as part of this geoarchaeological assessment.

**Recommendations**

Deposits of high archaeological and palaeoenvironmental potential were found in only one part of the stratigraphy, namely at the base of the Made Ground in BH 2. At present it is uncertain whether these organic deposits are the same as those that have been interpreted as marsh sediments during the 2001 evaluation (Cotswold Archaeology 2006), and if so, how old the marsh is (it is known that the marsh was sealed by redeposited silt/clay in the mid-13th century, but it is not clear when marsh sedimentation began) and how deposition of the organic sediments relates chronologically to deposition of sediments of the Wentlooge formation. To resolve these issues, a programme of AMS 14C dating is suggested which would both date the marsh sediments and deposits of the uppermost part of the Wentlooge formation. Chronological information obtained would provide a terminus ante quem for the Wentlooge formation at 7-11 Broad Quay, a terminus post quem for deposition in the marsh and an indication of the duration of marsh sedimentation.

There is a possibility that charcoal fragments noted at the base of BH 1 and BH 2 may be indicative of human activity on the surface of the gravels of the Avon Formation. To test this possibility it is recommended that a single AMS 14C date be obtained on charcoal from this part of the stratigraphy in BH 1. Should the result indicate that the charcoal is of Early Holocene or Late Pleistocene age, then it is highly likely that the 7-11 Broad Quay site contains evidence for hunter-gatherer activity prior to inundation of the site by alluvial/intertidal waters. If the result suggests a later age it will indicate that the charcoal was intrusive.

Once the results of the AMS 14C programmes have been obtained it is recommended that they be combined with the stratigraphic data outlined in this document in a new analytical report. The resultant data can then be incorporated in the final publication text resulting from the conventional archaeological works.

Unfortunately the organic deposits at the base of the Made Ground in BH 2 occurred at the transition between two cores (Figure 15.6). Therefore, insufficient volumes of these deposits were recovered for any meaningful palaeobiological examination, while the lower contact of the marsh sequence was not found as it occurred in the truncated zone between two cores. For these reasons it is felt that should further intrusive archaeological work take place in the northern part of the site, the organic deposits at the base of the made ground would be better considered by this future investigations. The organic deposits should be fully sampled for both macroscopic (plant macro remains and insects) and microscopic (pollen and diatoms) proxies during such works using standard methodologies.
Acknowledgements

ARCA would like to thank Simon Cox (Cotswold Archaeology) and Dan Masters (Geotechnical Engineering Ltd) for their help during the course of the project.
Figure 15.1. Location of the boreholes (2000 and 2006) and archaeological trenches on the 7-11 Broad Quay site
Figure 15.2. East-west composite cross section of the northern part of the Broad Quay site based on Wimtech Environmental and Geotechnical Engineering boreholes, and Cotswold Archaeology archaeological evaluation trenches.
Figure 15.3. North-south and east-west composite cross section of the Broad Quay site based on Wimtech Environmental and Geotechnical Engineering boreholes
Figure 15.4. Lithofacies 1 sediments in BH 1 at c. +2.4m to +2.7m OD.

Figure 15.5. Deposits of Lithofacies 3 outcropping between c. -2m and -3.2m OD in BH 1. Note deposits of Lithofacies 2 both above and below those of lithofacies 4.
Figure 15.6. Peat and silt/clays found at the base of the Made Ground sequence and interpreted as medieval activity on the marsh surface.
Site location plan

Broad Quay, Bristol

COTSWOLD ARCHAEOLOGY

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Site location plan

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Reproduced from the 1997 Ordnance Survey Explorer map with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright Cotswold Archaeological Trust 100002109.
305 wood organic peat (possible fill of channel 5023)

5024 covers 5031
5031 beneath 5024

channel 5023

modern pipe truncation

wooden fragments inc. poss. hazel

5004 covers 5030
Period 2 – north

Area 1

Shelters

Armada House

El Sub Sta

Refuge Assurance

Telephone Exchange

Broad Quay, Bristol

COTSWOLD ARCHAEOLOGY

Area 2

Area 3

Area 4

Area 5

T5

T4

T3C

T3B

T3A

T2

T21

T24

T25

Marsh Street

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North facing section of Trench 27

continues for 1m

auger hole

alluvium

medieval

20th century
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Trench
Excavation area
Post-medieval wall or floor

Period 4 – south

Broad Quay, Bristol

EXCAVATION AREA

Pre-Medieval wall or floor

Post-Medieval wall or floor

Trench
### 13 The Marshwall and associated angled projections
2708 and 2783

#### FIGURE TITLE
Photograph

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