Westgate Centre
Oxford

Phase 2
Archaeological Evaluation Report

oxfordarchaeology

August 2008

Client: Sir Robert McAlpine Ltd.

Issue N^{O}: 2
OA Job N^{O}: 3800
NGR: SP 5108 0594

Archaeological Evaluation Report

Client Name:	Sir Robert McAlpine Ltd.
Client Ref No:	SRM/OA/EML/0201/0025 0201 - Archaeology
Document Title:	Westgate Centre, Oxford
Document Type:	Evaluation
Issue Number:	1
National Grid Reference:	SP 5108 0594
Planning Reference:	06/01211/FUL
OA Job Number:	3800
Site Code:	OXWEST 07
Invoice Code:	OXWESEV2
Receiving Museum:	Oxfordshire County Museums Service
Museum Accession No:	2006.93
Prepared by:	Robin Bashford
Position:	Project Officer
Date:	1st May 2008
Checked by:	Dan Poore
Position:	Senior Project Manager
Date:	7th May 2008
Approved by:	Paul Booth Signed.....
Position:	Senior Project Manager
Date:	8th May 2008
Document File Location	projects on server1:\OXWEST_Westgate Centre Oxford\Phase 2 Evaluation and Mitigation - 2007 to 2008\Reports\Report text
Graphics File Location	\\Servergo\invoice codes i thru q\O_codes\OXWESTEV_2
Illustrated by	Markus Dylewski

Oxford Archaeology

Janus House
Osney Mead
Oxford OX2 0ES
t: (0044) 01865 263800
f: (0044) 01865 793496
e: info@oxfordarch.co.uk
w: www.oxfordarch.co.uk

Westgate Centre, Oxford

Phase 2 Archaeological Evaluation Report

Submitted Version 11/08/08

Written by Robin Bashford

with contributions from Carl Champness and Jodie Ford, and illustrated by Markus Dylewski

Table of Contents

List of Figures

List of Plates

Summary

Between September 2007 and February 2008, Oxford Archaeology carried out an archaeological evaluation at The Westgate Centre, Oxford (centered on SP 5108 0594). The work was carried out on behalf of Sir Robert McAlpine Ltd, who were commissioned by The Westgate Partnership. The Westgate Partnership is a joint venture between Capital Shopping Centres plc and Coal Pension Properties Ltd and is proposing the redevelopment of the existing Westgate Centre and associated car parks (both multi-storey and surface level). The current phase of evaluation (Phase 2) followed on from the Phase 1 evaluation carried out by OA in 2006 (OA, 2006).

The Phase 1 evaluation comprised 16 trenches, the majority of which were excavated on the floodplain and the deposits encountered reflected this, with the evidence from these trenches being predominantly palaeo-environmental in nature. Trenches to the north within the multi-storey car park did, however, identify architectural and other remains associated with the medieval Greyfriars.

Phase 2 comprised a further 19 trenches, 7 within the multi-storey car park and 5 in the surface car parks, with a further 7 in areas adjacent to the car parks which will be affected by the proposed development. These formed part of the required archaeological mitigation but also provided further evaluation of the surviving archaeological resource, in particular the development of the Trill Mill Stream and the extent and character of the conventual buildings of the Greyfriars Priory.

The evaluation largely confirmed the results of the first phase, although the additional data recovered have allowed the site specific model for the hydrological and sedimentary development of the floodplain to be refined. This model still correlates broadly with the sequence postulated from previous excavations to the south of the medieval walled town, and elsewhere on the floodplain of the Upper Thames.

Evidence for an elevated area of gravel to the south-east of the site suggested that this area is on the periphery of an 'island' of higher ground, although the nature and elevation of the deposits encountered implied that this was marginal land, and unlikely to be the focus of settlement similar to that previously excavated at Whitehouse Road.

The evaluation provided confirmation of the Trill Mill Stream crossing the centre of the site, and further evidence for the origin, development and orientation of the channel was recovered. In addition, the results from a number of trenches suggested the existence of a complex system of intercutting side channels (some timber lined) to the south of the stream. One of these comprised a set of substantial timber beams which were encountered in previous investigations, and have been interpreted as part of a mill race. Demolition material overlying these timbers was suggestive of an adjacent mill associated with the Greyfriars priory to the north-east.

There was also some evidence for managed water courses between the Trill Mill Stream and the Thames, which may have been contemporary with the Greyfriars' ownership of this area of the site, referred to in documentary sources as Boteham Island.

Additional evidence for 13th-14th century land reclamation extending southwards from the second terrace was also revealed. Further robbed and partially robbed

walls associated with the Priory and its subsequent demolition were seen to cut this deposit(s), as was a possible western boundary to the Greyfriars complex, comprising a north-south aligned ditch, later superseded by a limestone wall. This latter appears to correspond to the boundary between the Priory complex and the area known as Paradise to the west.

The remaining recorded deposits appeared to relate to the use of the area as gardens/pasture, and subsequently the construction of Victorian terraced housing and the demolition of same in the late 1960s.

1 INTRODUCTION

1.1 Location and scope of work

1.1.1 The Westgate Partnership have received planning permission (06/01211/FUL) to redevelop a site in central Oxford known as the Westgate Centre (centred on NGR SP 5108 0594) covering a total area of 5.7 hectares. The original application was made in 2001 and this second application comprises the existing Westgate Centre and multi-storey car park, surface car parking areas to the south, additional land at Abbey Place and also part of the Oxford and Cherwell College to the south-west.

1.1.2 Within the overall development site, trial fieldwork undertaken to date (outlined below) has allowed an area of Archaeological Significance (Areas 1 & 2 identified in drawing ARC 1 attached to planning permission) to be agreed with the Oxford City Archaeologist. The archaeological mitigation of this area is required to discharge the archaeological condition as it relates to the development of the site.

1.1.3 This current report details the results of additional archaeological trenching works undertaken by Oxford Archaeology (OA) within the area of Archaeological Significance. The trenching forms part of the required archaeological mitigation but will also provide further evaluation of the surviving archaeological resource, informing production and submission of further Specification(s) for Mitigation works within the existing multi-storey car park (MSCP) and other parts of the site in order to achieve the aims (Section 2 below); these will form the 'Method Statement for mitigation' required in the planning condition.

1.2 Geology and topography

1.2.1 The area investigated is bounded by The Westgate Centre to the north, the Castle Mill Stream to the west, Old Greyfriars Street to the east and Thames Street to the south (Fig. 1).

1.2.2 The site is located at NGR SP 5108 0594 (centred). To the north-west of the site, the underlying geology is Quaternary River Gravels of the 2nd (Summertown-Radley) terrace deposits (British Geological Survey sheet 236). The majority of the site lies on the 1st (Floodplain) terrace which previous work has shown to be historically characterised by seasonally dry islands between braided river channels, overlain by a series of alluvial clays.

1.3 Archaeological and historical background

1.3.1 More detailed background information is presented in the Phase 1 evaluation report (OA, 2006). A comprehensive account of the documentary evidence for the acquisition and development of the Priory site is presented in the reports into the excavations conducted prior to the development of the site in the 1970s (Hassall *et al* 1980 and 1989).

Recent Archaeological Work

JSAC Evaluation

1.3.2 John Samuels Archaeological Consultants (now CgMs) excavated 3 testpits in June, 2001. This revealed a truncated section of wall and a timber lined channel (JSAC report 521/01/06).

Phase 1 Evaluation

1.3.3 Between July and September 2006 Oxford Archaeology undertook targeted trial-trenching (OA, 2007). A total of 16 trenches were excavated; 4 within the Multi Storey Car Park; 7 in the surface car parks and 5 in areas adjacent to the car parks which will be affected by the development.

1.3.4 The Westgate car park lies at the interface between the second gravel terrace and the Thames flood plain. The trenches to the south of the site revealed an organic deposit overlying the undulating top of the first gravel terrace, and overlain by a series of alluvial clays. These deposits have been encountered during previous archaeological work on the flood plain. The organic deposit is thought to have formed from the remnants of a reed swamp which has been buried beneath numerous phases of later alluviation. Artefacts suggested that there had been human activity on the flood plain at an early stage of alluviation, and on palaeoecological evidence it was speculated that the alluviation had arisen from erosion/deposition processes in the meandering of a relatively narrow stream or streams.

1.3.5 By contrast, augering showed that the north edge of the flood plain has deposits 2 m deeper than the above, which suggests that an older channel was followed by the present Trill Mill Stream.

1.3.6 The alluvial deposits also appeared to be cut by a number of channels, with some containing evidence for timber revetment. They were predominantly medieval or post - medieval in origin and fairly consistent with cartographic evidence. A limited amount of evidence was also recovered for discrete feature(s) cutting the alluvial deposits, which also appeared to be medieval in origin and have been tentatively interpreted as representing clay quarrying.

1.3.7 Two parallel timbers identified in a previous evaluation (JSAC521/01/06) and interpreted as a timber lined channel were re-excavated during the 2006 evaluation. These appeared to be overlain by a potential N-S aligned stone ‘surface’ which may represent a post-medieval ford across the Trill Mill Stream at the base of the second terrace. It was suggested that the timbers may have been associated with the stone surface, although the original interpretation cannot be discounted

1.3.8 Evidence for possible 11th-12th century land reclamation extending southwards from the second terrace was also recovered, and it is possible that this was specifically undertaken to create a building platform for the construction of the Franciscan friary of Greyfriars in the 13th century. Robbed or partially robbed walls which presumably relate to the friary complex were identified in a number of the trenches within the multi-storey car park, and one trench contained a series of what appeared to be midden deposits, possibly representing the disposal of rubbish away from the site of occupation or domestic activity.

1.3.9 The northernmost trench displayed some evidence for post-dissolution occupation within the friary church. It was established that the tomb of St Agnellus, founder of the order in England, was unlikely to be located within the Westgate development area.

1.3.10 The remaining recorded deposits appeared to relate to the use of the area as gardens/ pasture, and subsequently the construction of Victorian terraced housing and the demolition of same in the late 1960s.

1.4 Acknowledgements

1.4.1 Thanks to all at Sir Robert McAlpine (SRM) and Parkstone Construction Ltd (PCL), who facilitated the works, in particular Jaqueline Hare and Paul Hallam (SRM), and Mark Stokes and Barry O'Neill (PCL).

1.4.2 Thanks also to Brian Durham (OCC), and Myk Flitcroft and Forbes Marsden (CgMs) for their advice and assistance prior to and during the fieldwork.

1.4.3 The fieldwork was carried out over 6 months by Robin Bashford (acting Project Officer), Rob Tannahill, James Mumford and Gerry Thacker (Project Officers), Jodie Ford (Site Supervisor), and archaeologists Wendy Morrison, Sergio Carvalho, Renata Correia, Jonathan Hutchings, Markus Dylewski, Laura Strafford, Nayia Markoulaki, Mattias Pilhwert and Bronwen Chapman. The project manager was Dan Poore.

2 Evaluation Aims and Methodology

2.1 Aims

2.1.1 The primary aims of the archaeological evaluation/mitigation works were:

- To mitigate the effect of the development on the existing archaeology, through preservation by record and, where appropriate, publication of the results in a recognized journal or monograph series, and by way of on-site interpretation in the finished development. An understanding of the detailed information of the survival of the Greyfriars complex is still limited, and the detailed recording of any surviving remains would allow the results to be synthesized.
- To clarify the date, nature, density, extent and state of preservation of any archaeological remains beneath the medieval levels.
- To assess the significance of the site at local, regional and national levels.
- To provide a strategy to inform the local community of progress on the archaeological works. Where viewing access cannot reasonably be provided, this may be achieved through the project information centre, including CCTV.
- The aims will be realised through the following specific objectives arising from the evaluation, produced with reference to objectives outlined by the Oxford City Archaeologist:

Flood Plain:

2.1.2 Progress the understanding of the speculative 'Devensian (early post-glacial) channel' in the light of a reported Bronze Age river crossing in a comparable-depth channel at Thames Street Oxford, and prehistoric cross-river communications generally.

2.1.3 Establish the course and alluvial history of this early channel.

2.1.4 Identify any evidence for prehistoric crossings.

2.1.5 Investigate the ways in which this wetland environment was exploited by humans.

2.1.6 Recover and record any structural evidence for this exploitation (timber wharf, bridge, fishing trap, river craft).

Trill Mill Stream:

2.1.7 Investigate whether the Trill Mill Stream originated as a natural branch of the river, an artificial cut, or an embanked mill channel, and how it relates to the flood plain alluvium.

2.1.8 Identify and date the earliest deposits of the mill stream.

2.1.9 Establish the extent to which structural or industrial remains survive in association with the stream.

2.1.10 Establish the extent of the waterlogged timbers previously identified in Evaluation Trench 11, and any associated remains and provide an interpretation of their date and function.

2.1.11 Seek to identify any leats of the mill stream predating the Greyfriars stone-lined leat identified in Hassall *et al* Trench XXII, and any related late Saxon/Norman use of the flood plain.

Pre-Medieval activity:

2.1.12 Establish the extent to which archaeological evidence for pre-medieval (particularly prehistoric/Roman period) activity is present within the northern part of the site

2.1.13 Investigate the nature, duration and character of such activity.

Late Saxon-Medieval activity prior to the foundation of Greyfriars:

2.1.14 Recover any archaeological evidence for the City Wall that might be exposed by the current development works.

2.1.15 Provide a date and historical context for the 1 m+ depth of late Saxon/early medieval reclamation deposits preceding the Greyfriars' occupation.

2.1.16 Recover any archaeological evidence for remains previously identified during the 1970s Westgate development (including the site of St Budoc's church and the street surfaces of medieval Castle Street at Bonn Square) that might be exposed by the current development works.

Greyfriars Complex:

2.1.17 Recover the surviving plan of the Greyfriars complex.

2.1.18 Determine the phasing of the plan.

2.1.19 Establish the nature, duration and development of any structures.

2.1.20 Characterise Greyfriars deposits in the light of suggestions of a library in this area, in the context of internationally-important medieval Franciscan scientists associated with this house.

2.1.21 Advise on and supervise any alterations to and conservation of the Greyfriars' pier base as preserved in the Sainsbury store that are required by the current development works.

General:

2.1.22 Interpret the nature of human activity at the site and place the site within its local, regional and national context as appropriate.

2.2 Aims and Methodology by Trench

(Fig. 2)

Trenches 17, 18, 19 and 20 (A, B, C and D)

Aims

2.2.1 Excavation of these trenches was intended to evaluate the extent to which remains of the Greyfriars complex survive and will be impacted by development works north of the existing MSCP.

2.2.2 The works addressed clause 29b of the planning condition.

Method

2.2.3 Trenches were initially excavated by mechanical excavator, fitted with flat-bladed bucket working under archaeological control. Use of a toothed bucket on compacted modern made-ground deposits was occasionally necessary, but was monitored carefully to prevent damage to surviving significant archaeological horizons underlying.

2.2.4 Mechanical excavation removed upper (modern) deposits to expose the uppermost pre-19th century deposits. All archaeological features and deposits revealed were planned and, where excavated, their sections drawn at a scale of 1:20.

2.2.5 Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

Trenches 21, 22, and 23 (E, F1 and F2)

Aims

2.2.6 Excavation of these trenches was undertaken to establish the profile of the pre-medieval deposits which overlie the gravels and inform on the presence / absence of pre-medieval activity. The trenches were also designed to inform thinking on the western limits of the Greyfriars complex

2.2.7 Trench 23 was also intended to identify the course of the Trill Mill Stream and examine the nature of deposits within the stream channel(s) and palaeochannel as projected in approved evaluation report (OA November 2006, Fig. 19).

Method

2.2.8 Trenches were initially excavated by mechanical excavator working under archaeological control, after diamond cutting and removal of the concrete car park surface. Mechanical excavation removed upper (modern) deposits to expose the uppermost pre-19th century deposits. Following recording of archaeological remains exposed at this level, further investigation within each trench comprised a series of sondages/bays 5-6 m in length. A total of 4 bays were investigated within Trench 21, 3 within Trench 22, and 2 within Trench 23.

2.2.9 Within each bay archaeological excavation was principally by hand, although mechanical excavation was used to remove bulk deposits of low archaeological potential (for example post-medieval soils; alluvial deposits that following initial hand-sampling produced no archaeological structures or artefacts). In keeping with the evaluative nature of these trenches, no attempt was made to fully investigate and record the archaeological sequence where extensive areas of complex archaeological remains were encountered. Where such deposits were identified, the extent of investigation required was determined after consultation with the City Archaeologist.

2.2.10 In order to allow safe access to each trench for archaeological investigation, where necessary the trench sides within each sondage/bay were retained by a sheet support system using a ‘hit-and-miss’ / ‘open’ shoring approach.

2.2.11 All archaeological features and deposits revealed were planned and, where excavated, their sections drawn at a scale of 1:20. Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

2.2.12 A strategy for palaeo-environmental sampling was developed in consultation with appropriate specialists. The environmental sampling strategy is summarised at the end of this section.

Trenches 24, 25 and 26 (G, H and I)

Aims

2.2.13 Excavation of these trenches was intended to provide additional evaluation of the extent of survival of structures associated with the Greyfriars complex, and to inform the preparation of a subsequent specification for mitigation excavation.

Method

2.2.14 Following diamond cutting and removal of the existing car park surface, trenches were initially excavated by mechanical excavator, fitted with flat-bladed bucket working under archaeological control. Use of a toothed bucket on compacted modern made-ground deposits was occasionally necessary, but use of this technique was monitored carefully to prevent damage to surviving significant archaeological horizons underlying.

2.2.15 Mechanical excavation removed upper (modern) deposits to expose the uppermost pre-19th century deposits. All archaeological features and deposits revealed were planned and, where excavated, their sections drawn at a scale of 1:20.

2.2.16 In order to allow safe access to each trench for archaeological investigation, where necessary the trench sides within each sondage/bay were retained by a sheet support system using a 'hit-and-miss' / 'open' shoring approach.

2.2.17 Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

Trench 27 (J)

Aims

2.2.18 Excavation of this trench was intended to provide additional evaluation of the northern bank of the Trill Mill Stream and to inform on possible bank side industry and the formulation of an appropriate mitigation strategy for this area.

Method

2.2.19 Following diamond cutting and removal of the existing car park surface, the trench was initially excavated by mechanical excavator, fitted with flat-bladed bucket working under archaeological supervision. Initial use of a toothed bucket on compacted modern made-ground deposits was occasionally necessary, but use of this technique was monitored carefully to prevent damage to surviving significant archaeological horizons underlying.

2.2.20 Mechanical excavation removed upper (modern) deposits to expose uppermost pre-19th century deposits. The deposits encountered were sampled by the excavation of 2 bays along the length of the trench. All archaeological features and deposits revealed were planned and, where excavated, their sections drawn at a scale of 1:20.

2.2.21 In order to allow safe access to each trench for archaeological investigation, where necessary the trench sides within each sondage/bay were retained by a sheet support system using a 'hit-and-miss' / 'open' shoring approach.

2.2.22 Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

Trenches 28, 29, 30 and 31 (K1, K2, L1 and L2)

Aims

2.2.23 Excavation of the east-west aligned trenches 29 and 31 was designed to locate any Yarnton-type causeways (causeways built of packed gravel/stone/timber/any combination of these materials) or other linear features extending from the higher ground to the north. This was in order to inform subsequent construction works in these areas

2.2.24 Excavation and investigation of the north-south aligned trenches (28 & 30) was intended principally to enhance the understanding of the hydrological and sedimentary processes on the flood plain, to the south of the Trill Mill Stream.

Method

2.2.25 Trenches were excavated by mechanical excavator working under archaeological control. Initial mechanical excavation was to the base of modern demolition layers (demolition of 19th century housing) along the length of each trench to expose the upper surface of underlying alluvial silts.

2.2.26 For Trench 30, the trench was subdivided into bays of 6-7 m length and alternate bays were excavated further to provide a 50% sample coverage by area within each trench at the base of deposits overlying the 1st terrace gravels. A total of 4 bays were excavated within Trench 30.

2.2.27 In order to allow safe access to each part of the trench required for archaeological investigation and recording, the top of the trench sides were supported by closed sheets, alternately 1.20 m and 3.00 m in length. The 3.00 m sheets were driven so that the lower part of the trench was supported by alternate sheets, allowing access to the sections. This system was subsequently modified.

2.2.28 Following consultation with Myk Flitcroft (CgMs), Peter Watts (SRM), Mark Stokes (PCL) and Brian Durham (OCC), the alluvial silts were machine excavated in spits no greater than 1 m in depth. The section was then recorded and environmental samples taken as per the strategy outlined below. A trench box(es) was then installed prior to the machine excavation of the next spit, and the process repeated.

2.2.29 The same process was utilised within the alternate bays ('misses') with the exception that environmental samples were only taken where a variation in the sequence overlying the gravel was apparent.

2.2.30 All sections were drawn at a scale of 1:20. Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

2.2.31 The strategy for palaeo-environmental sampling was developed following consultation with appropriate specialists (see below).

Trenches 32 and 33 (M & N)

Aims

2.2.32 The purpose of these evaluation trenches was to assess more precisely the archaeological sensitivity of the area to the south of Abbey Place and establish what further archaeological works are necessary in this part of the site.

2.2.33 These works are to address clause 29b of the planning condition.

2.2.34 The primary aim of these two trenches was to ascertain the course of the Trill Mill Stream, and to establish the presence/absence of bank side industrial activity.

Method

2.2.35 Both trenches were excavated to sufficient depth to evaluate the full sequence of deposits within the Trill Mill Stream.

2.2.36 In order to allow safe access to each trench for archaeological investigation, the trench box system utilised for trenches 28, 29 and 31 was employed.

Trench 34 (O)

Aims

2.2.37 This trench was excavated to further investigate the extent and purpose of timbers that were exposed in Trench 8 of the 2006 evaluation.

2.2.38 These works were intended to mitigate the impact of development in this area, addressing clause 29c of the planning condition.

Method

2.2.39 The trench was excavated by mechanical excavator working under archaeological control. Initial mechanical excavation was to the base of modern demolition layers (demolition of 19th century housing) and was intended to expose the upper surface of underlying alluvial silts and the interface between these deposits and the northern edge of the channel identified in evaluation Trench 8.

2.2.40 However, the trench was exclusively within the fills of this channel, and following the excavation of a sondage through the fills exposed within the original trench dimensions, a northern extension was excavated in an attempt to reveal the northern extent of the channel. All archaeological features and deposits revealed were planned and, where excavated, their sections drawn at a scale of 1:20. Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

2.2.41 In order to allow safe access to the trench for archaeological investigation, the trench sides were retained by a trench support system utilising trench boxes and hydraulic props.

Trench 35 (T)

Aims

2.2.42 Excavation of this trench was to further investigate the extent and purpose of timbers that were exposed in Trench 11 of the original evaluation, and to inform a mitigation strategy.

Method

2.2.43 The trench was excavated by mechanical excavator working under archaeological control. Initial mechanical excavation was to the base of modern demolition layers (demolition of 19th century housing) to expose the upper surface of underlying deposits.

2.2.44 Further mechanical excavation was undertaken, using a machine fitted with a flat-bladed bucket working under the control of an archaeologist, to remove overlying post-

medieval alluvial deposits and expose the uppermost archaeologically-significant deposit (equivalent to context 1102 in the 2006 Evaluation Trench 11). The remainder of the deposits investigated in the trench were excavated by hand.

2.2.45 In order to allow safe access to the trench for archaeological investigation, the trench sides were retained by a trench support system ustilising trench boxes and hydraulic props

2.2.46 All archaeological features and deposits revealed were be planned and, where excavated, their sections drawn at a scale of 1:20. Recording followed procedures laid down in the Oxford Archaeology Fieldwork Manual.

2.2.47 Provision was made for recovery of samples for dendrochronological dating, and for radiocarbon dating where the stratigraphic sequence provided inadequate chronological definition.

Monitoring of contamination test-pitting

2.2.48 Excavation of 8 test pits within the surface car park area by PCL for Ground Investigation/Soil contamination assessment, was monitored archaeologically under Watching Brief conditions. The stratigraphic sequence overlying the gravel was recorded in each location and is tabulated in Section 3.5.

Monitoring of service location test pitting

2.2.49 Excavation of test pits and trial trenches by PCL to confirm the location and depth of buried services within the highways was monitored archaeologically under Watching Brief conditions. These had little or no impact below the modern made ground deposits.

Environmental Sampling strategy

2.2.50 During the Phase 1 evaluation, samples of a minimum 1 kg size were taken at 10 cm intervals through the major alluvial horizons exposed and accessible in Trenches 3, 4, 6, 7 , 8 and 9. Additional samples were taken from significant contexts associated with the Friary in Trenches 12 and 14. Monoliths were also taken through the alluvial sequences in Trenches 4, 7 and 9. Not all samples were processed for the evaluation, but assessment of the snails from Trenches 6, 7 and 9 and the waterlogged plant remains and pollen from the Trench 9 sequence demonstrated excellent preservation of all these ecofacts, which together have the potential to provide detailed palaeoenvironmental and hydrological information for the immediate and local surroundings.

2.2.51 The main thrust of the sampling policy for the Phase 2 Evaluation was to collect samples:

- to investigate the fills and date of the proto-Trill Mill stream.
- to describe and record the various alluvial deposits. Sampling was focussed on deposits not sampled in the last phase. Sampling was considered essential for areas associated with, or suspected to be associated with, human activity.
- to investigate the palaeohydrology of the channels and floodplain by assessment and (as appropriate) analysis of the microfauna and flora retained within the alluvial horizons.
- to look for evidence of human activities associated with the channels, including flax retting and dumping.

- associated with the Friary and any other structures to investigate diets and economic activities.

2.2.52 The OD levels of the top and bottom of each alluvial deposit and of top the gravel terrace were also recorded at every intervention, and samples collected for dating (C14).

Types of samples

2.2.53 Incremental samples are 2 kg (or 2 L) and were taken at 10cm intervals through waterlogged sequences (e.g. alluvium or waterlogged pit fills) for high resolution recovery of snails and waterlogged plants.

2.2.54 Single bucket samples (10 L) were taken from each waterlogged context for the recovery of insect remains (and to provide extra for waterlogged plants if required).

2.2.55 Where pollen assessment/analysis was recommended (waterlogged deposits) monoliths were taken – a number of these were subsampled at very fine intervals in the laboratory.

2.2.56 The position of all samples was marked on the relevant section and monoliths drawn on the section drawing. Monoliths were also photographed in the section before lifting.

2.2.57 40 L samples for charred remains, bones and artefacts were taken from all contexts associated with human activity.

3 RESULTS

3.1 Presentation of results

3.1.1 Section 3.3 summarises the results from each trench. Detailed context descriptions are presented in the context inventory (Appendix A), and within the descriptive text in Section 3.3 where they are integral to the interpretation of the context in question.

3.1.2 The results of the Phase 1 evaluation were divided into 7 broad phases of activity:

- Phase I: Pre-alluvial deposits
- Phase II: Floodplain alluvial deposits, including possible later channels
- Phase III: Late 11th - 12th C: Medieval occupation and possible land reclamation on the floodplain
- Phase IV: 13th - 16th C: Greyfriars and contemporary features and deposits
- Phase V: Post-Dissolution robbing and associated deposits
- Phase VI: 16th - 19th C: Post-medieval deposits and possible channels
- Phase VII: 19th century onwards

3.1.3 Additional phases have now been incorporated into the stratigraphic matrix (see below). In order to maintain some continuity with the Phase 1 evaluation report, the original phasing has been retained and a number of sub-phases added. It should be noted that Phase III now incorporates features and deposits pre-dating the deposition of the land reclamation material, as the artefactual evidence recovered from the latter during the Phase 2 evaluation would suggest that this deposition occurred in the 13th-14th century, and is therefore likely to form part of the Phase IV activity on the site. The new phasing is as follows:

- Phase I: Pre-alluvial deposits
- Phase II: Fluvial / alluvial deposits
- Phase III: Features and deposits pre-dating the deposition of the 13th-14th century land reclamation
- Phase IVa: 13th-14th century land reclamation
- Phase IVb: 13th-14th century – early Greyfriars
- Phase IVc: 14th century Greyfriars
- Phase IVd: 14th-L15th century Greyfriars
- Phase V: L15th century – post-dissolution robbing and associated deposits
- Phase VIa: L15th-18th century - 'early' post medieval features and deposits
- Phase VIb: 18th century
- Phase VII: 19th century
- Phase VIII: Modern

3.1.4 A stratigraphic matrix was produced on an Excel spreadsheet, which is available on request. Copies of the matrix will also be submitted to the Sites and Monuments Record office and included in the Urban Archaeological Database.

3.1.5 Finds and environmental reports are presented in Appendix B and C respectively. A discussion and interpretation of this evidence can be found in Section 4.

3.1.6 A geoarchaeological assessment report on the hydrological and sedimentary development of the site is presented in Appendix C1. Where appropriate, sections of this report have been incorporated into the following descriptive text.

3.2 Soils and ground conditions

3.2.1 The depth and instability of the made ground (predominantly material generated during the demolition of the terraced housing), together with the considerable depth of the underlying archaeological deposits, made safe excavation in a number of the trenches problematic. Trench support systems were employed as outlined above (Section 2).

3.2.2 Submersible pumps were also required in the majority of the trenches due to the influx of ground water, and the deeper trenches (particularly those on the floodplain) required the use of a 6” pump. Sediment tanks were used to remove excess silt from the water prior to pumping to the foul water system. The trenches located inside the MSCP were undertaken under artificial lighting.

3.3 Distribution of archaeological deposits

3.3.1 A number of the trenches were excavated on the floodplain and the deposits encountered reflected this, with the evidence from these trenches being predominantly palaeo-environmental in nature. Trenches to the north within the MSCP and adjacent to Old Greyfriars Street did, however, identify architectural and other remains associated with the medieval Greyfriars. Trenches across the course of the Trill Mill Stream encountered deeply stratified fills of various versions of the stream.

3.4 Description of archaeological deposits

TRENCH 17 (A) *(not illustrated)*

3.4.1 Trench 17 was originally intended to measure 10 m x 2 m but the presence of numerous live services in the pavement restricted the trench to a 3 m x 1.5 m ‘test pit’.

3.4.2 Oxford Clay (1703) was encountered at 56.15 m OD and was overlain by a fairly homogenous silty deposit (1702) which may represent the 13th-14th century land reclamation encountered elsewhere on the site (see below). Both the clay and the possible land reclamation deposit had been truncated by modern disturbance, possibly a result of the construction of the Westgate Centre, immediately to the north. The presence of Oxford Clay, with little or no overlying gravel, at the edge of the second terrace is consistent with earlier excavations to the east (Brian Durham, pers. comm.) and implies the truncation of the second terrace gravels and underlying clay during a later phase of post glacial deposition of gravels over the floodplain terrace.

TRENCH 18 (B) *(Fig. 5)*

3.4.3 Trench 18 was originally intended to measure 10 m x 2 m but the substantial and unexpected depth of the deposits encountered within a machine excavated sondage to the east of the trench limited the western 'bay' to a roughly 3 m x 1.70 m ‘test pit’.

3.4.4 Oxford Clay (1818) was encountered at 53.70 m OD and appeared to have been cut by an east west aligned feature (1820) with clay rich primary fills (1816, 1808, 1806) through which 4 timber stakes had been driven (1802, 1803, 1804, 1805). The stakes were then overlain by a series of ?water lain clay rich deposits (1807) which appeared

to tip from north to south and possibly represent the upper fills of the same feature. These 'fills' were in turn overlain by a fairly homogenous clay silt (1801), approximately 1.05 m thick, which is likely to represent the 13th-14th century land reclamation recorded during the Phase 1 evaluation, and present in a number of the other trenches to the north of the site. This was overlain by post-med soils, modern made ground etc. (1800) and cut by a 19th century basement at the extreme west end of the trench.

3.4.5 The fact that the 'fills' of the possible east west aligned feature were overlain by the 12th-13th century land reclamation would imply a potentially significant early date for this feature, particularly given the proximity of the southern line of the town defences. It is possible that this represents an east-west channel linking the castle moat, or barbican ditch, to the SW-NE aligned section of the Trill Mill Stream to the east of the MSCP (Brian Durham, pers. comm.). It is likely that this 'feature' will be encountered during the mitigation works for the Trill Mill Culvert diversion. The function of the stakes is unclear but a defensive purpose cannot be ruled out (see Section 4.2).

TRENCH 19 (C) *(Fig. 8)*

3.4.6 Trench 19 was intended to investigate the eastern extent of the cloister conjectured by Hassall following limited archaeological investigations during the construction of the Westgate Centre and MSCP in the 60s/70s (Hassall *et al*, 1984, 1989).

3.4.7 Oxford Clay (1912) was encountered at 55.89 m OD and was overlain by a series of sterile sandy clays (1911, 1910 and 1909). The sterile clay deposits and underlying Oxford Clay were cut by a large subcircular pit (1902), in which was a roughly square configuration of limestone rubble (1901) which has been tentatively interpreted as a pier base for an arch. The pit fills (1903-1905) and sterile clays were overlain by a very compacted gravel deposit (1908) which may represent a construction horizon for the (subsequently removed) upstanding elements of whatever structure was supported by the limestone 'footing'. Alternatively it may represent a bedding deposit for a subsequently removed floor surface contemporary with the Greyfriars. The compacted surface and remaining stone were overlain by a gravel rich deposit with some possible medieval floor tile and pottery (1906), together with a small quantity of later material which imply that it is contemporary with the post-dissolution demolition of the Greyfriars. It is likely that this deposit equates to the 'demolition deposit' encountered within Trench 16 of the Phase 1 evaluation.

3.4.8 However, the demolition deposit in Trench 16 was cut by a robber trench interpreted as that which had removed the south wall of the church. As this deposit appeared to seal the robbed footing of the possible pier base, this would imply various phases of post-dissolution demolition of the Greyfriars buildings, not inconsistent with the evidence for 'squatting' within the church recovered from Trench 16.

3.4.9 The western end of the trench was not excavated below the top of the 'demolition deposit', which was cut by a square cut ?late medieval feature (possibly a robbed pier base) and a wall likely to be associated with the demolished western continuation of the 17th century cottages fronting the north of Turn Again Lane.

3.4.10 A backfilled evaluation trench was partially revealed along the northern edge of Trench 19. This is almost certainly the southern extent of Hassall's Trench XXXI, excavated in 1973 and one of the 4 slit trenches from which the layout of the cloister was conjectured (together with Trenches XXXIII, XVI, XIV). The two parallel robber trenches revealed within Trench XXXI (cuts 133 and 134 (Hassall *et al* 1989, 179)) were not apparent within Trench 19 which may suggest that:

- subsequent truncation has completely removed any surviving elements of the cloister.
- the pier base(s) may indicate a break in the walls at this point.
- The 'pier base' in Trench 19 represents a deeper section of the subsequently truncated cloister footing, possibly filling a soft spot created by an earlier ?quarry pit.
- the fact that the demolition deposit appeared to seal the surviving structural elements may imply that structural remains are present to the west of the trench, where the demolition deposit was not excavated during the evaluation.

3.4.11 All the deposits were sealed by 20th century made ground and topsoil.

TRENCH 20 (D) *(Figs 3 and 8)*

3.4.12 Trench 20 was aligned east-west and was excavated to the north of the MSCP's 'shopmobility' access ramp and measured 8.5 m in length by 1.75 m wide.

3.4.13 Natural gravel (2020) was encountered at 55.40 m OD and was cut by 3 features (2016, 2017 and 2010) which have been interpreted as possible gravel extraction pits. 'Pit' 2010 was truncated by a possible north-south aligned feature (2011), although the linear nature of this feature was uncertain and it is possible that this represents further evidence for quarrying. However, the composition of the fills (2009, 2014, 2006-2008) was noticeably different from those of the ?earlier features.

3.4.14 The fills of these earlier features (2018, 2052 and 2013) comprised a fairly homogenous mid-brown silty clay with *c* 20% gravel, and were similar in composition and colour to a series of deposits which may represent a phase of levelling or land reclamation (2003, 2023, 2034-6 and 2047-50). This phase had been identified in the previous evaluation (OA, 2006) and also within Trenches 21, 22, 24 (E, F1 and G respectively - see below) and appears to pre-date the construction of the Franciscan Friary. It is possible that this deposit(s) represents a deliberate raising of the ground level where the second terrace gives way to the flood plain, in order to create a building platform for the construction of the friary. This is discussed in more detail below.

3.4.15 The 'levelling' deposits are cut by a probable north-south aligned ditch (2054) which may equate to that seen in Trench 21 (E) to the south (see below). It is possible that this represents an early western boundary to the Greyfriars' complex. Also truncating these deposits was the construction trench (2037) for a limestone wall footing (2002) on the same alignment as the possible ditch and potentially representing a more substantial form of this boundary, although there was no direct relationship between the two and it is possible that they are contemporary.

3.4.16 The foundation for this footing was slightly unusual in that the bottom *c* 0.40 m of the construction cut was filled with re-deposited gravel (2038/2046). Other examples of this type of 'stone-saving' foundation are known (Brian Durham, pers. comm.).

3.4.17 The wall had subsequently been robbed from the west (2056), and the fills of the robbing cut (2044, 2045 and 2057) and the possible ditch (2053), together with the 'levelling' deposits, were then truncated by a series of post-medieval features (2032, 2029, 2042) including a 19th century wall (2055) on the same alignment as the possible 13th century boundary wall described above. Whilst this implies a significant longevity for this particular boundary, it is feasible that the 19th century street grid may have respected medieval plot boundaries which had been fossilised into the layout of this area of the town prior to the construction of the Victorian terracing.

3.4.18 All deposits were sealed by modern made ground (2025 and 2001) and topsoil (2000).

TRENCH 21 (E) *(Figs 3 and 8)*

3.4.19 Trench 21 was aligned north-south and was excavated within the multi-storey car park, within the northern extent of the ground floor level. The trench measured 28 m in length by 2 m wide.

3.4.20 Natural gravel was encountered at 55.41 m OD at the northern end of the trench and fell gradually to the south before dropping sharply to 53.62 m OD within a sondage at the southern end. At the northern end of the trench, the gravel was overlain by a *c* 0.10 m thick deposit of mid-brownish yellow clay sand which may represent the remnants of a buried soil (2180). Whilst no evidence for the loess which is known to overlay the terrace gravels in Oxford was encountered within the trench, it is possible that deposit 2180 may represent a variation in the loess at the periphery of the second terrace.

3.4.21 Where the gravel drops sharply to the south of the trench, it is overlain by a bright-orange clayey sand deposit (2133) which was in turn overlain by a series of clays and clay silts (2172-3 and 2192-4) which are likely to represent a sequence of alluvial/ fluvial deposits, possibly filling a trough at the base of the second terrace and potentially representing the Devensian channel (ref. Appendix C1).

3.4.22 At the northern end of the trench, a number of post-holes and possible post-holes were revealed (Group 2150 - see matrix, Phase III). No dating evidence was recovered and no definitive relationship with the overlying deposits (see below) was established. The post-holes did not appear to be in any obvious configuration and consequently their date and function is unclear at this stage.

3.4.23 The “peripheral loess” and alluvial sequence were overlain by a series of fairly homogenous soils (2111, 2164, 2181, 2184 and 2187-2189) which probably equate to the ‘levelling’ deposits encountered within Trench 20 (see above) and Trench 24 (see below). These soils were cut by the eastern edge of a north-south aligned ditch (Group 2100.1). This may represent the southern continuation of the possible early western boundary to the Greyfriars observed within Trench 20. Indeed, the paucity of artefactual material from the lower fills of this ditch suggests that it is on the periphery of any settlement activity.

3.4.24 Two less substantial linear features on a perpendicular alignment to the main north-south ditch were also recorded (2115 and 2182). The function of these is unclear although the alignment would suggest that they are associated with the more substantial ditch. The fact that the two east-west aligned ditches appear to enclose both the postholes and an 11th-century pit may be significant, although no further conclusions can be drawn at this stage.

3.4.25 There was some evidence for the re-cutting of the north-south aligned ditch (2178 and 2168) although the gravel rich fills may suggest that this re-cut is associated with the ‘stone-saving’ foundation to the wall recorded in Trench 20. This is no more than conjectural given the lack of structural evidence for the wall within Trench 21.

3.4.26 The fills of the north-south aligned ditch, and the ‘levelling’ deposit(s) (together with the fills of an unexcavated square cut feature) were cut by the construction trench for an ESE-WNW aligned stone culvert (2191), previously identified by Hassall as an element of the 14th-century reredorter of the Greyfriars’ complex (Hassall *et al* 1989). The fills of the surviving elements of stonework appeared to be consistent with post-dissolution robbing of the structure, although there had been some further truncation, particularly of the southern wall, during the 19th and 20th century development in the area.

3.4.27 Also cutting the fills of the north-south aligned ditch was a ?13th-14th century pit (2110), the fills of which were similar in composition to the midden deposits encountered within Trench 14 of the Phase 1 evaluation. It is possible that the midden deposits encountered in Trench 14 were fills of a pit (particularly given the comparative depth of the gravel between the base of these deposits in Trench 14 and the gravel immediately adjacent to this, to the north of Trench 21) and that this feature was fulfilling a similar function following backfilling of the ditch and its subsequent replacement by the wall seen in Trench 20. Alternatively 'cut' 2110 may represent an interface between fills of the ditch, the shell rich deposits being a localised dump of midden material within the partially silted up/backfilled ditch.

3.4.28 All these deposits were sealed by a post-medieval soil (2185 and 2190) which was in turn cut by 19th and 20th century truncation associated with the construction and subsequent demolition of the Victorian terracing and the construction of the car park.

TRENCH 22 (F1) *(Figs 3 and 8)*

3.4.29 Trench 22 was aligned north-south, measured 20 m x 2 m and was excavated to the south-east of Trench 21.

3.4.30 The 'bay' to the north of the trench revealed an alluvial sequence overlying the gravel (encountered at 54.00 m OD) which comprised bright orange clayey sand (2234 - presumably the same as that encountered within the sondage at the southern end of Trench 21 (2133)) overlain by a series of clay alluvial deposits (2208, 2207, 2206), which were in turn overlain by a band of organic material (2206) which may represent the northern extent of the organic deposits encountered in the south end of the Trench (see below).

3.4.31 The bay in the southern end of the trench revealed a series of organic deposits (2214-2219 and 2221) overlying the natural gravel (2220 - encountered at 52.56 m OD), the increased depth of which, and lack of alluvial clays, implied that the organic material was filling a channel which cut through the alluvial sequence and may mark the northern edge of the proto Trill Mill Stream. A sample from deposit 2215 was radiocarbon dated to AD 890-1050. The organic material in both the north and south bays was overlain by a mottled clay alluvial deposit (2213/2205) which may represent a later phase of alluviation which post-dates the deposition of the early channel fill (Alluvium C).

3.4.32 The alluvial sequence to the north and ?channel fills to the south were overlain by a fairly homogenous clay silt deposit (2204, 2212, 2227, 2231 and 2232) which almost certainly represents 13th - 14th century land reclamation (with some residual Roman material), and was cut by the north-east corner of a rectilinear robber trench (2230), presumably associated with the robbing of Greyfriars structures.

3.4.33 The fills of the robber trench (2229 and 2228) and the land reclamation were overlain by a post-medieval soil (2211 and 2226) which was cut by a N-S aligned stone drain (2222) and a 19th century basement (2233), the latter truncating both the drain and the robber trench.

3.4.34 Modern demolition debris and car park deposits were present throughout the trench.

TRENCH 23 (F2) *(Figs 3, 5a and 8)*

3.4.35 Trench 23 was excavated over the course of the Trill Mill Stream, adjacent to the car park offices. The trench measured 18.50 m x 2.00 m and was aligned north-south. Live services in the southernmost 3.50 m prevented excavation in this area.

3.4.36 The 19th and 20th century deposits were removed to a depth of *c* 55.35 m OD (1.5 m thick) and revealed the 19th century culvert (2319 and 2321 - backfilled in the 1970s) and the stone walls of the earlier canalised version of the stream (2317 and 2323). The construction cuts for the latter (2310 and 2316) truncated earlier channel fills and the 'bays' within the trench were targeted on these earlier deposits. The following summary is an interpretative model only. The complexity of the deposits, structures and features encountered made definitive interpretation problematic within the confines of the trench.

3.4.37 The deposits encountered within the two 'bays' within Trench 23 represent fills of various configurations of the Trill Mill Stream. A model of the development of the Stream from a Devensian channel to a managed water course is presented in the summary of the analysis of the environmental data recovered from this phase of evaluation (see Appendix C1).

3.4.38 Natural gravel (2369) was encountered within 3 hand augured boreholes and appeared to fall gradually from south to north (52.46 to 52.36 m OD).

The southern bay

3.4.39 At the extreme southern end of the trench, the gravel appeared to be overlain by a series of fluvial deposits (3606, 3607, 3608) which may represent the fills of a Devensian version of the Trill Mill Stream. These deposits may represent the equivalent of the clay sand deposit encountered at the base of the alluvial sequence in the northern end of Trench 22 (2234), and the south of Trench 21 (2133).

3.4.40 These appeared to be overlain by a series of organic deposits (e.g. 2368) which have been interpreted as fills of the 'proto' Trill Mill Stream, and may equate to the Iron Age organic deposition observed on the floodplain, and the fills to the south of Trench 22 (2217). The organic deposits were overlain by a sterile bluey grey clay (e.g. 2366) which may fill a version of the proto-channel, active during the deposition of Alluvium B, which is similar in composition (ref. C.1.52). To the south of the trench, this deposit appeared to be overlain by material with a higher organic content (3610, 3621) and it is possible that this correlates to the Saxon phase of organic deposition to the south of Trench 22 (2215), although it had considerably more clay content.

3.4.41 The channel then appears to have been re-cut (3650) in the 13th century, possibly as a consequence of the Greyfriars' acquisition of the site, and the newly cut channel filled with a silty clay material (e.g.2365), not dissimilar to the land reclamation deposits to the north. A possible NW-SE aligned, wattle lined side channel (3624) also cut through the sequence described above and may be contemporary with this phase of management of the Trill Mill channel.

3.4.42 The fills of this side channel (3628, 3625) and the fills of the 'newly cut' channel (3611, 2365, 2384) were then overlain by re-deposited blue grey clay (2364, 3626, 3635, 2386/2341) which was presumably deposited in an attempt to minimise erosion along the bank(s) of the newly formalised channel. The upper part of this clay deposit was similar in composition, but was orange brown in colour (2390, 3618, 3627, 2387/2337). It is possible that the orange brown clay is part of the same phase of deposition, and that the discolouration is a result of oxidisation of this deposit (above the water line?), although it is feasible that some or all of the orange brown material equates to Alluvium C (ref. C.1.46). These deposits (3626 and 3627) appeared to fill the upper part of channel 3624, suggesting that this was still partially open during the deposition of the clay 'puddling'.

3.4.43 Cutting through these deposits (3635 and 3618) in the north-east corner of the trench was a further timber lined side channel (3613), the primary fill of which comprised limestone rubble (3616) which was overlain by sand rich ?fluvial deposits (3617). As the trench was not excavated to gravel, the limestone rubble fill was present in the base of the trench and suggested a SW-NE alignment to this channel. The lining of the northern edge comprised a series of timber planks (3614) retained by an upright post (3615). A single upright post was observed on the southern edge of the channel, but no evidence for corresponding timber planks was apparent. Dendrochronological analysis of the timber planks suggests that a number of them were from the same parent tree and gave a *terminus post quem* for the felling date of 1246.

3.4.44 This channel was only visible in section as it had subsequently been truncated by a further side channel (3629) on a similar NW-SE alignment to channel 3624. Indeed, the similarity in alignment between 3624 and 3629 may imply that the latter was a re-cut of the former, and that both channels postdated the construction of channel 3613. However, the fact that the upper 'fills' of channel 3624 comprise the re-deposited clay (3626 and 3627), which appears to be cut by channel 3613 (3635 and 3618) would suggest that 3624 is the earliest channel in this sequence. If the correlation between the clay deposits is accurate, it would appear that the southern bank of the Trill Mill Stream was formalised with the re-deposited clay puddling, prior to the construction of a channel on a perpendicular alignment (3613) which was subsequently superseded by the re-instatement of the original alignment by channel 3629 (also numbered as 2370 and 3602). Channel 3629 also had some evidence of timber revetment (Groups 2373/3601), although this was observed where channel 3629 would have cut through the timber lining on the northern edge of channel 3613, and it is possible that Group 3601 actually represents the disturbed timber lining of the latter. The NW-SE aligned linear configuration of the posts in Group 2373 was more convincing as an *in-situ* revetment along the westernmost edge of this channel.

3.4.45 Driven through the clay puddling (2364 and 2390), in the channel proper, were a series of timber posts (Group 2360). The function of these posts is uncertain but they appeared to mirror the alignment of the edge of the channel created by the deposition of the clay puddling and they may have formed part of the revetment of the channel edge. A possible posthole cut through the underlying fill (2365) for post 2353 may support this suggestion, as it implies that the posts were erected prior to the deposition of the clay.

3.4.46 An alternative interpretation is that these timbers formed part of a bridge abutment, although the majority of the posts did not seem sufficiently substantial (the possible exceptions to this being 2342, 2359 and 2350).

3.4.47 It is also possible that these posts formed part of a later attempt to prevent erosion along the edge of the channel by the deposition of a rubble rich deposit (2324/2311), which was subsequently overlain by a series of silty clay fills (2329, 2328, 2327) probably representing fluvial and dumped fills of the channel throughout the Greyfriars' occupation of the site, and subsequently cut by the construction trench (2310) for the southernmost 18th century canal wall (2323). There was no evidence for post-medieval fills or revetment along the southern edge of the channel, although these may have been truncated during the construction of the canal wall (see below).

The northern bay

3.4.48 Augering in the bay in the north of the trench revealed a sequence of predominantly organic fills (3641-3645) which may equate to either the ?Iron Age fills of the proto-

channel or the early medieval fills associated with the managed channel. There was no evidence for clay puddling similar to that revealed in the south of the trench, although it is likely that the north bank of the managed channel lies further to the north (between the southern end of Trench 22 and the northern extent of Trench 23).

3.4.49 The earliest deposits which were hand excavated within the bay (2396, 3640) probably represent fills of the formalised medieval channel, and possibly equate to the 13th-14th century fills (i.e. 2324) to the south. These were overlain by late 15th-16th century deposits (2395, 2394, 2314) which may correspond to deposit 2363 in the southern bay.

3.4.50 The channel (or at least the northern edge of the channel) then appears to have been re-cut (2392) and revetted in the 17th century. The revetment appeared to comprise timber post(s) (i.e. 2335) retaining a possible plank revetment (2393), although only the top of the horizontal timber to the north of the post was revealed and this configuration is uncertain. The top of this revetment comprised a 'wall' of horn cores, the tips of which appeared to have been driven into the 'cut' through the earlier deposit (2314). There is no clear practical function for this revetment and it is possible that it was intended to be decorative rather than functional.

3.4.51 The fills of this newly cut channel (3649, 2333, 2334) were then cut by the construction trench (2316) for the northernmost ?18th century canal wall (2317).

3.4.52 Following an outbreak of cholera in the mid 19th century, the 18th century canal was culverted. The culvert is still live to the east and west of the MSCP, but was diverted to the south during construction of same. The concrete culvert diversion was seen in the northern extent of Trench 35 (see Fig. 6b). The walls of the section of 19th century culvert diverted in the 1970s were present within Trench 21 (2319 and 2321). The configuration of canal walls and culvert is very similar to that shown on a photograph from the ?1920s (Plate3), and it is possible that this photograph is of a section of open culvert which now lays beneath the MSCP. However, despite the position of Tom Tower (Christchurch) suggesting that this may be the case, the orientation of the photograph is unclear, and it may actually be the north-south section of the stream known to run to the east of St Aldates.

TRENCH 24 (G) *(Fig. 8)*

3.4.53 Trench 24 was aligned WNW-ESE and was excavated over the exit ramp from the north-east corner of the MSCP. The trench measured 8 m by 2 m.

3.4.54 Natural gravel (2442/2417) was encountered at 55.10 m OD. The gravel was directly overlain by a fairly homogenous soil with no obvious lamination (2441, 2434/2422 and 2439/2411 - ‘cut’ 2413 probably represents the interface between 2434/2422 and 2439/2411) which probably equates to the ‘levelling’ deposits described above. A limestone wall footing (2421) had been constructed through this deposit and is likely to be part of the Greyfriars complex. There was no obvious construction cut for this structure, but the slightly uneven character of the face and the fact that a number of the facing stones were loose suggested that it had not been free-standing and is likely to have been trench built (arbitrary cut number 2420). It is likely that this is the same as wall 41 in Hassall Trench XX (Hassall *et al* 1989, 179).

3.4.55 There was also a suggestion of a rudimentary surface(s) (2433 and 2443) in the north facing section, which may represent a construction horizon for the (robbed) upstanding element of the wall, although the surfaces had been heavily truncated by services (see below) and any interpretation of these deposits is necessarily tentative.

3.4.56 The gravel rich deposit (2409) immediately overlying the surviving elements of the structure appeared to fill a reasonably well defined cut (2444) which probably represents the post-dissolution robbing of the wall.

3.4.57 Where truncation had not occurred, these deposits were sealed by a dark-grey clay silt which probably represents the remnants of the 19th-century garden soil encountered within Trench 12 of the Phase 1 evaluation.

3.4.58 However, numerous services truncated the deposits and features within the trench, including gas mains, drainage pipes and a manhole. Some of these appeared to be associated with a cobbled street surface which had been overlain by tarmac and may represent the remains of Pensons Gardens, shown on the 1st edition OS mapping of the area. The manhole was fed by an east-west aligned ceramic pipe, and also a second ceramic pipe from the north. The manhole truncated the archaeological deposits and the underlying gravel to a depth of 54.82 m OD and was packed with a very clean blue grey clay which may represent re-deposited Oxford Clay. Deposits encountered within Trenches 17, 18 and 19 (A, B and C respectively) to the north indicate that Oxford Clay is present at a relatively shallow depth where the second terrace gives way to the floodplain, and it seems likely that this is the origin of the deposit around the manhole.

TRENCH 25 (H) *(Fig. 8)*

3.4.59 Trench 25 measured 6 m x 2 m and was aligned east-west.

3.4.60 The top of the alluvial sequence (2507) was encountered at a depth of 55.59m OD and further investigation by auger established the depth of natural gravel to be at 53.44m OD.

3.4.61 The 13th/14th century land reclamation horizon (2506) was observed immediately overlying these deposits within an additional hand dug slot.

3.4.62 The latest significant feature in the trench was robber cut 2503, which truncated the remains of a north-south aligned wall foundation (2519), which may represent the western wall of the rectangular structure shown on the historic mapping (OA, 2007, Fig. 14). Additionally, a series of potential surfaces (2508-17), were revealed, although truncation by the robbing had removed any direct relationship between the remaining i*n-situ* elements of the wall and these possible surfaces. Consequently, it is not possible to establish whether these surfaces were contemporary with the structure, or the demolition of same. However, the fact that these were present on both the exterior and interior of the wall may suggest the latter.

TRENCH 26 (I) *(Figs 5b and 8)*

3.4.63 Trench 26 measured 10 m x 2 m and was aligned SE-NW.

3.4.64 Natural gravel was encountered in a hand augered borehole at 52.6m OD, underlying a substantial layer of blue clay (2636). Whilst this deposit was only encountered within the borehole, it is possible that it represents clay puddling along the northern bank of the Trill Mill Stream, similar to that observed along the southern bank within Trench 23. Alternatively, it may represent the clay deposit(s) observed within the northern end of Trench 22, which are interpreted as Alluvium B.

3.4.65 This clay was overlain by a series of deposits which possibly represent the fills of the Trill Mill Stream. However, the upper deposits (2618, 2617) showed a very well defined slope downwards from west to east, which would suggest a north-south alignment to

whatever these deposits are filling. A possible timber revetment (Group 2635) also appeared to be on a north-south alignment. In the underlying deposits (2636, 2612, 2611, 2616) this slope is much less evident, possibly suggesting a distinction between deposits within the north-south channel and deposits within the Trill Mill Stream. It is possible that all these deposits are associated with the Trill Mill Stream channel and that the upper layers are a localised dump of material.

3.4.66 The relationship between these fills and deposits 2601-2603 to the north is unclear. These deposits (2601-2603) were similar in composition to the 13th-14th century land reclamation deposits encountered elsewhere on the site. If this is the case, then the 15th-16th century dating evidence from deposit 2612 would suggest that at least the upper channel fills are contemporary with the Greyfriars occupation of the site.

3.4.67 At the northern end of the trench was a north-south aligned wall footing, with an east west return halfway down the section exposed within the trench (2600). Wall 2600 appears to have been constructed on top of an earlier wall (2634) although the relationship between both structures and deposits 2601-2603 is unclear. These structures are likely to relate to the long rectangular building shown on the historic mapping and projected onto the ground plan produced by Hassall (Fig. 8). If the correlation between deposits 2601-2603 and the land reclamation is correct, then these deposits should pre-date the construction of the walls. No construction cuts were discernible, although the irregularity of the faces may suggest that they were trench built footings rather than upstanding elements of the structure(s). The origin of the deposits on the 'interior' of the structure is also unclear (2606-2608), although these may be associated with the demolition of the 2600.

3.4.68 Abutting these walls, and overlying the channel fills, was a deposit (2609) which probably represents a post-medieval soil, which was in turn overlain by deposits associated with the construction of the car park.

3.4.69 Whilst it is acknowledged that the accuracy of the mapping from which these buildings have been conjectured may not be absolute, the east-west 'return' of wall 2600 would appear to be too far to the north to represent the south-west corner of the building, and may therefore be an internal division, or a later addition to the shorter version of the building represented by wall 2634.The fact that wall 2600 appears to continue to the south of the east-west 'return' would also imply that the building continues to the south.

TRENCH 27 (J) *(Fig. 6a)*

3.4.70 Trench 27 measured 12.20 m x 2 m, was aligned north-south and was excavated by the eastern wall of the MSCP, adjacent to JSAC Trench 3.

3.4.71 Modern overburden was removed to a depth of *c* 1.15 m below ground level. The deposits below the modern overburden had been truncated by a roughly NE-SW aligned limestone wall footing with at least two 19th century basements to the west of the structure (i.e. Structure 2730). These structures are likely to represent the rear of the properties fronting on to Orchard Street shown on the 1st Edition OS mapping. Ultimately, 2 ‘bays’ were excavated within the trench. The first of these was within the northern extent of the 19th century basement at the northern end of the trench. Hand excavation was halted at *c* 3.2 m below ground level and the remaining deposits were sampled by means of a hand augered borehole. Possible natural gravel was encountered at 52.81 m OD and was overlain by a series of organic and clay rich deposits which are likely to represent a similar alluvial sequence to that encountered within Trench 12 of the Phase 1 evaluation, although the top of this sequence was approximately 1 m below the top of the sequence in Trench 12, suggesting that the

northern edge of the early channel lies between the northern end of Trench 27 and the southern end of Trench 12. Given the projected course of the channel edge from the deposits encountered in Trench 22, this would imply that the channel is on a NE-SW alignment at this point.

3.4.72 The ?alluvial clays (2724-2728) were overlain by an accumulation of possibly water-lain silts (2722 and 2723) which may represent early fills along the northern edge of the Trill Mill Stream and were in turn overlain by a *c* 0.10 m thick layer of compacted limestone gravel which may equate to a 'surface' encountered within the 'bay' to the south (see below). The deposit overlying this surface (2719) was similar in composition (although more mixed) to the ?12th-13th century 'land reclamation' encountered elsewhere.

3.4.73 A machine excavated sondage through this deposit (2719=2715), to the south of the 19th century basement 2730, revealed a similar compacted limestone gravel layer sloping from north to south and therefore considerably deeper than the 'surface' encountered within the northern 'bay'. This surface appeared to peter out towards the southern end of the 'bay'. Machine excavation was halted at the top of this surface and a hand excavated slit trench was excavated to 4.20 m below ground level. The remaining deposits were sampled by means of a hand augered borehole.

3.4.74 Probable natural gravel was encountered at 52.67 m OD, suggesting a gradual slope from north to south. The alluvial sequence encountered within the borehole to the north was not seen within this 'bay' (with the possible exception of the organic deposit at the base of the sequence (i.e. 2702=2728??)). The gravel was overlain by a series of possibly water-lain silty deposits (2704-2708) which may represent early fills of the Trill Mill Stream (i.e. equivalent to 2722 and 2723). A horizontal timber and associated post appeared to mark the southern limit of these deposits within the excavated slot, and may represent a rudimentary revetment along the northern bank of the Stream. The timbers were butted by and overlain by further silty deposits which may have been a further accumulation of water-lain silts which were subsequently overlain by the 'surface', which was in turn overlain by the ?12th-13th century land reclamation (2715 / 2719).

3.4.75 In both 'bays' the 'land reclamation' was overlain by post-medieval soils (2716 and 2717), and subsequently the modern overburden.

3.4.76 To summarise the sequence: Natural gravel sloping from north to south was overlain by an alluvial sequence in the north of trench in turn cut by a south-west - north-east aligned channel. The early channel fills (2704-8 and 2722-3) appear to pre-date the construction of a possible timber revetment which was subsequently overlain by 12th-13th century fills/deliberate infilling along the northern edge of the channel. These later 'fills' were overlain by a surface sloping from north to south - the function of which is uncertain. The surface was overlain by further deposition of material in the 12-13th centuries, itself overlain by post-medieval soils.

TRENCH 28 (K1) *(Figs 3 and 4)*

3.4.77 Trench 28 measured 27 m x 1.5 m, was aligned north-south and was excavated in the Abbey Place Car Park, to the east of Oxpens College.

3.4.78 Natural gravel was encountered at between 53.42 and 53.30 m OD. There were variations in the colour and composition in the upper gravel surface, which comprised a predominantly mid grey gravel rich deposit with occasional silty inclusions (e.g. 2821). Although the origin of these variations is unclear, it is possible that they represent bioturbation associated with the formation of a reed swamp in the mid Iron Age (see

below). Alternatively they may represent geological variations resulting from periglacial activity or involution.

3.4.79 The gravel rich deposit was overlain by organic “reed swamp peat” (Alluvium A – e.g. 2820) which has been radiocarbon dated to 780-540BC. This was in turn overlain by a fairly consistent series of alluvial clays comprising Alluvium B (e.g. 2819) and Alluvium C (e.g. 2817). This sequence is discussed further in the analysis of the environmental data (see Appendix C1).

3.4.80 The alluvial sequence was overlain by 19th century ?garden soils and 20th century demolition and made ground.

TRENCH 29 (K2) *(Fig. 4)*

3.4.81 Trench 29 measured 40 m x 1.5 m, was aligned east-west and was excavated within the Abbey Place Car Park. A *c* 5.00 m gap was left towards the eastern end of the trench to avoid live services. A similar sequence to that observed within Trench 28 was revealed. The presence of roots within the gravel rich variations in the upper surface of the gravel (e.g. 2928) may support the suggestion that these variations are associated with bioturbation caused by formation of the reed swamp. The organic layer (e.g. 2927) was overlain by Alluvium B (e.g. 2926) and subsequently Alluvium C (e.g. 2924).

3.4.82 Two channels (2910 and 2921) cut through the alluvial sequence in the west of the trench, both appeared to be on a NNE-SSW alignment. Channel 2921 was fairly substantial and the latest fills appeared to be early 19th century in date. However, the primary fills were rich in organic material (e.g. 2920) and produced 13th-14th century pottery. This suggests that the channel was potentially medieval in origin, and that the 19th century material had accumulated in a 'soft spot' in the top of the channel fills.

3.4.83 Channel 2910 was less substantial and produced late 15th-16th century pottery from the single fill (2911).

3.4.84 It is possible that these channels form part of a medieval system of managed water courses and this is discussed in greater detail below.

TRENCH 30 (L1) *(Fig. 3)*

3.4.85 Trench 30 was excavated in the eastern surface car park, was aligned north-south and measured 45 m x 1.75 m.

3.4.86 The sequence of deposits encountered within Trench 30 did not appear to be consistent with the general model for alluvial deposition on the floodplain which was inferred from the results of the Phase 1 evaluation.

3.4.87 The gravel was encountered at 53.69 m OD to the north of the trench, rising to 54.29 m OD to the south. Overlying the elevated gravel to the south of the trench was a dark greenish grey silty sand with *c* 20% inclusions of gravel fragments (3054). This deposit also contained bright reddish brown inclusions previously seen within deposit 920 in Trench 9 of the Phase 1 evaluation, and interpreted as burnt daub. Further analysis of these inclusions has suggested that they are in fact coprolites (animal dung). Deposit 3054 was overlain by a *c* 0.10 m thick layer of compacted re-deposited gravel (3053). The animal dung and high percentage of gravel inclusions within deposit 3054 suggest a trampled/disturbed buried soil, and the compacted, re-deposited gravel may have represented an attempt to consolidate this area. The implications of this are discussed in greater detail below (see Appendix C1).

3.4.88 The natural gravel in the north of the trench, and the compacted re-deposited material in the south were overlain by a series of gravel and shell rich deposits with a relatively high sand content. These were indicative of fluvial channel fills, and may represent the fills of a north-south aligned channel. The dating evidence from the primary fills (e.g. 3006, 3007) of this possible channel was 13th-14th century, and suggested that it may form part of a managed system of water courses, possibly contemporary with the Greyfriars' acquisition of Boteham Island in 1245 (see below). The upper fills (e.g. 3015) produced a *terminus post quem* of the mid 16th-17th century, which is consistent with this representing the channel shown on a number of cartographic sources, the earliest of which is from the latter part of the 16th century (Agas, 1578).

3.4.89 There was some evidence for later post-medieval soils overlying the channel fills (e.g. 3014, 3013) which may reflect the reversion of this area to pasture, as indicated on the later historic mapping.

3.4.90 Evidence for the 19th century terraced housing was also present, and comprised stone lined cellars/cess pits and a well (3050).

TRENCH 31 (L2) *(Fig. 4)*

3.4.91 Trench 31 was also excavated in the eastern surface car park. The trench was aligned east-west and measured 46.00 m x 1.5 m.

3.4.92 Natural gravel was encountered at 54.00 m OD in the west of the trench, rising to 54.45m OD at the east. The deposits overlying the gravel to the west correlated to those revealed within the Phase 1 evaluation and within the trenches to the west (28 and 29) and comprised disturbed silty gravel (e.g. 3123) filling undulations in the top of the floodplain terrace. It is likely that these are of a similar origin to the variations in the upper surface of the gravel in Trenches 28 and 29, and may represent either bioturbation, or geological variations resulting from periglacial activity or involution. This deposit was overlain by an organic layer (e.g. 3111), the height of which suggests that it probably corresponds to the securely dated Iron Age reed swamp peat within Trench 28. This was then overlain by a fairly consistent blueish grey clay rich deposit (e.g. 3113) which is likely to represent the phase of alluvial deposition designated as Alluvium B. This was in turn overlain by an orangey brown clay (Alluvium C).

3.4.93 Above the higher gravel in the east of the trench, the deposits were more indicative of the sequence encountered in the south end of Trench 30, comprising the dark grey deposit with coprolite inclusions (e.g. 3170), overlain by the compacted gravel deposit (e.g. 3174), which was in turn overlain by a series of sandy and shell rich deposits (e.g. 3139, 3140) which are likely to correspond to the 'channel fills' in Trench 30.

3.4.94 These fills were cut by an apparently north-south aligned feature (3156), the fills of which produced late 17th-19th century pottery. It is possible that this is a re-cut of the postulated north-south aligned channel, although no evidence for this was revealed within Trench 30 and it may represent a more discrete feature.

3.4.95 Truncation from the 19th century terracing and its subsequent demolition appears to have removed any evidence for post-medieval soils in this trench.

TRENCH 32 (M) *(not illustrated)*

3.4.96 Trench 32 measured approximately 8 m x 2 m and was aligned north-south. The trench was located in the gardens to the south of Abbey Place.

3.4.97 The trench was excavated by machine to a depth of 51.64 m OD and natural gravel (3213) was encountered at the north-eastern end at a depth of 52.39 m OD, dropping off to a depth of 51.84 m OD at the south-western end, possibly describing the contour of the base of the Trill Mill Stream.

3.4.98 Overlying 3213 were a series of deposits that can be attributed to the Trill Mill Stream, the latest of which was 3205, encountered at 54.69 m OD. This was overlain by a series of 19th century deposits, followed by modern overburden (3200)

3.4.99 All of the Trill Mill Stream deposits sloped down towards the south west end of the trench, following the profile of the natural bedded gravel (3213), suggesting greater proximity to the northern bank than the southern. However, no evidence for the bank/edge of the Trill Mill Stream was observed and the thickness of the deposits, as well as the extreme depth of this trench (5 m in total), would seem to suggest that the trench occupies a fairly central position within the Trill Mill Stream.

3.4.100 Two stakes (3212 and 3202) on an east-west alignment, were observed within 3203, one of the upper deposits within the Trill Mill Stream, although it is unclear which deposit these were originally driven into. These appear too thin to have been associated with the revetment of the Trill Mill Stream and are potentially located at too great a distance from its edge to have served this purpose.

TRENCH 33 (N) *(not illustrated)*

3.4.101 Trench 33 was 6 m x 2 m and aligned NE-SW. The trench was located in the gardens south of Abbey Place.

3.4.102 Natural gravel (3326) was encountered at 52.56 m OD and was constantly at this level throughout the trench. The latest deposit that could be associated with the Trill Mill Stream (3306) was encountered at 55.67 m OD and was overlain by 1.5 m of post-medieval and modern deposits.

3.4.103 The trench contained a similar sequence of alluvial deposits to Trench 32, although a greater number of these was observed.

3.4.104 A line of stakes (3307-11, 3314), which appear to have been driven into 3312, was observed. These are on the same east-west alignment as those in Trench 32.

TRENCH 34 (O) *(Fig. 6b)*

3.4.105 Trench 34 was excavated in the south-east corner of the site to further investigate the possible timber revetment recorded in Trench 8 of the Phase 1 evaluation. The trench originally measured 8.20 m x 4.20 m. The modern overburden and demolition rubble (2402-2404) were removed by machine to a depth of 55.28 m OD (*c* 1 m below ground level) and, to the east of the trench, revealed the basement wall (3408) previously encountered in Trench 8, and a stone lined well (3407). The former relates to a structure shown on the OS 1st edition map in the back garden of a property fronting onto Friar Street. The construction cut (3405) for the well appeared to truncate this structure, suggesting that the well was a later addition. Further 19th century truncation was present to the west of the trench in the form of a large rubbish pit (3452), or sequence of intercutting pits.

3.4.106 These structures and features appeared to cut through a sequence of deposits which in plan appeared to be on a SW-NE alignment (e.g. 3410). The orientation of these deposits was consistent with the alignment of the channel conjectured from the alignment of posts encountered within Trench 8. A 3.00 m x 2.30 m sondage was

excavated through these deposits, located to avoid the 19th century truncation described above.

3.4.107 Natural gravel was encountered within the entirety of the sondage and sloped gradually from north to south (53.95 and 53.70 m OD respectively). This was overlain by two sandy silt deposits (3444 and 3443) which appeared fluvial in origin, and were originally thought to represent a variation in the gravel rich, silty deposits which overlay the gravel in a number of trenches on the floodplain. Where encountered elsewhere (e.g. 3063 in Trench 30) these have been tentatively interpreted as the result of bioturbation associated with the formation of a reed swamp. However, given the character of the overlying deposits, it seems likely that these represent early fills of the channel inferred from the results of Trench 8 (see below).

3.4.108 The sand rich material was overlain by an organic deposit (3428), containing mid 16th to 17th century artefactual material. This deposit also contained a relatively high concentration of horn cores and animal bones, together with preserved leather. A series of posts and stakes (Group 3450), on a roughly SE-NW alignment, had been driven through this deposit and were almost certainly part of the same structure as that revealed within the sondage in Trench 8. Drag lines within the organic deposit indicated that this had formed before the construction of the post-built structure; the overlying deposits appear to have accumulated subsequently. The function of this structure is unclear but is discussed in further detail in Section 4.

3.4.109 The organic deposit was overlain by a series of sand and clay rich deposits (e.g. 3410, 3416, 3412, 3411) which were indicative of further fluvial deposition within the channel and produced late 17th-late 18th century pottery.

3.4.110 No definitive northern edge to the channel was revealed within Trench 34. Consequently, the trench was extended northward in an attempt to identify the northern extent of the channel fills. The extension was 6.00 m in length and 2.00 m wide and was initially machine excavated to the same horizon as the original trench (i.e. the base of the made ground). A possible channel edge (3469) was revealed in plan, although this appeared to 'cut' deposits similar in composition to the channel fills revealed within the original trench (the organic deposit (3428) was also present in the extension (3462) and was 'cut' by 3469). The interface between the deposits filling this 'cut' and those below it was fairly diffuse, and it may represent an interface between channel fills rather than the edge of the channel. However, the location of Trench 34 and the northern extension lies immediately south of Trench 30 and the eastern end of Trench 31.

3.4.111 Therefore, it is possible that no definitive channel edge was discernible as Trench 34 is located at the point where the possible channel in Trenches 30 and 31 drains into the channel in Trench 34.

TRENCH 35 (T) *(Fig. 7)*

3.4.112 Trench 35 was excavated to the south of the car park offices and incorporated the location of the Phase 1 Trench 11 and earlier JSAC Trench 2. The trench measured 7.00 m x 4.00 m; the hand excavated area within the shoring measured 2.00 m x 4.60 m. The trench was orientated east-west.

3.4.113 Natural gravel was encountered at 53.71 m OD in the west of the trench, and fell away significantly to 52.78 m OD in the east. It is possible that this represents the western edge of a north-south aligned channel cutting through the gravel, and may go some way to explaining the anomalous deposits encountered within Trench 30. This interpretation is further enhanced by the fact that the deposits immediately overlying the

gravel in the east of the trench are similar in composition to those observed within the northern end of Trench 30. These comprised an organic deposit overlain by a shell rich silty deposit (3501 and 3502 respectively), which was subsequently overlain by two gravel rich silty deposits possibly indicative of high energy fluvial deposition (3503 and 3504). However, the overlying structures and deposits may suggest an alternative interpretation of this fall in the gravel which will be discussed in more detail below.

3.4.114 The natural gravel in the west of the trench and the uppermost 'fluvial' deposit in the east (3504) were truncated by a possible construction cut (3546 and 3506) for a timber structure (structure 3550) comprising two curvilinear square cut timbers, approximately 0.15 m^2 and 1.15 m apart. Only a 0.60 m length of the northernmost of these (3553) was revealed within the trench. A probable mortice joint was apparent in the top of this timber. The southernmost timber (3508/3532) also displayed evidence for jointing along its length: a mortice joint at the western end (3532), a possible trench joint and a groove and peg joint at the eastern end (3508). A slot excavated between the two timbers in the east of the trench (section 3502) revealed deposits with high concentration of limestone rubble (3507 and 3512) abutting and apparently underlying the timbers. These overlay a dark grey silty clay with *c* 45% gravel fragments (3505). It is possible that deposit 3505 was actually a further layer of fluvial deposition, and that the interface between 3505 and 3507/3512 actually represents the construction cut(s) for the timbers. Alternatively, 3505 was a variation in the rubble rich deposit filling the base of the construction cut (3506). A deposit similar in composition to 3505 was also present in the slot to the west (section 3500 - 3545/3529).

3.4.115 The function of this structure is uncertain. It is possible that this represents a timber lined channel, and that the rubble rich deposits were intended to facilitate the flow of water through it. However, the slot excavated in the west of the trench revealed a further rubble deposit (3541) to the south of the southernmost timber (3532). This directly overlay the gravel, which appeared to slope gradually from north to south at this end of the trench. The rubble to the south of the southernmost timber was overlain by a series of shell and gravel rich deposits (3542, 3543, 3544), one of which (3542) also contained a high concentration of degraded wood. It is possible that the construction trench for the timber structure was considerably wider than the finished structure, and that the rubble deposit filled the entirety of this wider cut with the timbers laid within the rubble. The jointing in the top of the timbers may suggest that the structure was originally higher and that all that remains is the lowest set of timbers (alternatively the joints may imply the re-use of ?roofing timbers). This would suggest that the deposits overlying the rubble (3541) were outside the resulting timber lined channel and may represent silting up/backfilling of the wider cut following the construction of the channel. However, the composition of these deposits did not suggest a backfilling episode, so the structure might have been free-standing within the wider cut. An alternative interpretation is that the rubble and timber structure forms part of a rubble and timber weir.

3.4.116 Problems of interpretation of this structure and the associated deposits were enhanced by the fact that they appear to have been cut by a second construction trench (3547/3511), for a later structure (structure 3551). This comprised two parallel, horizontal timbers (3514/3531 and 3533/3510), at least 4.5 m in length x 0.40 m wide x 0.20 m deep. These were approximately 1.00 m apart and on a NW-SE alignment. There was some evidence of wearing at the eastern extent of the timbers but elsewhere the edges were sharply defined and had presumably been saw cut (no other evidence of tooling was apparent). Three possible pegs were revealed on the southernmost

timber which may imply that further timbers had originally been fixed to the surviving ones.

3.4.117 The 'construction' trench had a very irregular base and appeared to extend beyond the northern timber (see below). The irregularity is perhaps due to the fact that it has also 'robbed' the upper elements of the earlier structure. Indeed, in the slot in the west of the trench (section 3500) the construction trench for the later structure (3547) appears to have been cut to the base of the remaining *in-situ* timber (3532). The interface between rubble deposit 3512 and the overlying gravel rich deposit (3513) has been tentatively interpreted as part of this construction phase. However, it is possible that deposit 3513 equates to the gravel rich deposits overlying the rubble to the west of the trench (see above)

3.4.118 The slot to the east revealed some evidence for fills between these two timbers (3509, 3515 and 3516), which had subsequently been truncated by what has been tentatively interpreted as a cut (3548) robbing the ?upper elements of the later timber structure. In the section in the west of the trench (section 3500), this cut (here numbered 3539) removed the majority of the equivalent 'fills' of structure 3551 (3549).

3.4.119 The fills of this robber trench (if so it be) were present throughout the trench, which suggests that the robbing episode was not localised on the timber structures within Trench 35. In the east of the trench, these fills (3517, 3520, 3521, 3522) comprised a mix of material similar in composition to the fills of structure 3551, and concentrations of limestone rubble and occasional ceramic building material dating from the 12th-15th century and pottery from the 13th-mid 16th century. In addition to sloping from north to south, and mirroring the alignment of the structure, they also appeared to slope from east to west, so that the uppermost rubble rich fill (3525 – see below) was located exclusively within the western half of the trench (within 'cut' 3539 - ref. Section 3501).

3.4.120 Deposit 3525 comprised a mid orange brown sandy clay with 30% limestone rubble, 10-15% roof tiles, decorated floor tile and other ceramic building material and mortar lenses throughout (there were also concentrations of molluscan remains). It seems likely that this represents a demolition deposit, possibly dumped from the east, given the break of slope at the base of the deposit, and contemporary with the robbing of the underlying timber structure (given that it directly overlay the surviving elements of this to the west of the trench). The dating evidence was similar to that recovered from the underlying deposits, with the majority of the floor tile dating from 1280-1330, but late 15th-mid 16th century pottery also retrieved.

3.4.121 Despite the problems with re-constructing the stratigraphic sequence associated with the construction of these structures and the associated deposits, the most likely interpretation based on their alignment and configuration, is that they form a channel(s), possibly running off the Trill Mill Stream and into the north-south aligned channel suggested by the deposits in Trench 30. Indeed, the drop in the gravel from west to east may indicate the western edge of the north-south aligned channel. The fills of the robbing episode, which appears to have extended beyond the edge of the trench, are strongly suggestive of demolition deposits given the high concentration of building material, particularly within deposit 3525.

3.4.122 The dating evidence suggests a construction date for the timber structures in the 13th-14th century. The 13th-14th century building material within the overlying late 15th-mid 16th century demolition deposit is consistent with the post-dissolution demolition of a building contemporary with the timber structures. Whilst acknowledging the problems of interpretation of these structures and deposits, it is possible that they

represent a mill race overlain by dumped material generated during the demolition of an adjacent mill structure. The juxtaposition of the complex system of timber lined side channels in the south end of Trench 21, and the possible north-south aligned channel in Trench 30, would also suggest a focus for the managed system of water courses in the area of Trench 35.

3.5 Contamination Test Pits

(Fig. 2)

3.5.1 The following table details the depth and interpretation of the deposits revealed within the contamination test pits shown on Figure 2 (C1-8). Access to these test pits was not possible given their extreme depth, and as such all recording was conducted from ground level. Consequently, distinctions between the alluvial deposits was not always possible and where it is attempted, it is based largely on the results of the adjacent evaluation trenches.

test pit number	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**
depth of test pit	3.00	2.98	3.50	3.06	3.46	2.70	3.00	2.00
depth of deposits								
overburden	1.70	1.40	1.40	1.90	1.70	1.80	1.40	1.00
Alluvium c	0.70	1.20	1.60	1.20*	0.90	0.90*	1.64*	0.70
Saxon organic								0.30
Alluvium b	0.30	0.40	0.30		0.40			
Iron Age organic	0.30		0.20		0.30*[1]			

*no distinction was made between the alluvial deposits in this test pit

*[1] a possible timber post was observed in section at the interface between the blue clay alluvium (alluvium b) and the underlying organic material - it was unclear whether this was structural or even *in situ*

3.5.2 It is interesting to note the relatively shallow depth of C8 and C6, which corresponds with the rise in the gravel suggested by the results from Trenches 8, 30, 31 and 34.

4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 The necessity for shoring and artificial lighting, together with the constant influx of ground water, occasionally made interpretation of deposits difficult. However, the terrace gravels were encountered in the majority of trenches and the sequence of vertical stratigraphy overlying the gravel, whilst not fully characterised in places, was extensively sampled.

4.1.2 Whilst the coverage of the site area was limited by health and safety considerations, a reasonable interpretation of the range and preservation of surviving archaeological deposits can be presented.

4.2 Interpretation

4.2.1 Generally speaking the results of the trenching correlate with the model conjectured from the results of the Phase 1 evaluation, although the model for the alluvial sequence and development of the Trill Mill Stream has been refined. Medieval Oxford is located on the second (Summertown-Radley) gravel terrace, with the line of the southern wall roughly corresponding to the south wall of the Westgate Centre, north of Old Greyfriars Street. To the south of this line, the gravel terrace appears to slope gradually from north to south before dropping sharply to the floodplain terrace, roughly on a line between the south end of Trench 21 (E) and somewhere between Trench 12 (Phase 1) and Trench 24 (G). This implies a NE-SW alignment for this sharp drop to the floodplain, which appears to be reflected by the north edge of the ?Saxo-Norman version of the Trill Mill Stream (see below). However, the natural geology in Trenches 17, 18 and 19 (A, B and C) comprised Oxford Clay, which does not fit this general model. The presence of Oxford Clay, with little or no overlying gravel, at the edge of the second terrace is consistent with earlier excavations to the east (Brian Durham, pers. comm.) and implies the truncation of the second terrace gravels and underlying clay during a later phase of post glacial deposition of gravels on the floodplain.

Phases I and II: Deposit model for hydrological and sedimentary development of the site *(Figs 3, 4 and 9)*

4.2.2 The following interpretation is based on the model presented in the geoarchaeological assessment (ref. Appendix C1).

The Floodplain

4.2.3 The sequence of deposits overlying the gravel in the trenches in the surface car parks comprised disturbed silty gravel (e.g. 3123) filling undulations in the top of the floodplain terrace. Whilst the origin of these variations in the upper surface of the gravel is uncertain, it is possible that they represent bioturbation associated with the formation of the reed swamp, which is likely to be the origin of the organic material which overlies the gravel in the majority of the trenches on the floodplain. Alternatively, these variations may be the result of geological processes such as involution or periglacial activity, although the concentration of gravel and irregular nature of the interface between these deposits and the bedded gravels may suggest that the former interpretation is the more likely. The organic deposit was in turn overlain by a fairly consistent series of alluvial clays (Alluvium B) which represent alluviation which may have occurred during the Iron Age and Roman periods (or possibly later – see below).

Whilst this sequence appears to be present to the north of the Trill Mill Stream (the northern end of Trench 22 and Trenches 12 and 13 from the Phase 1 evaluation), it seems to be absent from the deposits overlying the higher area of gravel in the south-east and east of the site. Whilst an organic deposit is present at the base of the sequence in this area, it seems likely that this represents a later phase of organic deposition, possibly equating to that which overlies Alluvium B to the north of the Trill Mill Stream, and accumulating between AD890-1050 (assuming that this is the same deposit as that within the southern bay of Trench 22, from which this C14 date originates).

4.2.4 Alternatively, the deposition of this organic material may be contemporary with that of Alluvium B, and represents vegetation at the periphery of the flooded area. This deposit also appears to overlie a possible buried soil which was previously identified in Trench 9 of the Phase 1 evaluation. This was characterised by bright reddish brown inclusions, previously referred to as 'burnt daub', but subsequently identified as waterlogged coprolites, the reddish brown colour representing the oxidisation of the surface of the waterlogged material. This would also account for the presence of cereal bran and fly puparia (Diptera) suggestive of cess and/or foul waste material entering the water system, which were recovered from the samples in Trench 9. These deposits may suggest that livestock were prevalent in the area at the time of the deposition of this buried soil. It is feasible that this represents an area of marginal ground at the periphery of the relatively dry area of elevated gravel to the south-east, which has been utilised to water livestock. To the north of this gravel island, the apparent absence of Alluvium A and the slightly elevated level of the top of the gravel in comparison to the level to the west, may indicate that the area on the periphery of the gravel island was being used to access an area of the floodplain, not subject to the same degree of flooding as that to the west of the site. The compacted re-deposited gravel overlying this buried soil may represent an attempt to consolidate a boggy area which was subject to disturbance from livestock. This re-deposition appears to be relatively localised as it was not apparent within Trench 9.

4.2.5 The peripheral nature of this area, in respect of potentially habitable gravel islands, is illustrated by the difference in elevation of the gravel between the area to the south-east of the site (54.29 m OD), the settlement at Whitehouse Road (55.39-54.97 m OD), and the Late Beaker settlement and burial at The Hamel (55.21 m OD). It was suggested in the Phase 1 report that the elevation of the gravel to the south east is similar to that encountered during excavations of the nave and cloister of the Blackfriars church to the east (54.12-54.27 m OD). The latter was interpreted as "ecologically ..... characteristic of a marsh" (Lambrick 1985), and marked the eastern extent of an island of higher ground shown on the re-construction models produced in *Oxford Before the University* (Dodd, 2003, 71-75). It is therefore possible that the rise in the gravel in the south-east of the site corresponds with the northern extent of this island of higher ground.

4.2.6 A further phase of alluviation seems to have then occurred which is consistent across all the trenches on the floodplain (Alluvium C) where not cut by later channels. The date of this deposition is unclear but it presumably relates to the phase of alluviation which "continued throughout most of the medieval period" (Robinson in Dodd 2003, 69). To the north of the Trill Mill Stream, Alluvium C is overlain by the 13th-14th century land reclamation, which would imply that this was deliberately deposited in order to raise the ground level above the level of flooding. Where they have not been subject to 19th century and later truncation, the deposits overlying Alluvium C to the south of the Trill

Mill Stream appear to reflect the use of this area as pasture as indicated on the cartographic sources.

4.2.7 The relationship between the earlier sequence of organic deposition and alluviation and the sequence overlying the area of elevated gravel is uncertain, given the sequence of later channels in Trenches 23, 29, 30, 31, 34 and 35.

The second terrace

4.2.8 The natural geology in Trenches 17-19 appeared to comprise Oxford Clay. As gravel was encountered within Trench 16 (Phase 1) to the north and Trench 20 to the south, this suggests that a band of Oxford Clay runs roughly east-west between the second terrace proper and the gradual fall away to the floodplain.

4.2.9 The deposit overlying the gravel in the northern end of Trench 21 may represent the remnants of a buried soil, possibly a variation of the loess which overlies the second terrace proper to the north. If this is the case it was only encountered within Trench 21, and no indication of the loess was observed in any of the other trenches in this area of the site, which implies some truncation of the terrace gravels prior to the deposition of the 'land reclamation' deposits (see below).

The Trill Mill Stream - Late Devensian Channel

4.2.10 The potential late Devensian channel was filled with high energy alluvial sands in Trenches 22 and 23, over a width of 50 m. These deposits accumulated within the gravel trough identified. The base of the deposits consisted of round pebble gravel inclusions with a coarse sandy matrix. The deposits gradually became finer in texture up the profile.

4.2.11 These deposits represent the transition during the Late Devensian / early Holocene from one large channel to multiple incised channels. These channels have largely remained stable throughout the Holocene, reducing in number and concentrating the flow of the river as channels silted up and became cut off.

Phase III: Features and deposits pre-dating the deposition of the 13th-14th century land reclamation

Trench 20

4.2.12 The late 11th-12th century dating evidence from the possible quarry pits in Trench 20 suggests that these pre-date the deposition of the land reclamation material and may go some way to explaining the conjectured truncation of the terrace gravels. It is possible that the area to the north of the MSCP had been utilised for gravel quarrying prior to its acquisition by the Greyfriars in the 13th century, and the subsequent deposition of the 'land reclamation' deposits.

Trench 21

4.2.13 The relationship between the postholes in the northern end of Trench 21 and the overlying 'land reclamation' deposits was unclear, but it is possible that these represent structural remains pre-dating the deposition of the latter. No dating was recovered and the configuration of the postholes did not give any indication of a function for the potential structure.

4.2.14 The 11th century pit in Trench 21 does suggest some activity pre-dating the deposition of the land reclamation deposits in the 13th-14th century, although it was unclear whether this pit was associated with the postholes and/or east-west aligned linear features running perpendicular to the north-south aligned boundary ditch (see below).

Trench 27

4.2.15 The possible timber revetment and rudimentary 'surface' overlain by the land reclamation deposits in Trench 27, may indicate activity pre-dating the arrival of the Greyfriars along the northern bank of the Trill Mill Stream.

Trench 18

4.2.16 The deposits in Trench 18 (B) were not dissimilar to those encountered within Trench 20, comprising post-medieval soils over medieval ‘land reclamation’. However, the ‘land reclamation’ deposits overlay what appeared to be the fills of a roughly east-west aligned ?linear feature. The primary fill(s) of this feature appeared to comprise a clay rich ‘alluvial’ deposit, through which had been driven 4 stakes/posts which were subsequently overlain by the silty (and charcoal rich) upper fills of the feature. It is possible that this feature represents an east-west aligned ditch, which whilst considerably south of the projected line of the town defences, may represent an early version of it, particularly given the fact that the fills of the feature appear to be overlain by the 13th-14th century land reclamation. It has been suggested that this may be a ditch running from the castle moat or barbican ditch to drain into the Trill Mill Stream further to the east (Brian Durham, pers. comm.) It should also be noted that the line of the ditch associated with the defensive circuit of the primary burh is uncertain at this point.

Trill Mill Stream - Proto Trill Mill Stream

4.2.17 The proto Trill Mill Stream was directly incised into the late Devensian channel at the edge of the second terrace. The channel was more than half the width of the late Devensian channel at 30 m across. It is likely that the channel would have meandered episodically within the footprint of the earlier channel. It was recorded between 52.30 m OD and 53.81 m OD, and was potentially incised to a greater depth than the previous channel. The channel was filled with organic silts and bluish grey silt, which were very similar in nature to deposits overlying the gravels within the floodplain.

4.2.18 These deposits represent low energy flow within the channel. The presence of both minerogenic and organic clays within the channel sequence suggests that a range of different dynamic wetland zones existed alongside the channel. The development of this channel was a potential response to an increase in water levels that started to occur from the late Bronze Age and intensified in the Iron Age. The organic alluvial deposits identified on the floodplain also likely developed from this rise in the water table that was initially reflected in the channel. The channel started to silt up in the late Saxon period. A radiocarbon date of AD890-1050 was recorded from the upper organic deposits.

Phase IVa-d: 13th-16th century: The Greyfriars *(Fig. 8)*

4.2.19 The Greyfriars structures (see below) were constructed through a fairly homogenous silty deposit present in all the trenches to the north of the projected line of the Trill Mill Stream. The origin of this deposit is uncertain, although it is likely to represent land reclamation along the edge of the second terrace in the 12th-13th century, possibly a

deliberate deposition to create a building platform for the construction of the Greyfriars. The fact that this deposit directly overlies the gravel (or alluvial sequence) in most of the trenches would suggest a degree of truncation of the latter prior to the deposition of the 'land reclamation' deposits. It has been suggested (Brian Durham, pers. comm.) that this may be the result of quarrying - which the possible quarry pits recorded in Trench 20 would support. Structural remains associated with the Greyfriars were present within Trenches 19 (a possible pier base associated with the cloister); 20 (possibly a formalisation in stone of the north-south ditch); 21 (the east-west aligned stone culvert identified as the Greyfriars reredorter by Hassall); 22 (the north-east corner of a robbed building?); 24 (a north-south aligned limestone footing); and Trenches 12, 13 and 16 of the Phase 1 evaluation.

Trench 19

4.2.20 It is possible that the compacted gravel deposit in Trench 19 (1908) represents a construction horizon associated with the construction of the Greyfriars cloister.

4.2.21 However, the relationship between this deposit and the robbed 'pier base' was uncertain, and it is equally likely that it is associated with the post dissolution demolition of the Church or cloister.

Trenches 20 and 21

4.2.22 A roughly north-south aligned ditch (and possibly an associated wall) present within Trenches 21 and 20 may represent an early western boundary to the Greyfriars complex. This boundary, together with the northern bank of the Trill Mill Stream, probably represents the limit of the Greyfriars claustral buildings. The reredorter identified by Hassall (Trench XXII) was also present within Trench 21. It was unclear whether the perpendicular linear features within Trench 21 were contemporary with the north-south aligned boundary, or pre-dated it.

Trench 22

4.2.23 The robber trench in Trench 22 indicated that Greyfriars structures are present to the south of the projected line of the reredorter, and that the southern limit of the Priory precinct is likely to be marked by the Trill Mill Stream.

Trench 24

4.2.24 The north-south aligned wall in Trench 24 is almost certainly associated with the series of structures revealed in Trenches XVII-XX from the earlier excavations (Hassall 1989, 179)

Trenches 25 and 26

4.2.25 The north-south aligned robber trench in Trench 25, and rectilinear structural remains in Trench 26, are likely to represent the west wall of the rectangular structure shown on some of the later cartographic sources. From the configuration and relationship between wall 2364 and 2600 (ref. 3.2.65), it is possible that 2364 represents the north-west corner of a building which has subsequently been extended to the south, with an internal division represented by the east-west return.

4.2.26 The nature of the possible north-south aligned channel in Trench 26 is uncertain, although it is feasible that this is related to the reredorter, the projected line of which is to the north.

4.2.27 In 1538 a Commission led by Dr John London reported to Thomas Cromwell on the state of the buildings at Greyfriars (taken from Hassall *et al* 1989, 144):

> *They haue taken vppe the pypes of ther condytt latley and haue cast them in sowys to the nombre lxxij, whereof xij be sold for the costes in taking vppe of the pypes, as the warden saith.*

4.2.28 Although highly conjectural, it is possible that this refers to the removal of drainage channels running off the main conduit (reredorter) and draining into the Trill Mill Stream, of which the channel in Trench 26 may be one.

Trenches 23 and 35

4.2.29 The complex system of side channels in Trench 23 and the possible mill race in Trench 35 are potentially associated with a mill structure not revealed within the trenches but suggested by the demolition material from Trench 35. The phasing of this system of channels, and the relationship with the possible north-south channel in Trench 31 is unclear, but they seem likely to form part of a system of managed water courses instigated by the Greyfriars following their acquisition of Boteham Island in 1245.

The Trill Mill Stream

4.2.30 The Trill Mill Stream represents the management of the waterways during the late 12th-13th centuries during the construction of the Greyfriars. The silted up channel of the proto Trill Mill Stream was re-excavated, clay lined and reveted with wooden stakes. A mixture of early medieval gravel dumps (similar in nature to the reclamation deposits) and redeposited clays were used to create a straight sided channel that was reinforced in order to reduce bank erosion. The channel was approximately 15 m in width and just over 1 m in depth. The creation of the Trill Mill Stream was part of the reclamation of the northern edge of the channel sequence. This extended out from the second gravel terrace in the area of Greyfriars over the silted up channel deposits of the late Devensian channel and the proto Trill Mill Stream.

4.2.31 The main deposits identified with the channel consisted of brown and grey organic silty clays that contained frequent gravel and organic inclusions like wood. The deposits represents low energy channel flow with frequent episodes of dumping of organic and waste material within the stream.

Other Channels

Trenches 30 and 31

4.2.32 The anomalous deposits in Trenches 30 and 31 may relate to a medieval or early post-medieval north-south aligned channel (the western limit of which may have been revealed within Trench 35 (T) - see below). Additionally, the results from the western end of Trench 31 and those from Trenches 6 and 9 (Phase 1) to the east of Trench 30, appeared to reflect the more general sequence seen elsewhere (as did Contamination Test Pit 8), which would imply that these anomalous deposits are quite localised.

4.2.33 The lower channel fills produced predominantly 13th-14th century artefactual material and imply that the early fills of this channel immediately post-date acquisition of Boteham Island (i.e. the area between the Trill Mill Stream and the Thames) by the Greyfriars in 1245 (Hassall *et al* 1989, p.142). As the upper fills produced mid 16th-17th century pottery, it seems likely that this channel survived into the post dissolution period, and is that shown on the later cartographic sources. This was previously

thought to have been identified in Trench 7 of the Phase 1 evaluation. However, given that the post-medieval deposit encountered within Trench 7 (713) was relatively shallow (*c* 0.30 m thick), and did not appear within Trench 31, it now seems likely that deposit 713 is a localised post-medieval incursion into the top of the alluvial sequence.

4.2.34 It seems likely that the buried soil deposit seen at the base of the sequence in Trenches 30 and 31 correlates to that seen in Trench 9. If this is the case, it suggests that the potential buried soil horizon at the periphery of the higher ground survives beneath the later channels.

Trench 35

4.2.35 The timber 'channel' re-investigated by Trench 35 (T) appears to be slightly more complicated than anticipated. Two parallel timbers, at least 4.5 m in length and approximately 1.00 m apart ran NW-SE across the trench. These appeared to overlay a second pair of smaller timbers which were on roughly the same alignment but were curvilinear. It is possible that these structures represent the remnants of two phases of a timber lined mill race, running off the main channel of the Trill Mill Stream and possibly into the north-south aligned channel, conjectured from the anomalous results from Trench 30. The 'upper' timbers were associated with a series of dumped deposits which are likely to represent demolition debris, possibly from an associated (?mill) structure. Dating evidence would suggest a 13th-14th century structure demolished in the mid 16th-17th century - it is therefore possible that the timber structures represent phases of a medieval mill race, probably associated with the Greyfriars occupation of the site. The elevation of the organic preservation of the timber posts in Trench 23 (54.70 m OD), in comparison to the top of the remaining timber elements of the structure in Trench 35 (54.31 m OD) may further support the interpretation of these structures as part of a mill race, in that it implies a drop in the water level between the main channel and the mill race (ref. Fig. 3). Additionally, the level at the top of the Saxon organic deposition in Trench 22 and implied from the results of Trench 6 (*c* 54.38 m OD), is similar to the preservation of the possible mill race structure. This could suggest that the level of the water within the main channel has been artificially raised by the re-deposition of clay along the edges of the channel apparent within Trench 23. However, it should be stressed that the timbers present within Trench 35 may represent the base of a structure, the upper elements of which have subsequently been robbed.

Trench 29

4.2.36 The channels revealed within Trench 29 may form part of the medieval system of managed water courses implied by the results of the trenches to the east and the later cartographic sources. No evidence for timber revetment was revealed, and the fills were primarily organic in composition. A single sherd of 13th-14th century pottery was recovered from the primary fills (2920) of the larger of the two channels (2921), and late 15th-mid 16th century pottery was recovered from the fill (2911) of the less substantial channel in the extreme western end of the trench. Despite the paucity of the artefactual evidence from these two channels, it is feasible that they represent cut channels associated with the acquisition of Paradise by the Greyfriars in the early 14th century (Hassall *et al* 1989, p.142). However, as indicated by the dating evidence and the later mapping, it would seem that these have gone out of use by the time of the earliest maps (Agas 1578).

Phase V: late 15th century – post-dissolution robbing and associated deposits

4.2.37 Deposits associated with the demolition or robbing of structural elements of the Greyfriars were present in Trenches 19, 20, 22, 24, 25, 26 and 35.

Phase VIa and b – Phase VII and VIII: L15th-Modern - post medieval features and deposits

General

4.2.38 In a number of the trenches, the medieval land reclamation was overlain by a series of post-medieval soils which were subsequently overlain by 19th century garden soil. Truncation by the construction of the car park is primarily from pits associated with the pillars, although a north-south aligned groundbeam was encountered in Trench 14 (Phase 1) and the main ring beam was encountered in Trench 23. The majority of the truncation of significant archaeological deposits is from the 19th century terraced housing that pre-dated the car park.

Trench 34

4.2.39 The deposits and timbers in Trench 34 (O) are likely to be associated with a roughly NE-SW aligned wide but shallow channel. The majority of evidence suggests a fairly late date for this and it is still likely to be that indicated on the historic mapping (as suggested in the Phase 1 report - Trench 8). The timbers did not seem to form a revetment as such, but may have been 'fenders' intended to keep vessels within the deeper part of the channel to prevent them from grounding.

Trench 19

4.2.40 There was some truncation from the footings of structures to the rear of the (now demolished) western continuation of the row of 17th century cottages to the north of Turn Again Lane.

The Trill Mill Stream

4.2.41 The medieval and post-medieval fills of the channel are cut by the construction cuts for the ?18th century canal walls which were superseded by the 19th century culvert. At some point prior to the stone canalisation of the channel, a revetment comprising timber planks and posts and a 'wall' of horn cores was constructed along the northern bank of the channel. If it is the case that the horn core revetment marks the early post-medieval bank of the channel, this suggests that the northern bank had migrated some 15-20 m south during the medieval period, whilst the southern bank had only migrated about 5 m north. This would be consistent with the dumping of material from the city side of the Trill Mill Stream.

4.3 Significance

4.3.1 Whilst acknowledging the limitations on the interpretation of the features and deposits encountered during both phases of evaluation, an aggregation of the results allows for a refined model of the development of the site to be presented. In terms of the mitigation of the archaeological and palaeoecological resource, the site can be roughly divided into 6 areas.

Area 1 – The Flood Plain

4.3.2 The evidence from the trenches to the south and west of the site (Trenches 1, 2, 3, 4, 5, 7, 28, 29 and Test Pits C1, C2, C3, C5 and C6) has indicated a relatively straightforward sequence of organic deposition overlain by alluvial clays. This has been further refined by analysis of the samples from the most recent phase of evaluation.

4.3.3 With the exception of the possible medieval channels in Trench 29, no evidence for archaeological features cut into these deposits was apparent. This is consistent with the palaeoenvironmental evidence that this area has been subject to flooding from the middle Iron Age onwards.

Area 2 – The Trill Mill Stream

4.3.4 A reconstruction of the development of the Trill Mill Stream is problematic. The postulated model of the development of the stream from a Devensian channel to a managed water course in the medieval period is presented in the analysis of the environmental data retrieved from both phases of evaluation (see Appendix C1). There has clearly been significant re-modelling of the southern bank in the vicinity of Trench 23, and post built timber structures were revealed within the majority of the trenches which investigated the course of the stream (Trenches 23, 26, 27, 32 and 33).

4.3.5 It is feasible that the series of posts in the southern end of Trench 23 (Group 2373) is associated with a bridge abutment. In 1245 the friars were granted permission by Henry III to bridge the Trill Mill Stream when they were given Boteham Island (Hassall *et al* 1989, 142). However, the linear configuration and alignment of these posts, together with the close proximity of a number of timber lined channels would suggest that the posts in Trench 23 are unlikely to relate to a bridge in this area.

4.3.6 The system of side channels to the south of Trench 23 was sufficiently complex that any reconstruction of the relationships between these channels and the main channel was speculative. However, it is feasible, given the proximity of the possible mill race (Trench 35) and north-south aligned channel (Trench 30) to the south, that these are associated with the conjectured mill structure.

4.3.7 The results from Trench 27 suggest that the northern edge of the 'early' channel lies somewhere between the northern end of Trench 27 and Trench 12 (Phase 1). This in turn suggests that the orientation of the channel is SW-NE to the east of Trench 22, possibly mirroring the alignment of the interface between the second terrace and the floodplain terrace as indicated by the alluvial sequence present to the south of Trench 21, within Trench 12 but NOT within Trench 24 or the majority of Trench 21. The possible rudimentary surface and timber revetment which appeared to be sealed by the 13th-14th century land reclamation deposits, implied activity along the northern bank of the channel prior to the acquisition of the site by the Greyfriars in the 13th century.

4.3.8 Trenches 32 and 33 were excavated exclusively through medieval and post-medieval fills of the Trill Mill Stream. There was some evidence for timber structures within the stream channel, although the function of these is unclear at this stage. No evidence for industrial activity along the banks of the Trill Mill Stream was revealed, although the alignment of the channel can be inferred from that of the timber posts revealed within both trenches.

Area 3 – Managed water courses and the Flood Plain

4.3.9 The most convincing interpretation of the anomalous deposits in Trenches 30 and 31 is that they are fills of a north-south aligned channel, the western edge of which may be

represented by the west-east drop in the gravel within Trench 35. If this is the case, then it seems likely that this is the channel shown on historic maps produced by Agas (1578) and Hollar (1643) and represented by an avenue of trees on Loggan (1675).

4.3.10 It is possible that this is part of a managed system of water courses instigated by the Greyfriars following their acquisition of the land to the south of the Trill Mill Stream in 1245. It is also possible that the potential mill race in Trench 35, and possibly the side channels within Trench 23 drain into this channel.

4.3.11 The channels in Trench 29 may also represent part of this system of managed channels, although the fact that they do not appear on the later mapping may imply that they were peripheral to the main focus of the water management to the east.

4.3.12 The wide but relatively shallow channel in Trench 34 is likely to be that shown on Faden's drawing of 1789. Whilst on a similar alignment to the eastern extent of a channel shown on earlier plans (Agas and Hollar), the differentiation in the dating evidence recovered from the upper and lower fills may indicate that the channel shown on Faden is actually a re-cut of this earlier channel. This would also explain the change in alignment of the western section of the channel between 1675 (Loggan) and 1789 (Faden). The unusual alignment of the rear wall of the back yards of the buildings fronting on to Friars Street (OS First Edition), may represent the line of this channel fossilised in boundaries of these properties.

Area 4 – Possible mill structures to the south of the Trill Mill Stream

4.3.13 From the Victoria County History of Oxford, Vol.IV p.337-341:

> *There was a mill on part of the Greyfriars' site by 1668, apparently associated with a brew-house, and it was last recorded in 1732*
>
> (Bodl. MS. Top. Oxon. c 455, ff. 31-2)

4.3.14 It is possible that this refers to the potential mill structure indicated by the demolition rubble overlying the timber lined channel in Trench 35. The reference to a brew-house is possibly significant, as the majority of the Greyfriars site to the north of the Trill Mill Stream was acquired by Richard Gunter in the early 16th century. Gunter was a manciple of Gloucester Hall from 1524, but following his marriage to the widow of a wealthy brewer, also worked as the latter (Hassall *et al* 1984, 271).

4.3.15 However, it seems likely that any mill structure associated with the features and deposits in Trench 35 was to the south of the channel, on Boteham Island, which was leased to William Thomas in 1537, and who still held the leases in 1544. The dating evidence from the demolition material would also suggest that whatever structure this material has originated from was demolished in the late 15th-mid 16th century at the latest, and is therefore unlikely to be *"last recorded in 1732"*.

4.3.16 The presence of relatively high concentrations of decorated floor tile within the demolition deposit is also indicative of a higher status 'donor' building than a mill. Additionally, the interpretation of the two sets of timbers as channels is far from certain. The configuration of the timber structures themselves, together with the rubble rich deposit associated with them, may suggest an alternative interpretation. It is possible that they represent a weir to the south of the main channel, or possibly even a building platform.

4.3.17 Whilst acknowledging the problems of interpretation within Trench 35, the evidence recovered is strongly suggestive of a 13th-14th century structure demolished in the late

15th-mid 16th century, in the immediate vicinity (probably to the east) of the possible mill race structures. It is also possible that the complex system of side channels to the south of Trench 23 are related to this structure, and the proximity of the possible north-south aligned channel in Trenches 30 and 31 would also suggest that this area is the focus of the system of managed water courses on Boteham Island.

Area 5 – Shopmobility

4.3.18 The degree of truncation from the construction of the MSCP suggested by Trench 15 from the Phase 1 evaluation, would suggest that any bankside activity associated with the Trill Mill Stream has been compromised on the lowest (shopmobility) level of the car park.

4.3.19 The re-deposited gravel deposits encountered within the trench (ref. OA, 2006), would also imply that the majority of the fills of the Trill Mill Stream have been removed during the car park construction, although the deepest fills may still survive.

Area 6 - The Priory

4.3.20 The roughly north-south aligned ditch (and possibly an associated wall) present within Trenches 21 and 20 may represent an early western boundary to the Greyfriars complex, possibly that shown on Agas' map marking the boundary between the Priory and Paradise. The fact that a 19th century wall appeared to respect this boundary is reflected on the cartographic sources. The 19th century wall is probably that marking the eastern boundary of the back yards of the properties fronting onto the eastern part of Paradise Square (OS 1st Edition). This appears to be on the same alignment as a boundary shown on Faden's map of 1789, and would suggest that the boundary remained extant until the demolition of the terraced housing. This boundary, together with the northern bank of the Trill Mill Stream, probably represents the extent of the Greyfriars claustral buildings.

Appendix A. Trench Descriptions and Context Inventory

Trench 17						
General description					**Orientation**	E-W
Oxford Clay overlain by possible medieval land reclamation.					**Avg. depth (m)**	2.50
					Width (m)	1.40
					Length (m)	3.00
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**comment**	**date**	**description**
1700	deposit		0.26	levelling deposit	modern	sand and gravel
1701	deposit		0.56	overburden (inc. tarmac)	modern	
1702	deposit		1.04	?land reclamation	13th-14thC	mid brownish grey clay silt
1703	layer		2.30+	oxford clay		
Trench 18						
General description					**Orientation**	E-W
Possible east-west aligned ditch cutting Oxford Clay. Stakes in base of ditch on similar alignment. Ditch fills overlain by medieval land reclamation.					**Avg. depth (m)**	3.70
					Width (m)	1.70
					Length (m)	6.50
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
1800	deposit		1.30	modern overburden	modern	
1801	deposit		1.10	land reclamation	13th-14thC	mid grey brown clay silt with 10% gravel fragments, occ. Shell, charcoal and CBM
1802	wood	0.10	0.25+	timber stake		group 1819
1803	wood	0.10	0.25+	timber stake		group 1819
1804	wood	0.15	0.45+	timber stake		group 1819
1805	wood	0.10	0.45+	timber stake		group 1819
1806	fill		0.60	fill of possible ditch 1820		mid blueish yellow clay silt, occ. pea grit
1807	fill		0.45	fill of possible ditch 1820		mid blue-grey silty clay, occ. pea grit
1808	fill?		0.85	?fill of possible ditch 1820 or possibly cut by same – relationship uncertain		gravel in mid brownish orange silty sand matrix
1809	VOID					
1810	VOID					
1811	VOID					

context no	type	Width (m)	Depth (m)	Comment	date	description
1813	fill?		0.20	possibly fill of possible east-west aligned ditch 1820. same as 1806? observed in machine excavated sondage at east end of trench		mid yellow blue silty clay
1814	fill?		0.20+	possibly a fill of possible east-west aligned ditch 1820. observed in machine excavated sondage at east end of trench		dark grey silty clay
1815	fill?		0.25	dark staining between stakes 1804 and 1805 – probably a result of decomposition of stakes – variation in deposit 1808		mid brownish grey clay silt with occ. pea grit
1816	deposit		0.10	clay rich deposit immediately overlying oxford clay – possibly interface between oxford clay and overlying ditch fills		mid grey clay, v.occ. pea grit
1817	VOID					
1818	layer			oxford clay		
1819	group			four stakes in base of possible ditch 1820		consists of 1802-1805
1820	cut			arbitrary number allocated to possible east-west aligned ditch, the extent of which was not revealed within the trench		filled by 1806-1808, 1813-1815 and 1819

Trench 19

General description	Orientation	E-W
Oxford clay cut by ?construction trench for possible pier base associated with Greyfriars cloister. Overlain by demolition deposits which are cut by structures associated with post-medieval cottages.	Avg. depth (m)	2.03
	Width (m)	4.00 (stepped)
	Length (m)	14.50

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
1901	struct			possibly a rubble footing for a pier base?	13th-14thC	roughly hewn limestone rubble in clayey sand matrix
1902	cut	1.36	0.84	possible c. cut for limestone structure 1901		?pit cut partially seen in e. end of trench

context no	type	Width (m)	Depth (m)	Comment	date	description
1903	fill		0.40	fill of pit 1902		compact, blueish grey, clay sand
1904	fill		0.28	upper fill of 'pit' 1902 – poss demolition material from robbing of upper part of structure 1901	Mid 16th-17thC	compact, reddish brown clay sand with c5% CBM
1905	fill		0.12	fill of pit 1902 – variation in fill 1903		compact grey clay sand
1906	deposit		0.23 – 0.46	dissolution phase demolition deposit		mid reddish brown clay sand with limestone rubble throughout
1907	fill		0.37	fill of pit 1902 – variation in 1903		loose, very dark grey clay sand
1908	deposit		0.05	possible construction horizon or bedding layer for surface??	13th-14thC	compacted reddish brown gravel
1909	deposit		0.09	possible trample/make up layer for 'surface' 1908		firm, light yellow brown clay
1910	deposit		0.11	possible trample/make up layer for 'surface' 1908		firm, light bluish grey clay
1911	deposit		0.19	possible trample/make up layer for 'surface' 1908		firm, greyish brown clay
1912	deposit			oxford clay		oxford clay
1913	deposit			overburden	19thC	overburden
1914	cut			cut for post-med cellar		
1915	struct			post-med cellar		
1916	VOID					
1917	fill			backfill of post-med cellar		

Trench 20

General description	Orientation	E-W
Gravel cut by probable L11th-12thC quarrying, overlain by 13th-14thC land reclamation cut by ?western boundary to Greyfriars complex (ditch superseded by wall – wall subsequently robbed).	Avg. depth (m)	2.70
	Width (m)	1.75
	Length (m)	8.50

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2000	deposit		0.25	topsoil	modern	topsoil
2001	deposit		c0.50	overburden	modern	overburden
2002	struct	0.95	0.50	north-south aligned wall, possibly marking western extent of Greyfriars complex		roughly hewn limestone in lime mortar – faced to east – western face robbed
2003	deposit		0.3-0.7	land reclamation	13th-14thC	mid grey brown clay silt

context no	type	Width (m)	Depth (m)	Comment	date	description
2005	fill		0.04	fill of possible north-south ditch 2054		lens of pale yellowish white clay
2006	fill		0.30	fill of probable quarry pit 2011	L11th-12thC	light brownish grey silty clay with occ. charcoal flecks and small gravel pebbles
2007	fill		0.20	fill of probable quarry pit 2011	L11th-12thC	dark greyish brown silty clay c10% charcoal flecks, occ. gravel fragments
2008	fill		0.14	fill of probable quarry pit 2011	L11th-12thC	dark brown silty sand c10% charcoal flecks
2009	fill		0.12	fill of probable quarry pit 2011		compacted, dark brown clay with c25% charcoal
2010	cut			possible quarry pit – possibly re-cut by 2011		
2011	cut			possible re-cut of quarry pit 2010		
2012	VOID					
2013	fill			fill of possible quarry pit 2010		greenish brown silty clay with c20% gravel fragments
2014	fill			fill of probable quarry pit 2011		greenish brown silty clay c10% gravel fragments, occ. charcoal flecks
2015	VOID					
2016	cut			possible quarry pit		
2017	cut			possible quarry pit		
2018	fill			fill of possible quarry pit 2016	L11th-12thC	dark grey silt clay
2019	fill			fill of ditch 2054		tenacious mid grey brown silty clay
2020	layer			natural gravel		gravel
2021	VOID					
2022	VOID					
2023	VOID					
2024	VOID					
2025	deposit		0.22	post 19thC overburden	mod	dark grey brown silty sand
2026	fill		0.20	fill of 2027 - 19thC construction cut backfill	19thC	dark yellow brown sandy silt
2027	cut	0.83	0.40	19thC construction cut		

context no	type	Width (m)	Depth (m)	Comment	date	description
2028	fill		0.21	fill of 2027 - 19thC construction cut backfill	19thC	light yellowish gravelly sand and mortar
2029	cut		1.03	modern truncation		
2030	fill		0.62	modern backfill	mod	light brownish grey silty clay
2031	fill		0.14	modern backfill	mod	re-deposited gravel
2032	cut			19thC pit		
2033	fill		1.00	fill of 2032	19thC	loose, dark yellowish brown silty sand
2034	deposit		0.04	variation in ?med deposit 2035		lens of charcoal
2035	deposit		0.50	?13thC land reclamation		greyish brown silty clay with c10% charcoal and gravel fragments
2036	deposit		0.04	variation in ?med deposit 2035		light brownish yellow silty clay
2037	cut	2.20	1.08	construction cut for wall 2002		
2038	fill		0.34	fill of 2037 'stone saving' footing for wall 2002		compacted re-deposited gravel
2039	VOID					
2040	fill			backfill of construction cut 2037		
2041	VOID					
2042	cut	3.50	0.60	19thC truncation		
2043	fill		0.60	fill of 2042		loose, light grey brown silty clay with limestone fragments, CBM, charcoal throughout
2044	fill		0.30	fill of robber trench 2056		brownish grey silty clay
2045	fill		0.30	fill of robber trench 2056		light yellowish brown silty sand with occ. charcoal
2046	fill			same as 2038		same as 2038
2047	deposit		0.20	?13thC land reclamation		mid brown clay silt
2048	deposit		0.20	?13thC land reclamation		brownish grey silty clay
2049	deposit		0.10	variation in ?med deposit 2050		light yellowish brown sandy gravel
2050	deposit		0.90	?13thC land reclamation		mid grey brown clayey silt
2051	deposit		0.46	fill of construction cut 2037		light yellowish brown silty sand with occ. charcoal

context no	type	Width (m)	Depth (m)	Comment	date	description
2052	fill		0.40	primary fill of quarry pit 2017		firm, mid grey brown clay silt
2053	fill		0.20 -0.40	fill of n-s aligned ditch 2054		tenacious mid grey brown silty clay
2054	cut	1.00	0.80	north-south aligned ditch		
2055	struct			19thC wall on same alignment as wall 2002		
2056	cut	1.24	0.50	trench robbing western face of wall 2002		
2057	fill		0.06	fill of robber trench 2056		
2058	deposit		0.04	trample in base of construction cut 2037		compact dark grey brown clay
2059	deposit		0.08	mortar bedding for wall 2002		degraded lime mortar

Trench 21

General description	Orientation	N-S
Gravel sloping gradually from north to south before dropping sharply at interface with flood plain. Cut by undated postholes, an 11thC pit and a north-south aligned ditch, possibly marking the western boundary of the Greyfriars precinct. Perpendicular e-w aligned 'gullies' possibly contemporary with n-s ditch	**Avg. depth (m)**	1.30
	Width (m)	2.00
	Length (m)	28.00

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2100	cut		0.80	modern truncation		
2101	fill		0.80	fill of 2100	mod	hardcore
2102	cut	1.00	0.40	modern truncation		
2103	deposit		0.55	made ground – demolition rubble	mod	predominantly mid greyish brown silty clay with demolition rubble throughout
2104	deposit		0.10	levelling for concrete surface	mod	hardcore
2105	deposit		0.27	concrete car park surface	mod	concrete
2106	fill		0.22	shell rich fill of possible pit 2110	13th-14thC	friable dark grey brown clayey silt with c5% gravel fragments
2107	fill		0.20	shell rich fill of possible pit 2110	14thC	friable mid grey clayey silt with c 5% charcoal and 10% gravel fragments
2108	fill		0.10	fill of possible pit 2110	13th-14thC	friable light brownish grey clayey silt with c1% charcoal and 5% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
2109	fill		0.15	shell rich fill of possible pit 2110		friable mid grey brown clay silt with c10% gravel fragments
2110	cut			either interface between fills of ditch 2168 OR a pit cut into the fills of same. high inclusion of shell similar to midden deposit in trench 14 (phase 1)		
2111	deposit			13thC land reclamation		dark greysih brown clay silt
2112	cut	1.00	0.80	modern truncation		
2113	fill		0.80	fill of 2112	mod	hardcore
2114	fill			fill of ditch 2115	L11th-12thC	friable dark greyish brown clayey silt with c20% gravel fragments and c1% charcoal
2115	cut	0.60+	0.25	base of e-w aligned 'gully'		
2116	fill		0.05	fill of possible posthole 2117		friable dark greyish brown clayey silt with c20% gravel
2117	cut	0.30	0.05	possible posthole base		part of group 2150
2118	fill		0.04	fill of possible posthole 2119		friable dark greyish brown clay silt with c20% gravel
2119	cut	0.28	0.04	possible posthole base		part of group 2150
2120	cut	0.50+	0.25	n-s aligned ditch		
2121	fill			fill of ditch 2120		tenacious dark greyish brown silty clay with c25% gravel fragments
2122	cut	0.40	0.22	possible posthole		part of group 2150
2123	fill		0.22	fill of possible posthole 2122		friable dark greyish brown clayey silt with c20% gravel fragments
2124	fill		0.28	fill of possible posthole 2125		friable dark greyish brown silty clay with c25% sand
2125	cut	0.36	0.28	possible posthole		part of group 2150
2126	fill		0.08	fill of possible stake hole		friable dark greyish brown clay silt with c25% gravel fragments
2127	cut	0.13	0.08	possible stake hole		part of group 2150
2128	fill		0.14	fill of possible posthole 2129		friable dark greyish brown clayey silt
2129	cut	0.23	0.14	possible posthole		part of group 2150

context no	type	Width (m)	Depth (m)	Comment	date	description
2130	fill			fill of ditch 2138		friable dark greyish brown silty clay
2131	fill			fill of ditch 2138	M9th-10thC	friable light brownish grey silty sand
2132	fill			fill of ditch 2138		friable light reddish brown silty gravel
2133	deposit		0.20-0.30	possible fill of devensian channel		mid orange brown clayey sand
2134	deposit			same as 2172		same as 2172
2135	fill			same as 2167		same as 2167
2136	fill			same as 2165		same as 2165
2137	fill			same as 2169		same as 2169
2138	cut			n-s aligned ditch (same as 2120)		
2139	fill		0.15	fill of possible posthole 2140		friable mid greyish brown clay silt with c20% gravel fragments
2140	cut	0.32	0.15	possible posthole base		part of group 2150
2141	fill		0.09	fill of possible stake hole 2142		friable dark greyish brown clayey silt with c25% gravel
2142	cut	0.08	0.09	possible stake hole		part of group 2150
2143	fill		0.07	fill of possible stake hole 2144		friable dark greyish brown clay silt with c20% gravel fragments
2144	cut	0.08	0.07	possible stake hole		part of group 2150
2145	cut	0.10	0.06	possible stake hole		part of group 2150
2146	fill		0.06	fill of possible stake hole 2145		friable dark greyish brown clay silt with c25% gravel fragments
2147	cut	0.40	0.14	possible posthole		part of group 2150
2148	fill		0.10	fill of possible posthole 2147		friable dark brown silty clay with c20% gravel fragments and c1% charcoal flecks
2149	cut	0.20	0.08	possible posthole		part of group 2150
2150	group			group of postholes		
2151	fill		0.08	fill of possible posthole 2149		friable/loose light brownish grey clay silt with c25% gravel
2152	cut			possible posthole		part of group 2150
2153	fill			fill of possible posthole 2152		medium/loose light greyish brown clay silt with c25% gravel

context no	type	Width (m)	Depth (m)	Comment	date	description
2154	cut	1.00	0.60	11thC pit of uncertain function		
2155	fill		0.50	fill of pit 2154	E-L11thC	mid/dark grey sandy clay with 1-2% charcoal flecks
2156	fill		0.10	primary fill of pit 2154		loose dark reddish brown silty clay with c30% gravel fragments
2157	cut	0.15+	0.15	eastern extent of n-s aligned ditch (same as 2120 and 2166)		
2158	fill		0.15	fill of n-s ditch 2157		firm mid/dark grey sandy clay
2159	deposit			made ground for concrete surface		hardcore
2160	deposit			same as 2103? demolition rubble	mod	friable dark brownish grey silty clay with rubble etc. throughout
2161	deposit			variation in 2160		sand
2162	fill		0.06	fill of possible posthole 2147		friable light orangey brown silty sand with c30% pea grit
2163	fill		0.60	upper fill of ditch re-cut 2168	13th-14thC	compact dark grey/brown sandy clay with c5% gravel fragments
2164	deposit		0.15	13thC land reclamation		compact light brownish grey clay silt
2165	fill		0.50	fill of ditch re-cut 2168, also overlies fill of primary ditch 2166 (2167)	13th-14thC	compact dark grey brown sandy clay
2166	cut	0.60+	1.00	n-s aligned ditch, possibly re-cut by 2168		
2167	fill		0.20	primary fill of ditch 2166		compact dark brownish grey clay silt
2168	cut	0.60+	0.35	possible re-cut of partially silted up n-s aligned ditch 2166		
2169	fill		0.10	fill of ditch re-cut 2168		re-deposited gravel in silty clay matrix
2170	fill		0.10	fill of ditch re-cut 2168		compacted re-deposited gravel in dark brownish red silty clay matrix
2171	fill		0.15	fill of ditch re-cut 2168		loose re-deposited gravel in mid yellowish grey sandy silt matrix

context no	type	Width (m)	Depth (m)	Comment	date	description
2172	deposit		0.70	top of alluvial sequence filling trough in gravel at interface between second terrace and floodplain – possibly equates to alluvium C	L11th-12thC	stiff light orangey brown clay
2173	deposit		0.15	?alluvial or fluvial deposit directly overlying the natural gravel at the interface between the second terrace and the floodplain – possibly equivalent to alluvium B, but potentially a fill of the devensian version of the TMS		stiff greyish blue sandy clay
2174	fill			same as 2165		same as 2165
2175	cut	0.60+	0.70	n-s aligned ditch – same as 2120, 2166		
2176	fill		0.25	fill of ditch 2175		re-deposited gravel in a friable mid orange brown clay sand matrix
2177	fill		0.50	fill of ditch 2175		tenacious mid grey brown clay silt with c15% gravel fragments
2178	cut	0.40+	0.60	probable re-cut of ditch 2175		
2179	fill		0.60	fill of probable re-cut 2178		tenacious mid grey-brown clay silt with c10% gravel fragments
2180	deposit		0.10	'peripheral loess' – clay sand deposit directly overlying gravel to north of trench		soft mid brownish yellow clay sand
2181	deposit			base of medieval soil 2184		same as 2181
2182	cut			ephemeral e-w aligned linear feature running perpendicular to n-s ditch 2175		
2183	fill			fill of 2182		
2184	deposit			13thC land reclamation		mid brownish grey clay silt with c10% gravel fragments
2185	deposit			late med/early post med soil		mid brownish grey clay silt with c25% gravel fragments
2186	layer			natural gravel		gravel
2187	deposit		0.50	13thC land reclamation	13th-14thC	grey brown sandy clay

context no	type	Width (m)	Depth (m)	Comment	date	description
2188	deposit		0.40	?13thC land reclamation		tenacious dark grey brown silty clay
2189	deposit			13thC land reclamation	L11th-12thC	mid brownish grey clay silt with 10% gravel fragments and 2% charcoal flecks
2190	deposit			late med/early post med soil (same as 2185)		mid-dark brown grey clay silt with c20% gravel fragments
2191	struct			greyfriars reredorter		
2192	deposit		c0.04	sandy lens within alluvial sequence		mid reddish brown clayey sand
2193	deposit		c0.25	possibly a fluvial deposit filling the devensian version of the Trill Mill Stream		greenish grey sandy clay
2194	deposit		c0.06	possibly a fluvial deposit filling the devensian version of the Trill Mill Stream		black sandy clay
2195	fill		0.30	fill of 2112	mod	
2196	deposit		0.10	same as 2159	mod	same as 2159
2197	fill		0.50	fill of 2199	mod	
2198	fill		0.20	fill of 2199	mod	
2199	cut		0.70	modern truncation		
2100.1	Group			Group number allocated to north-south aligned ditch		

Trench 22

General description	Orientation	N-S
Gravel encountered at 54.00 m OD to north of trench and overlain by possible fills of Devensian channel. Gravel to south of trench encountered at 52.56 m OD and overlain by fluvial fills of proto-Trill Mill Stream, upper fills of which were organic and C14 dated to AD 890-1050. All overlain by mottled alluvial clay probably equeating to early deposition of Alluvium C, which is subsequently overlain by 13thC land reclamation. Land reclamation cut by robbing of rectilinear ?Greyfriars structure. Robbing and land reclamation overlain by post-med soil which is cut by an insubstantial stone drain. 19thC basement cuts through all into fluvial sequence.	**Avg. depth (m)**	3.50
	Width (m)	2.00
	Length (m)	20.00

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2200	deposit		0.23	concrete car park surface	mod	concrete
2201	VOID					
2202	deposit		0.40	made ground for 2200	mod	hardcore

context no	type	Width (m)	Depth (m)	Comment	date	description
2203	deposit		0.60	made ground – demolition rubble	mod	demolition rubble
2204	deposit		c0.40	post med soil		dark grey sandy clay c25% gravel fragments
2205	deposit		0.92	?13thC land reclamation		mid brownish grey silty clay
2206	deposit		0.02 -0.10	possibly equivalent to saxon organic deposit in hit to south (2215). thinner at periphery of proto-channel		blueish brown clayey silt with organic material throughout
2207	depsoit		0.64	possibly alluvium B		firm bluish grey clay with orange brown mottling
2208	deposit		0.08-0.20	possibly alluvium B		firm yellowish orange clay
2209	deposit			same as 2205		same as 2205
2210	deposit		0.06	levelling deposit overlying backfill of 19thC cellar		compacted sand and gravel
2211	deposit		0.40	post-med soil		mid grey brown clay silt with c20% gravel fragments and occasional limestone fragments and mortar lenses
2212	deposit		0.70	13thC land reclamation		dark grey clay silt with 2-3% gravel fragments, c2% clay concentrations and occasional charcoal flecks
2213	deposit		0.25	alluvium C		tenacious mid grey clay with orange brown mottling
2214	deposit		0.30	saxon organic deposit		mid-dark ?reddish brown clay silt
2215	deposit		0.35	saxon organic deposit	890-1050AD	dark grey silty clay with organic material throughout and occasional sandy lenses
2216	deposit		0.38	?saxon organic deposit		mid blue grey silty clay with organic material throughout and occasional sandy lenses – very similar to 2215 but paler and bluer in colour

context no	type	Width (m)	Depth (m)	Comment	date	description
2217	deposit		0.12	possibly equivalent to Iron Age organic material but within proto Trill Mill Stream		brown clay silt / peat. very organic
2218	deposit		0.40	fluvial deposit in base of proto Trill Mill Stream		mid bluey grey sand and gravel in silty matrix (c20%) with occasional root fragments
2219	deposit		0.10	fluvial deposit in base of proto Trill Mill Stream		mid-pale brown sandy clay
2220	layer			?natural gravel		sand and gravel
2221	deposit		0.04-0.06	sandy lens at interface between ?IA/Roman fills of proto channel and overlying saxon organics		sandy gravel
2222	struct			post med stone drain		
2223	cut	1.50+	0.50	cut for drain 2222		
2224	fill			fill of 2223		dark greyish brown sandy silt
2225	fill		0.10	fill of drain 2222		dark greyish to greenish brown silty clay
2226	deposit		0.70	post medieval soil – probably equivalent to 2211		dark brown sandy clay silt with c 25% gravel fragments
2227	deposit		0.30	?13thC land reclamation – possibly equivalent to 2212		dark greyish brown silty clay with c5% gravel fragments
2228	fill		0.13	fill of robber trench 2230		loose dark to mid yellowish brown sandy silt
2229	fill		0.60	fill of robber trench 2230		loose light yellowish brown sand and degraded lime mortar with limestone rubble throughout
2230	cut		0.70	trench robbing northeast corner of ?Greyfriars structure		
2231	deposit			base of land reclamation overlying top of alluvial sequence		dark grey silty clay with concentrations of reddish brown clay
2232	deposit			13thC land reclamation – possibly equivalent to 2227, 2212		Dark greyish brown clayey silt
2233	cut			cut for 19thC basement		

Trench 23						
General description					**Orientation**	N-S
Trench excavated over course of Trill Mill Stream, natural gravel encountered within augered boreholes at between 52.36 and 52.49 m OD and overlain by deposits interpreted as fills of the 3 versions of the stream outlined in the geoarchaeological report (appendix C1). Evidence for revetting and intercutting side channels along the southern bank.					**Avg. depth (m)**	4.50
					Width (m)	2.00
					Length (m)	18.00
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
2300	deposit		avg. 0.20	car park surface		concrete
2301	deposit		avg. 0.20	made ground for car park surface		hardcore
2302	deposit			demolition deposit		ref. group 3605
2303	deposit			demolition deposit		ref. group 3605
2304	deposit			demolition deposit		ref. group 3605
2305	deposit			demolition deposit		ref. group 3605
2306	deposit			demolition deposit		ref. group 3605
2307	deposit			demolition deposit		ref. group 3605
2308	fill			backfill of construction cut 2310		light brownish yellow, degraded lime mortar
2309	fill			fill of construction cut 2310		
2310	cut			construction cut for southernmost 18thC canal wall		
2311	fill			same as 2324		same as 2324
2312	fill			fill of 18thC canalised channel		mixed deposit – possibly deliberate backfilling during construction of 19thC culvert
2313	cut			same as 2367		same as 2367
2314	fill			post-med fill of Trill Mill Stream revetted by timber and horn core structure		friable dark brown silty clay
2315	fill			backfill of construction cut 2316 – equivalent to 2308?		light brownish yellow, degraded lime mortar
2316	cut			construction cut for northernmost 18thC canal wall		
2317	wall			northernmost 18thC canal wall		

context no	type	Width (m)	Depth (m)	Comment	date	description
2318	fill			fill of 18thC canalised channel – equivalent to 2322		mixed deposit – possibly deliberate backfilling during construction of 19thC culvert
2319	struct			northern wall of brick culvert		
2320	fill			1970's backfill of culvert		
2321	struct			southern wall of brick culvert		
2322	fill			fill of 18thC canalised channel – equivalent to 2318		mixed deposit – possibly deliberate backfilling during construction of 19thC culvert
2323	struct			southernmost 18thC canal wall		
2324	fill			dump of limestone rubble, possibly further attempt to prevent erosion along south bank of channel		limestone rubble in a dark brownish grey silty clay matrix
2325	fill			same as 2363		same as 2363
2326	fill			same as 2312		same as 2312
2327	fill			fill of formalised Trill Mill Stream		friable, dark grey clay silt with c15% charcoal , 20% gravel fragments and c10% limestone rubble
2328	fill			fill of formalised Trill Mill Stream		friable, dark grey clay silt with c15% charcoal and 20% gravel fragments
2329	fill			fill of formalised Trill Mill Stream		tenacious, light greenish grey sandy clay
2330	fill			fill of formalised Trill Mill Stream		friable, reddish brown silty clay
2331	fill			same as 2327		same as 2327
2332	struct			horn core revetment		horn core
2333	wood	0.46	0.19	poss part of timber revetment		possible plank
2334	wood			same as 2333		same as 2333
2335	wood	0.11	0.40+	poss part of timber revetment		post
2336	fill			fill of post-med channel		firm, bluish grey silty clay

context no	type	Width (m)	Depth (m)	Comment	date	description
2337	deposit			same as 2387		same as 2387
2338	fill			possibly same as 2389 - pottery not securely stratified within this deposit	?19thC	possibly same as 2389
2339	fill			same as 2389		same as 2389
2340	cut			same as 2388		same as 2388
2341	deposit			same as 2386		same as 2386
2342	wood			part of group 2360		post
2343	wood			part of group 2360		post
2344	wood			part of group 2360		post
2345	wood			part of group 2360		post
2346	wood			part of group 2360		post
2347	wood			part of group 2360		post
2348	wood			part of group 2360		post
2349	wood			part of group 2360		post
2350	wood			part of group 2360		post
2351	wood			part of group 2360		post
2352	wood			part of group 2360		post
2353	wood			part of group 2360		post
2354	wood			part of group 2360		post
2355	wood			part of group 2360		post
2356	wood			part of group 2360		post
2357	wood			part of group 2360		post
2358	wood			part of group 2360		post
2359	wood			part of group 2360		post
2360	struct			group of timber posts - possibly revetment along south bank of formalised Trill Mill Stream		consists of 2342-2359
2361	fill		0.04	primary fill of formalised Trill Mill Stream (2367)		dark grey silty clay with c5% gravel fragments
2362	fill		0.24	fill of formalised Trill Mill Stream (2367)		tenacious dark brown silty clay with 2% limestone fragments, 2% gravel fragments and organic material throughout
2363	fill		0.40	fill of formalised Trill Mill Stream (2367). late med pottery may be intrusive?	M16th-17thC	friable, dark grey clay silt with c10% limestone rubble and 10-20% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
2364	deposit		0.40	re-deposited clay consolidating southern bank of Trill Mill Stream - puddling		tenacious mid blue grey clay
2365	fill		0.30	fill of ?13thC re-cut (3650) of Trill Mill Stream, prior to deposition of clay puddling	13th-14thC	friable dark brown clay silt with 5-10% gravel fragments
2366	deposit		c0.85	possible fill of version of the proto Trill Mill Stream, contemporary with deposition of Alluvium B?		tenacious mid blue grey clay
2367	cut			arbitrary cut number allocated to re-modelled southern bank of Trill Mill Stream created by deposition of 2364		
2368	fill		c0.30	poss IA fill of proto Trill Mill Channel		friable/tenacious mid brown silty clay with organic material throughout
2369	layer			natural gravel		sand and gravel
2370	cut			nw-se aligned side channel		
2371	fill		0.40	fill of 2370		friable, dark grey clay silt with 10-20% gravel fragments
2372	fill		0.20	fill of 2370		mid orange brown clay
2373	group			group of posts and planks which may be revetting channel 2388/3602		consists of 2374, 2376, 2378-2382
2374	wood	1.00+	0.15	part of group 2373		post
2375	wood	0.20		part of group 3601		possible plank
2376	wood	1.00+	0.15	part of group 2373		post
2377	wood			part of group 3601		possible plank
2378	wood	0.13	0.10+	part of group 2373		post
2379	wood	0.15	0.10+	part of group 2373		post
2380	wood			part of group 2373		possible post
2381	wood			part of group 2373		possible post
2382	wood	1.00+	0.20	part of group 2373		possible plank
2383	VOID					
2384	fill		0.15	fill of ?13thC re-cut (3650) of Trill Mill Stream, prior to deposition of clay puddling		frim, dark grey clay silt with 5% gravel, 5% shell and c5% charcoal

context no	type	Width (m)	Depth (m)	Comment	date	description
2385	deposit			possible fill of version of the proto Trill Mill Stream, contemporary with deposition of Alluvium B?		tenacious mid blue grey clay
2386	deposit		0.20	re-deposited clay consolidating southern bank of Trill Mill Stream - puddling		tenacious mid blue grey clay
2387	deposit		0.35	possibly upper part of deposit 2386		tenacious mid orange brown clay
2388	cut			possibly interface between upper and lower fills of side channel 3602		
2389	fill		0.60	?fill of channel 2388		tenacious mid orange brown clay silt with c10% gravel fragments
2390	deposit		0.30	possibly upper part of deposit 2364		mottled mid orange brown ?sandy clay
2391	fill			fill of post-med version of Trill Mill Stream		firm dark greyish silty sand
2392	cut			re-cut of Trill Mill Stream in advance of construction of timber (2393/2335) and horn core (2332) revetment		
2393	wood			possible plank retained by post 2335		
2394	fill			fill of Trill Mill Stream cut by re-cut 2392		friable dark grey clay silt
2395	fill			fill of Trill Mill Stream cut by re-cut 2392	M16th-17thC	tenacious, light yellowish brown clay
2396	fill			possible med. fill of Trill Mill Stream		tenacious, dark grey silty clay
2397	wood			part of group 3601		timber
2398	wood			part of group 3601		timber
2399	wood			part of group 3601		timber
3600	wood			part of group 3601		timber
3601	group			group of disturbed timbers adjacent to western edge of channel 2388, where it cuts through northern edge of channel 3613. probably disturbed lining (3614/3615) of channel 3613		consists of 2375, 2377, 2397-2399, 3600 and 2382
3602	cut			probably same as 3629 and 2370		

context no	type	Width (m)	Depth (m)	Comment	date	description
3603	?fill		0.25	upper fill of channel 3602? possibly same as 2372		firm, mid orange brown silty clay
3604			0.15	upper fill of channel 3602? possibly same as 2372		firm, mid orange brown silty clay
3605	group		c1.10	group number allocated to numerous individually numbered layers of 19th-20thC overburden		consists of 2302-2307
3606	deposit		c1.00	lowest ?fluvial fill of devensian Trill Mill Stream		mid grey shell rich sand
3607	deposit		c0.30	fluvial fill of devensian Trill Mill Stream		mid brown sandy clay with some organic material
3608	deposit		c0.14	fluvial fill of devensian Trill Mill Stream		pale brown clayey sand
3609	deposit		0.42	possibly alluvium B. organic material may indicate interface with saxon organic deposition on edge of proto Trill Mill Stream??		mid blueish grey clay with sandy lenses and some organic material
3610	deposit		0.25	possibly alluvium C		mottled mid orange brown ?sandy clay
3611	deposit		0.70+	fill of ?13thC re-cut (3650) of Trill Mill Stream, prior to deposition of clay puddling	13th-14thC	friable dark brown clay silt with 5-15% gravel fragments
3612	deposit			possibly equivalent to 2368 - ?IA fills of proto Trill Mill Stream		clay rich organic deposit
3613	cut	1.50	1.80+	possible 'east-west' aligned timber lined channel cut by 3629/3602/2370		
3614	wood			at least three horizontal planks revetting the northern edge of channel 3613		planks
3615	wood			post retaining (and nailed to) 3614		post
3616	fill		0.50+	possible primary fill of channel 3613		limestone rubble
3617	fill		1.4	fill of timber lined channel 3613		predominantly mid olive brown clay silt
3618	deposit		0.30	same as 3627/2390/2387/2337? possibly upper part of deposit 3635		mottled mid orange brown clay

context no	type	Width (m)	Depth (m)	Comment	date	description
3619	'cut'			possible interface between fills of proto Trill Mill Stream		
3620	'fill'		0.04	lens of crushed limestone at interface between fills 3612 and 3621 ('cut' 3619)		limestone fragments
3621	fill		0.25	fill of proto Trill Mill Stream		mid brownish grey clay
3622	fill		0.30	fill of proto Trill Mill Stream		mid brown silty clay with 10-15% gravel fragments
3623	fill		0.25	possible fill of version of the proto Trill Mill Stream, contemporary with deposition of Alluvium B?		tenacious mid grey clay
3624	cut	0.60+	1.40	cut for possible nw-se aligned wattle lined channel		
3625	fill		0.60	primary fill of possible wattle lined channel 3624		mid brown silty clay with c20% gravel fragments
3626	fill		0.56	clay rich fill of wattle lined channel 3624 - possibly contemporary with deposition of clay 'puddling' 2364		tenacious mid blue grey clay
3627	fill		0.30	clay rich fill of wattle lined channel 3624 - possibly contemporary with deposition of clay 'puddling' 2390		mottled mid orange brown clay
3628	struct			possible wattle lining of western edge of channel 3624		
3629	cut	1.00+	1.00	nw-se aligned channel - same as 2370/3602		
3630	fill		0.04	primary fill of channel 3629		dark grey silty clay with c10% gravel fragments
3631	fill		0.20	fill of side channel 3629		tenacious mid grey clay
3632	fill		0.32	fill of side channel 3629		mid brown silty clay with 20-30% gravel fragments
3633	fill		0.35	fill of side channel 3629 - possibly same as 2372		mottled orange brown clay
3634	deposit			single number given to 19th-20thC overburden and truncating features obscured behind shoring		same as group 3605

context no	type	Width (m)	Depth (m)	Comment	date	description
3635	deposit		0.24	possibly equivalent to clay 'puddling' (e.g.2364)		tenacious, mid blue grey clay
3636	finds ref.			disturbed timbers - possibly part timber lining of cut 3613		timbers
3637	finds ref.			timber post recovered from se corner of trench - possibly part of revetment of channel 3624		post
3638	finds ref.			disturbed timbers - possibly part of group 2373		2 poss. planks
3639	deposit		0.30	layer of more sterile clay at base of deposit 3609 - originally thought to be part of same deposit and therefore samples labelled as 3609		mid blue grey clay
3640	deposit		0.20	deposit encountered within auger at north end of trench - possibly med. fill of formalised Trill Mill Stream		tenacious, dark grey sandy clay with c10% charcoal
3641	deposit		0.25	deposit encountered within auger at north end of trench - possibly med. fill of proto Trill Mill Stream		loose, dark grey clay sand with 30% gravel fragments and 10% charcoal
3642	deposit		0.15	deposit encountered within auger at north end of trench - possibly med. fill of proto Trill Mill Stream		loose, dark grey clay sand with c40% gravel fragments and 5% charcoal
3643	deposit		0.30	deposit encountered within auger at north end of trench - possibly med. fill of proto Trill Mill Stream		loose, mid yellow grey silty sand with c40% pea grit
3644	deposit		0.50	deposit encountered within auger at north end of trench - possibly med. fill of proto Trill Mill Stream		loose, dark grey sandy clay
3645	deposit		0.20	deposit encountered within auger at north end of trench - possibly fluvial fill of devensian channel??		loose mid yellow brown grit/gravel in sandy clay matrix
3646	fill			fill of channel 3602		
3647	fill			fill of channel 3602		
3648	fill			upper fill of channel 3602 (above interface 2388)		

context no	type	Width (m)	Depth (m)	Comment	date	description
3649	fill			post-med fill of channel revetted by timber and horn core structure		
3650	cut			13thC re-cut of channel pre-dating deposition of clay puddling - arbitrary cut number allocated to interface between fills of proto Trill Mill Stream and 13th-14th century fills		

Trench 24

General description	Orientation	WNW-ESE
Gravel directly overlain by 13th-14th century land reclamation cut by n-s aligned footing and overlain by possible associated surfaces or demolition horizons. Upper elements of wall removed by robber trench. Heavy truncation by pre-car park services and car park construction	**Avg. depth (m)**	3.00 (max)
	Width (m)	2.00
	Length (m)	8.00

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2400	deposit		c0.25	car park surface		concrete
2401	deposit		c0.20	made ground for concrete		hardcore
2402	deposit			modern made ground		
2403	deposit			modern made ground		
2404	fill			fill of service trench 2415		
2405	fill			fill of service trench 2415		
2406	pipe			modern service		
2407	deposit			modern made ground		
2408	deposit			fill of service trench 2410		
2409	fill			fill of robber trench 2443		mid greenish grey clay silt with c10% gravel fragments and occ. limestone rubble
2410	cut			service trench		
2411	fill		0.25	fill of cut 2413		friable, light brown sandy silt
2412	VOID					
2413	cut		0.25	interface between fills of construction cut 2420 and land reclamation deposts		
2414	VOID					
2415	cut			service trench		
2416	fill			fill of service trench 2415		

context no	type	Width (m)	Depth (m)	Comment	date	description
2417	layer			natural gravel		sand and gravel
2418	cut			service trench		
2419	fill			fill of service trench		
2420	cut			construction cut for wall 2421		
2421	struct	1.50+	c1.00	n-s aligned wall footing comprising roughly hewn limestone in degraded lime mortar		
2422	deposit		0.90-1.00	13th-14thC land reclamation or 11th-12thC quarry fills	11th-12thC	friable, dark grey brown clay silt
2423	fill			fill of service trench		
2424	deposit			?19thC garden soil		
2425	deposit			?19thC garden soil		
2426	pipe			modern service		
2427	cut			service trench		
2428	fill			fill of service trench		
2429	cut			service trench		
2430	cut			service trench		
2431	fill			fill of service trench		
2432	VOID					
2433	deposit			poss make up layer for poss surface 2443, or demolition horizon		compacted re-deposited gravel with reddish brown staining
2434	deposit			same as 2422		same as 2422
2435	VOID					
2436	fill			fill of service trench		
2437	cut			service trench		
2438	VOID					
2439	fill			fill of service inspection manhole trench		blue grey clay
2440	fill			fill of construction cut for wall 2421		
2441	deposit			13th-14thC land reclamation of 11th-12thC quarry fill		dark grey clay silt
2442	layer			natural gravel		sand and gravel
2443	surface			possible surface or demolition horizon		compacted lime mortar
2444	cut			trench robbing upper elements of wall 2421		

Trench 25						
General description					**Orientation**	E-W
Gravel overlain by alluvium overlain by land reclamation cut by robber trench which has truncated in-situ footing of north-south aligned wall. Possible associated surfaces/demolition horizon					**Avg. depth (m)**	3.25 (max)
					Width (m)	2.00
					Length (m)	6.00
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
2500	deposit		0.14	made ground for car park		made ground
2501	cut			service trench		
2502	fill			fill of service trench		fill of service trench
2503	cut	1.20	0.43	trench robbing wall 2519		
2504	fill		0.43	fill of robber trench 2519		friable, light brownish sandy silt with occasional limestone rubble
2505	deposit		0.35	post-medieval soil		compact, greyish brown sandy silt
2506	deposit		0.34	13th-14thC land reclamation		firm, dark brown silty clay
2507	deposit		c0.10	interface between alluvial sequence and land reclamation		firm, brownish grey clay with occasional charcoal
2508	deposit		c0.10	?demolition horizon to west of robbed wall (external?)		mid brownish yellow degraded mortar - limestone rubble
2509	deposit		0.06	?surface/demolition horizon to west of robbed wall (external?)		Firm, light brownish grey clay with concentrations of yellow brown clay
2510	deposit		0.08	?surface/demolition horizon to west of robbed wall (external?)		Firm, dark greenish grey clay with c30% gravel fragments
2511	deposit		0.04	surface/demolition horizon to west of robbed wall (external?)		Firm, dark greyish brown silty clay with occasional charcoal flecks
2512	deposit		0.22	post-dissolution demolition deposit to east of robbed wall (internal?)		loose mid brownish yellow degraded lime mortar
2513	deposit		0.06	surface/demolition horizon to east of robbed wall (internal?)		firm, mid brownish grey silty clay with c5% charcoal flecks
2514	deposit		0.02	surface/demolition horizon to east of robbed wall (internal?)		loose, mid grey brown silty clay with mortar lenses at base

context no	type	Width (m)	Depth (m)	Comment	date	description
2515	deposit		0.06	surface/demolition horizon to east of robbed wall (internal?)		loose, mid brownish grey silty sandy clay with c10% pea grit and occasional charcoal
2516	deposit		0.02	surface/demolition horizon to east of robbed wall (internal?)		firm, dark greyish brown silty clay with c5% gravel fragments and 5% charcoal flecks
2517	deposit		0.04	surface/demolition horizon to east of robbed wall (internal?)		firm, dark brown mottled sandy clay
2518	VOID					
2519	struct			in-situ element of wall footing robbed by 2503		
2520	VOID					
2521	cut			construction cut for north-south aligned wall footing 2519		
2522	deposit			demolition deposit	mod	
2523	deposit		0.40	alluvial deposit - alluvium B?		compact, greyish blue clay
2524	deposit		0.50	alluvial deposit - alluvium B?		compact, light blue clay
2525	deposit		0.20	alluvial deposit - possibly alluvium B		compact, greenish grey clay
2526	deposit		0.27	possibly fill of devensian channel		compact yellow clay sand
2527	layer			natural gravel		sand and gravel

Trench 26

General description	Orientation	SE-NW
Gravel overlain by possible fills of proto Trill Mill Stream equivalent to Alluvium B, which is in turn overlain by possible later fills of proto channel. These fills are overlain by possible land reclamation deposits which abutt structural elements of the Greyfriars, although the relationship between these deposits and the structures is uncertain. There was some evidence for a timber revetted, north-south aligned channel draining into the Trill Mill Stream.	**Avg. depth (m)**	4.03 (max)
	Width (m)	2.00
	Length (m)	10.00

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2600	struct	0.80	0.50	north-south aligned wall possibly the western wall of rectangular building shown on Agas with east-west return potentially marking internal division		limestone with sandy lime mortar

context no	type	Width (m)	Depth (m)	Comment	date	description
2601	deposit		0.48	possible land reclamation deposit	13th-14thC	compact, dark brown silty clay with c1% charcoal and 2% gravel fragments
2602	deposit		0.02	lens within possible land reclamation deposits		compact, dark reddish orange sandy silt with c5% fine gravel
2603	deposit		0.45-0.65	possibly 13th-14thC land reclamation? or channel fill		mid bluish grey silty clay
2604	deposit		0.56	20th century demolition	mod	20th century demolition
2605	deposit			same as 2636?		same as 2636?
2606	deposit		0.50	??demolition deposit, possibly associated with demolition of wall 2600		friable mid-light brown sand
2607	deposit		0.44	??demolition deposit, possibly associated with demolition of wall 2600	14thC (residual?)	compact mid-dark brown sandy clay
2608	deposit		0.06+	??demolition deposit, possibly associated with demolition of wall 2600	L11th-12thC (residual?)	compact brownish black sandy clay with c6% gravel fragments
2609	deposit		0.92 max	possible post-medieval soil		compact mid-dark brown clay sand with c7% gravel fragments
2610	deposit		0.40	possible north-south channel fill		dark grey/black clay silt with c5% gravel fragments and 5% charcoal, some organic material
2611	deposit		0.15	possible fill of proto Trill Mill Stream??		firm, very dark brownish grey silty clay with occasional gravel and charcoal
2612	deposit		0.30	possible north-south channel fill		soft, dark grey clay silt with 5% gravel and 5% charcoal
2613	deposit		0.50	possible post-medieval soil	13th-14thC (residual?)	dark brown sandy clay
2614	deposit		0.45	?same as 2601		?same as 2601
2615	deposit		0.45-0.65	?same as 2603		?same as 2603
2616	deposit			possible fill of proto Trill Mill Stream		friable mid brown grey clay silt with c15% charcoal
2617	deposit		0.10	possible north-south channel fill		firm dark grey-black silty clay

context no	type	Width (m)	Depth (m)	Comment	date	description
2618	deposit		0.60	possible north-south channel fill/rubble dump		firm mid brown orange clay sand with 30% limestone rubble
2619	deposit		0.50	possible post-medieval soil		friable mid yellow brown clay silt with 15% gravel and 5% charcoal
2620	wood			part of group 3635		post
2621	wood			part of group 3635		root/stake
2622	wood			part of group 3635		root/plank?
2623	wood			part of group 3635		post
2624	wood			part of group 3635		stake
2625	wood			part of group 3635		stake
2626	wood			part of group 3635		stake
2627	wood			part of group 3635		stake
2628	wood			part of group 3635		stake
2629	wood			part of group 3635		stake
2630	wood			part of group 3635		possible stake
2631	wood			part of group 3635		possible stake
2632	wood			part of group 3635		probable root
2633	wood			part of group 3635		stake
2634	struct			wall footing		
2635	group			group of posts and stakes possibly revetting north-south aligned channel - alternatively may represent timber structure associated with Trill Mill Stream		consists of 2620-2633
2636	deposit		1.20	possible clay puddling along northern bank of Trill Mill Stream, or alluvium B		firm mnid blue grey clay
2637	layer			natural gravel		sand and gravel

Trench 27						
General description					**Orientation**	N-S
Gravel overlain by fills of ?Devensian and proto Trill Mill Stream. Some evidence for pre-Greyfriars activity near the northern bank of the latter.					**Avg. depth (m)**	(max)
					Width (m)	2.00
					Length (m)	
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
2700	layer			natural gravel		sand and gravel
2701	deposit		0.10	organic fill of ?devensian or proto Trill Mill Stream		brown organic deposit - possibly decayed wood/roots or 'flotsam' overlying gravel?
2702	deposit		0.20	sandy fill of devensian or proto Trill Mill Stream		pale brown sand and gravel with c5% clay content
2703	deposit		0.24	organic deposit - possible fill of proto Trill Mill Stream		mid brown clay silt with organic material throughout
2704	deposit		0.14	?high energy interface between organic deposit 2703 and overlying clay rich fill of Trill Mill Stream 2705		mid-pale grey brown sand and gravel
2705	deposit		0.16	clay rich fill of ?proto Trill Mill Stream - possibly originates from erosion of alluvial clays to north?		tenacious, predominantly mid grey sandy clay with concentrations of very dark sandy clay - discolouration from overlying deposit 2706?
2706	deposit		0.60	fill of ?proto Trill Mill Stream		very dark grey/black clayey silt with c15% gravel fragments
2707	deposit		0.22	?fluvial fill of ?proto Trill Mill Stream		mid grey clay silt with 10-15% gravel fragments
2708	deposit		0.24	?fluvial fill of ?proto Trill Mill Stream		mid grey clay silt with 2-3% gravel fragments
2709	deposit		0.15	possibly deliberate backfilling along northern edge of Trill Mill Stream to south of timber structure 2710/2731		mid orange brown sandy gravel in mid brownish grey clay silt matrix
2710	wood			NE-SW aligned square cut timber, poss. part of a revetment on the N bank of the Trill Mill Stream		horizontal square cut timber

context no	type	Width (m)	Depth (m)	Comment	date	description
2711	deposit		0.12	?deliberate backfilling along the northern edge of the Trill Mill Stream to north of timber structure 2710/2731		predominantly mid orange brown sandy gravel in mid brownish grey silty clay matrix with concentrations of mortar and c2% limestone fragments
2712	deposit		0.20	?build up of water lain silt to south of timber structure 2710/2731		mid brown grey clay silt with c5% gravel fragments
2713	deposit		0.30 max	build up of ?water lain silts over timber structure 2710/2731		mid grey brown clay silt with 2-3% gravel fragments
2714	deposit		0.06 max	possibly a rudimentary mortar surface - possibly associated with timber structure 2710/2731 and dumped deposit 2711 - same as 2730?		compacted, crushed ? limestone 'mortar' with c 15-20% limestone fragments
2715	deposit		1.10	probably equivalent to 12th-13th century land reclamation deposits - same as 2719?		predominantly mid grey brown clay silt with c10% gravel fragments and concentrations and lenses of mortar, clay and gravel and 2% limestone fragments
2716	deposit		0.20	variation in land reclamation deposit(s)		mid grey brown clay silt with 15-20% gravel fragments
2717	deposit		0.70	post-medieval soil		mid grey brown clay with c 5% gravel fragments
2718	deposit			modern overburden		dark grey brown sandy silt with brick and limestone rubble throughout
2719	deposit		0.30	?12th-13th century land reclamation overlying 'surface' 2730 and possibly the same as 2715 to south, although considerably thinner reflecting higher elevation of surface to south		predominantly mid grey brown clay silt with c10% gravel fragments and concentrations of mid grey clay
2720	deposit		0.10	possible surface equivalent to 2714 to south		predominantly limestone fragments in crushed limestone mortar

context no	type	Width (m)	Depth (m)	Comment	date	description
2721	deposit		0.50	deposit under 'surface' 2720, possibly equating to 'fills' to south (2708)		mid grey brown clay silt with c5% gravel fragments
2722	deposit		0.30	'fill' along northern edge of Trill Mill Stream - possibly equates to 2707 to south		mid grey clay silt with 10-15% gravel fragments
2723	deposit		0.42	?fluvialfill of proto Trill Mill Stream? overlying organic deposit 2725		mid brownish grey clay silt
2724	deposit		0.06	lens at interface between fluvial fill of proto Trill Mill Stream and organic deposit underlying?		gravel and off white sand?
2725	deposit		0.40	originally thought to be top of alluvial sequence, but may equate to organic 'fill' of proto Trill Mill Stream seen overlying the clay in northern end of Trench 22 - and also seen in Trench 12		mid brown silty clay with c15% gravel fragments and some organic material
2726	deposit		0.10	disturbed top of clay alluvium (alluvium B)		mid blueish grey clay with c20% gravel inclusions at top
2727	deposit		0.45	?alluvium B - possibly same as alluvial fill of a version of the proto Trill Mill Stream postulated from deposits in south end of Trench 23		mid blue grey clay
2728	deposit		0.45	?Iron Age organic deposit/ fill of proto Trill Mill Stream		pale brown becoming darker in colour with increased depth. silty clay with organic material throughout
2729	deposit			?natural gravel		sterile pale yellowish brown sandy gravel
2730	struct			infilled 19th century basement / cess pit, to rear of buildings fronting on to Orchard Street (OS 1st Ed)		
2731	wood			post to south of, and possibly retaining, timber 2710		

Trench 28						
General description					**Orientation**	N-S
Gravel overlain by Iron Age organic material, overlain by Alluvium B, overlain by Alluvium C					**Avg. depth (m)**	(max)
					Width (m)	2.00
					Length (m)	
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
2800	deposit		c0.20	post-medieval soil		mid grey brown clay silt
2801	deposit		1.00	alluvium C		tenacious mid bluey grey clay with orange brown mottling
2802	deposit		0.40	alluvium B/C		tenacious brownish orange clay
2803	deposit		0.40	alluvium B		tenacious dark grey/blue clay
2804	deposit		c0.30	Iron Age organic		tenacious dark brown silty clay with organic material throughout
2805	deposit		0.30	alluvium C		tenacious grey brown silty clay
2806	deposit		0.38	alluvium C		tenacious grey brown clay with blue grey and orange mottling
2807	deposit		0.22	alluvium C		tenacious orange brown clay with blue grey mottling
2808	deposit		0.24	alluvium B		tenacious light orange brown clay
2809	deposit		0.10-0.20	bioturbation?/geological variation in upper surface of gravel		gravel rich deposit in silty matrix
2810	deposit		0.12-0.15	Iron Age organic		blueish grey silt with c25% pea grit and some organic material
2811	deposit		0.17	alluvium B		tenacious grey brown clay
2812	deposit		0.07	alluvium B		tenacious grey brown clay with blue grey mottling
2813	deposit		0.20	Iron Age organic		dark grey brown silty clay with c5% gravel
2814	deposit		0.25	Iron Age organic		mid brown peat with organic material throughout and occasional gravel

context no	type	Width (m)	Depth (m)	Comment	date	description
2815	deposit		0.15	bioturbation?/geological variation in upper surface of gravel		loose blueish grey silty sand with c20% gravel
2816	deposit		0.48	post-medieval soil		firm grey brown silty clay with c10% gravel fragments and 5% charcoal
2817	deposit		0.88	alluvium C		tenacious grey brown clay with blue grey mottling, particularly towards base
2818	deposit		0.16	alluvium B/C		tenacious light orange brown clay
2819	deposit		0.36	alluvium B		tenacious dark blue grey clay
2820	deposit		0.42	Iron Age organic	780-540 BC	tenacious mid-dark brown peat with sandy lenses and organic material throughout
2821	deposit			bioturbation?/geological variation in upper surface of gravel		loose bluey grey silty sand with c40% gravel fragments
2822	deposit		0.13	post-medieval soil		grey brown silty clay with c5% gravel fragments and some iron panning?

Trench 29

General description	Orientation	N-S
Gravel overlain by Iron Age organic material, overlain by Alluvium B, overlain by Alluvium C. Alluvium B and C cut by possible medieval channels	Avg. depth (m)	(max)
	Width (m)	2.00
	Length (m)	

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
2900	deposit		0.10	tarmac		tarmac
2901	deposit		0.26	made ground		type I
2902	deposit		0.36	demolition rubble	mod	demolition rubble
2903	deposit		0.06	possible 19th century 'occupation'	19th C	brownish grey gravelly silt
2904	deposit		0.04	possible 19th century yard surface	19th C	off white crushed ? limestone with c35% gravel

context no	type	Width (m)	Depth (m)	Comment	date	description
2905	deposit		0.10	made ground for 'surface' 2904		
2906	deposit		0.16	post-medieval soil		mid-dark brownish grey silty clay
2907	deposit		0.40	alluvium C		tenacious mid olive brown clay with grey mottling
2908	deposit		0.70	alluvium B		tenacious mid brown clay
2909	deposit			demolition	mod	demolition
2910	cut			cut of ?medieval channel		
2911	fill			fill of poss. ?med channel	L15th-M16thC	mid brownish grey clay silt with c15% gravel fragments
2912	deposit		0.20	alluvium B		mottled orange brown clay
2913	deposit		0.20	alluvium B		mid blueish grey clay
2914	deposit		0.40	Iron Age organic		mid-dark brown silty clay with organic material throughout
2915	deposit		0.10	variation in base of Iron Age organic deposit - possible buried soil???		dark grey silty clay with some organic material
2916	deposit		0.30+	alluvium B		tenacious orangey brown clay
2917	deposit		0.35	alluvium B		tenacious orangey grey clay
2918	deposit		0.42	Iron Age organic		mid-dark grey brown silty clay with organic material throughout
2919	deposit		0.25	possibly a discolouration of deposit 2917/2923 caused by adjacent channel fills (2920/2933)		tenacious bluish grey clay
2920	fill		0.60	fill of possible medieval channel	13th-14thC	compact mid brownish grey clay silt with charcoal and organic material throughout
2921	cut	3.60	1.50	possible medieval channel		
2922	fill		0.40	fill of possible medieval channel		orangey grey silty clay
2923	deposit		0.60	alluvium B - same as 2917?		tenacious orange clay
2924	deposit		0.50	alluvium C		tenacious mid brown clay

2925	deposit		1.22	alluvium B/C		tenacious orangey grey clay
2926	deposit		0.22	alluvium B		tenacious brownish grey clay
2927	deposit		0.32	Iron Age organic		mid brown silty clay with organic material throughout
2928	deposit		0.05	bioturbation?/geological variation in upper surface of gravel		loose dark grey gravel
2929	layer			natural gravel		sand and gravel
2930	deposit		0.50	post-medieval soil		dark brown silty clay
2931	deposit		1.22	alluvium B/C		tenacious orangey grey clay
2932	deposit		0.30	Iron Age organic?		dark grey brown clay silt
2933	fill		0.50	fill of possible medieval channel 2921		grey brown silty clay
2934	fill		0.50	possible 19thC fill accumulated in soft spot created by fills of possible med channel	19th C	mixed
2935	fill		0.50	fill of possible medieval channel		mid grey brown clay silt with c5% gravel fragments
2936	layer			natural gravel		sand and gravel
2937	deposit		0.12	alluvium B - interface between alluvium B and Iron Age organic deposit		dark bluish grey clay
2938	deposit		0.52	made ground		made ground
2939	deposit		0.40	post-medieval soil		dark greyish brown silty clay
2940	deposit		0.20	interface between post-medieval soil and alluvial sequence		light orange brown silty clay
2941	deposit		0.20	alluvium C		orange grey clay
2942	deposit		1.00	alluvium B/C		brownish grey clay
2943	deposit		0.34	alluvium B		dark blueish grey clay
2944	deposit		0.10	Iron Age organic		dark grey silty clay

Trench 30						
General description					**Orientation**	N-S
Gravel overlain by possible trampled soil horizon, overlain by possible re-deposited gravel consolidation on periphery of island of higher ground. These deposits are overlain by a series of sand and shell rich deposits which may represent the fills of a north-south aligned channel shown on a number of cartographic sources.					**Avg. depth (m)**	(max)
					Width (m)	2.00
					Length (m)	
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
3000	deposit			same as 3013		same as 3013
3001	VOID					
3002	deposit		0.28	19th century ?garden soil	19th C	predominantly dark brown clay silt
3003	deposit		0.50	?channel fill		tenacious light brownish orange silty clay
3004	deposit		0.20	?channel fill		tenacious, orange to light greenish grey clay
3005	deposit		0.25	?channel fill		soft, light greyish brown sandy clay
3006	deposit		0.15	channel fill	13th-14thC	friable dark brown sandy silt rich in charcoal (?80%)
3007	deposit		0.18	channel fill	13th-14thC	friable dark yellowish grey silty sand
3008	deposit		0.15	channel fill		compact light greenish grey clay
3009	deposit		0.10	?channel fill		loose orange sand
3010	deposit			natural gravel		sand and gravel
3011	deposit		0.30-0.42	made ground		loose mid yellowish brown sandy silt and gravel
3012	deposit		0.42-0.47	made ground		firm yellowish grey slightly silty clay
3013	deposit		0.06-0.10	made ground	M16th-17thC but overlies 3013	loose greyish brown very sandy silt
3014	deposit		0.10	made ground	19th C	firm mid greyish black silty clay
3015	deposit		0.16	channel fill	M16th-17thC	loose yellowish grey silty sand
3016	deposit		0.10	channel fill		friable light yellowish brown sandy gravel with 30% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
3017	deposit		0.12	channel fill		firm greenish grey clay
3018	VOID					
3019	fill			clay fill between well cut 3049 and stone lining 3050		
3020	deposit		0.10	?channel fill		friable light brown sandy silt with 15% charcoal
3021	deposit		0.03	channel fill		friable dark reddish brown silty clay
3022	deposit			tarmac		tarmac
3023	deposit			made ground for tarmac		stone
3024	deposit			made ground for tarmac		hardcore
3025	deposit			overburden		overburden
3026	VOID					
3027	VOID					
3028	cut		1.80	post-medieval/19th century pit cut		
3029	fill		0.26	fill of post-medieval pit		firm reddish grey brown sandy silt
3030	fill		1.10	fill of post-medieval pit		firm brownish grey silty sand and clay
3031	fill		0.86	fill of post-medieval pit		loose mid reddish brown sandy silt
3032	fill		0.54	fill of post-medieval pit		firm greyish brown sandy clay
3033	deposit			?made ground		orangey brown silty sand and clay
3034	deposit			?made ground		firm dark grey sandy clay
3035	deposit		0.30	channel fill		firm light brownish yellow silty clay
3036	deposit		0.30	channel fill		friable light brownish orange clay
3037	deposit		0.35	channel fill		friable greyish green clay silt
3038	deposit		0.06	channel fill		friable dark greyish brown clay silt
3039	deposit		0.16	channel fill	13th-14thC	friable light greyish yellow sandy silt
3040	deposit		0.08	?channel fill		friable dark greyish brown silty clay with common charcoal flecks

context no	type	Width (m)	Depth (m)	Comment	date	description
3041	deposit		0.16	channel fill		loose orange brown sand
3042	deposit		0.05	channel fill	E-L11thC (residual?)	loose greyish orange fine sand
3043	deposit		0.10	channel fill		loose dark greyish brown silty clay
3044	deposit		0.10	channel fill		friable dark grey silty clay
3045	deposit		0.20	?channel fill		compacted dark greenish grey clay with occasional charcoal
3046	cut	0.40	0.09	possible posthole		
3047	fill		0.09	fill of possible posthole		reddish brown silty clay/loam
3048	group			a series of small possible stakeholes in base of northern end of trench		
3049	cut			cut for 19th century well		
3050	struct			19th century well lining		limestone blocks
3051	fill			fill of well		
3052	fill			backfill around well lining		
3053	deposit		0.06	possible consolidation of boggy area at periphery of island of higher ground		compacted orange brown sand and gravel
3054	deposit		0.20 max	possibly trampled buried ground surface		friable-compacted mid-dark grey silty and clay with coprolite inclusions and c35% gravel fragments
3055	deposit		0.30	channel fill		compact light blueish grey clay
3056	deposit		0.40	channel fill		friable mid brownish grey sandy silt
3057	deposit		0.10	channel fill		soft dark brown silty sand
3058	deposit		0.05	channel fill		compact dark blue sandy clay
3059	VOID					
3060	deposit			same as 3056		same as 3056
3061	deposit		0.06	same as 3053?		compact mid brownish orange sandy gravel
3062	deposit		0.10	same as deposit 3054?		friable dark brown sandy clay

context no	type	Width (m)	Depth (m)	Comment	date	description
3063	deposit		0.30	bioturbation?/geological variation in upper surface of gravel		compact llight grey/white sand and gravel
3064	deposit			natural gravel		sand and gravel
3065	VOID					
3066	VOID					
3067	deposit		0.06	possible variation in 'trample' deposit 3062		friable dark grey/black gravelly clay
3068	deposit		0.05	channel fill		grey/dark yellow silty clay
3069	deposit		0.07	channel fill		dark grey/black silty clay
3070	deposit		0.08	channel fill		loose, dark grey sandy charcoal - same as 3073
3071	deposit		0.10	channel fill		loose mid brownish grey silty clay
3072	deposit		0.25	channel fill		compact mid brownish grey sandy clay
3073	deposit		0.06	channel fill		loose dark sandy charcoal - same as 3070?
3074	deposit		0.08	channel fill		loose sand and shell
3075	deposit		0.20	channel fill		loose sand with concentrations of dark yellow sandy silt
3076	VOID					
3077	VOID					
3078	VOID					
3079	VOID					
3080	VOID					
3081	deposit			19th century soil??		overburden
3082	deposit		0.26	?channel fill		compact light greyish brown clay with c1% charcoal

Trench 31						
General description					**Orientation**	N-S
Deposits at western end of trench appear to reflect fairly general sequence seen elswhere - Iron Age organic material overlain by Alluvium B, overlain by Alluvium C. Towards the east of the Trench, the sequence is similar to that recorded in Trench 30, with the possible trampled soil horizon and associated gravel consolidation deposits being cut by a possible medieval north-south aligned channel which is in turn cut by a post-medieval channel.					**Avg. depth (m)**	(max)
					Width (m)	2.00
					Length (m)	
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
3100	deposit			19th century made ground/ garden soil	19thC	mixed
3101	deposit		0.22			loose dark brown silty clay
3102	deposit		0.32			tenacious blueish grey clay
3103	deposit		0.06			dark brown clayey gravel
3104	deposit		0.12			loose orangey yellow coarse sand
3105	deposit		0.14			tenacious bluish grey clay
3106	deposit		0.25	bioturbation?/geological variation in upper surface of gravel		loose, pale blue clay matrix with c60% gravel fragments
3107	deposit		0.50			tenacious mid grey/brown clay
3108	deposit		0.10			tenacious grey blue clay
3109	deposit		0.16			tenacious greyish brown clay
3110	deposit		0.18			loose mid yellowish brown silty sand
3111	deposit		0.10			friable dark brown clay silt
3112	deposit		0.15			tenacious dark grey/black silty clay
3113	deposit			natural gravel		sand and gravel
3114	deposit			natural gravel		sand and gravel
3115	deposit		0.40			friable dark brown silty clay with c5% gravel pebbles
3116	deposit		0.10			friable greyish orange silty sand

context no	type	Width (m)	Depth (m)	Comment	date	description
3117	deposit		0.48			tenacious bluish grey clay
3118	deposit		0.05			loose, light orangey yellow coarse sand
3119	deposit		0.05			friable mid greyish brown silty clay
3120	deposit		0.20			loose mid yellowish brown silty sand with occasional charcoal
3121	deposit		0.20			loose dark grey clayey gravel
3122	deposit		0.22	bioturbation?/geological variation in upper surface of gravel		loose yellowish grey gravel
3123	deposit		0.25	bioturbation?/geological variation in upper surface of gravel		loose light grey gravelly silt
3124	cut			possibly interface between organic deposit and bioturbation?/geological variation in upper surface of gravel		
3125	deposit					loose very dark grey/black clayey gravel
3126	deposit		0.11			loose mid to dark grey silty clay
3127	deposit			probable natural		loose light orange gravel
3128	deposit		0.40			tenacious yellowish orange silty clay
3129	deposit		0.56			tenacious light yellow brown clay
3130	deposit		0.30			tenacious bluish grey clay
3131	deposit					tenacious very dark grey brown clay
3132	deposit		0.46	alluvium C		tenacious orange brown silty clay
3133	deposit		0.10 -0.38	?alluvium B		tenacious dark grey with blue grey mottling clay silt
3134	deposit		0.15	made ground/interface between alluvium and overlying post-medieval deposits		firm orange brown sandy clay

context no	type	Width (m)	Depth (m)	Comment	date	description
3135	deposit		0.25	possibly interface between alluvium B and ?Iron Age organic deposit		tenacious blue grey with some organic material silty clay
3136	deposit		0.10			friable dark grey brown silty clay
3137	deposit		0.25			friable dark grey/brown sandy clay
3138	deposit		0.50			friable mid brown sandy clay
3139	deposit		0.12			friable light yellowish grey silty clay
3140	deposit		0.50			tenacious light yellowish grey silty clay
3141	deposit		0.10			friable dark reddish brown clayey silt
3142	deposit		0.20			loose dark yellowish brown sandy silt
3143	deposit		0.18			tenacious greenish blue clay
3144	deposit		0.12			loose dark orange brown clayey silt
3145	deposit		0.24			loose greyish brown silty sand
3146	deposit		0.10			loose greyish brown silty sand
3147	deposit		0.12			mid brownish yellow silty sand
3148	deposit		0.22			compact brownish green clay
3149	deposit		0.13			compact dark grey brown silty clay
3150	deposit		0.22			compact yellowish green silty clay
3151	deposit		0.14			dark brown silty clay with occasional sandy lenses
3152	fill		0.24	fill of ?post-medieval channel 3156		mid brownish grey clayey sand
3153	fill		0.26	fill of ?post medieval channel 3156		compact blueish green clay silt
3154	fill		0.15-0.20	fill of ?post-medieval channel 3156		loose mid grey silty sand
3155	fill			fill of ?post-medieval channel 3156		compact yellowish grey clay

context no	type	Width (m)	Depth (m)	Comment	date	description
3156	cut			?post-medieval re-cut of north-south alighned channel?		
3157	deposit					friable greyish orange silty sand
3158	deposit					compact mid blue clay
3159	deposit		0.15	possible buried/trampled soil horizon		compact light greyish brown sandy gravel with coprolite inclusions (c10%)
3160	deposit		0.20	bioturbation?/geological variation in upper surface of gravel		loose mid brownish grey silty sand with 90% gravel
3161	fill			fill of ?post-medieval channel 3156		compact blueish green clay
3162	fill			fill of ?post-medieval channel 3156		friable very dark grey/black clay silt
3163	VOID					
3164	deposit		0.15			loose very light grey sand
3165	deposit		0.20			compact dark grey clayey gravel
3166	deposit		0.20			tenacious yellowish grey clay
3167	deposit		0.04			charcoal lens between 3166 and 3188
3168	deposit		0.30			friable mid grey silty sand with c40% pea grit and shell
3169	deposit		0.20			friable dark grey/black clayey sand
3170	deposit		0.30	possible buried/trampled soil horizon		friable light greyish brown clayey gravel with c5% coprolite inclusions
3171	deposit			bioturbation?/geological variation in upper surface of gravel		compact light grey/white gravel
3172	deposit		0.10			tenacious mid grey/blue clay
3173	VOID					
3174	deposit		0.10	one of a series of possibly deliberate dumps of gravel at periphery of gravel island to south-east to consolidate boggy area?		compact dark orange gravel

context no	type	Width (m)	Depth (m)	Comment	date	description
3175	deposit		0.10-0.15	one of a series of possibly deliberate dumps of gravel at periphery of gravel island to south-east to consolidate boggy area?		
3176	deposit		0.04	one of a series of possibly deliberate dumps of gravel at periphery of gravel island to south-east to consolidate boggy area?		
3177	deposit		0.20	one of a series of possibly deliberate dumps of gravel at periphery of gravel island to south-east to consolidate boggy area?		
3178	deposit		0.04	one of a series of possibly deliberate dumps of gravel at periphery of gravel island to south-east to consolidate boggy area?		

Trench 32

General description	Orientation	N-S
Gravel overlain by fills of the Trill Mill Stream - some evidence for timber structure within channel	Avg. depth (m)	(max)
	Width (m)	2.00
	Length (m)	

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
3200	deposit			topsoil		topsoil
3201	deposit		0.50	demolition		demolition
3202	wood			stake/post within 3203		stake/post
3203	deposit		1.20	fill of Trill Mill Stream	M16th-17thC	predominantly mid-dark grey blue silty clay with occasional gravel and charcoal
3204	deposit		0.20	fill of Trill Mill Stream		friable dark grey clay silt
3205	deposit		0.15	fill of Trill Mill Stream		friable/loose mid orange grey clay silt with c5% charcoal
3206	deposit		0.50	post medieval fill of Trill Mill Stream		tenacious dark brown clay silt with ?limestone rubble throughout
3207	deposit		0.50	post-medieval fill of Trill Mill Stream		loose mid brownish yellow clay silt with 5% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
3208	deposit		0.30	possible 19th century garden soil		friable dark grey brown clay silt with 5% gravel and 5% charcoal
3209	deposit		0.60	?garden soil		friable mid grey-brown clay silt
3210	deposit		1.00	possibly fills of ?proto Trill Mill Stream		firm mid-dark grey sandy silt with occasional charcoal and pea grit
3211	deposit		1.10	possibly fills of proto /devensian Trill Mill Stream		very loose mid brownish grey clay silt with 60% sand and gravel
3212	wood			stake/post within 3203		stake/post
3213	layer			natural gravel		sand and gravel

Trench 33

General description	**Orientation**	N-S
Gravel overlain by fills of the Trill Mill Stream - some evidence for timber structure within channel	**Avg. depth (m)**	(max)
	Width (m)	2.00
	Length (m)	

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
3300	deposit		0.24	turf and topsoil		turf and topsoil
3301	deposit		0.20	made ground		hardcore
3302	deposit		0.22	made ground		stone
3303	deposit		0.52	demolition		demolition
3304	deposit		0.50	?19th century garden soil		mid-dark brown clay silt
3305	deposit		0.34	?post-medieval soil		mid grey brown clay silt
3306	deposit		1.18	fill of Trill Mill Stream	M16th-17thC	brown silty clay with c2% charcoal
3307	wood			part of group 3318		post
3308	wood			part of group 3318		post
3309	wood			part of group 3318		post
3310	wood			part of group 3318		post
3311	wood			part of group 3318		post
3312	deposit		0.54	fill of Trill Mill Stream		mid-dark brown silty sand with light and dark brown laminations
3313	VOID					
3314	wood			part of group 3318		post

context no	type	Width (m)	Depth (m)	Comment	date	description
3315	deposit		0.24	13th-14thC fill of Trill Mill Stream		sand and gravel in a dark brown silty sand matrix
3316	deposit		0.14	13th-14thC fill of Trill Mill Stream		mid brown silty sand with 30% gravel fragments
3317	deposit		0.14	13th-14thC fill of Trill Mill Stream		sand and gravel in a dark brown silty sand matrix
3318	group			structure comprising six timber posts on a roughly e-w alignment and probably associated with the north bank of the Trill Mill Stream		consists of 3307-3311 and 3314
3319	deposit			13th-14thC fill of Trill Mill Stream		loose, fairly sterile gravel in a grey silty sand matrix
3320	VOID					
3321	finds ref			spoil from deposits 3315-3319	13th-14thC	finds ref
3322	deposit			same as 3312		same as 3312
3323	deposit			possible fill of ?devensian/ proto Trill Mill Stream		dark grey silty gravel
3324	deposit			possible fill of ?devensian/ proto Trill Mill Stream		light grey gravel
3325	deposit			possible fill of ?devensian/ proto Trill Mill Stream		dark orange sand and gravel
3326	layer			natural gravel		sand and gravel
3327	finds ref			spoil from 3319	13th-14thC	finds ref
3328	finds ref			spoil from 3319/3317	13th-14thC	finds ref
3329	finds ref			spoil from 3322	13th-14thC	finds ref

Trench 34						
General description					**Orientation**	N-S
Excavated exclusively within the fills of a NE-SW aligned channel, final phase of backfilling of which appears to be mid-late 18thC.					**Avg. depth (m)**	(max)
					Width (m)	2.00
					Length (m)	
Contexts						
context no	**type**	**Width (m)**	**Depth (m)**	**Comment**	**date**	**description**
3401	finds ref			finds reference for surface cleaning of trench following machine excavation of 19th century and modern overburden		finds ref
3402	deposit		1.56	demolition/overburden		mixed
3403	deposit		0.28	made ground for car park		hardcore
3404	deposit		0.13	tarmac		tarmac
3405	cut	1.70		cut for ?19th century well		
3406	cut	1.20		cut for 19th century outbuilding shown on OS 1st edition map		
3407	struct	1.40		?19th century well		
3408	struct	1.20		19th century outbuilding		
3409	fills			fills of 19th century pit sequence 3452		mixed
3410	deposit		0.70	channel fill		loose, mid yellow to dark orange sandy gravel
3411	deposit		0.12	channel fill	M-L18thC	loose, orangey brown silty coarse sand
3412	deposit		0.14	channel fill	M16th-17thC	friable mid grey sandy clay
3413	deposit		0.36	channel fill		friable, light brown clay with occasional charcoal
3414	deposit		0.26	channel fill		loose, light greyish orange coarse sand and gravel
3415	deposit		0.28	channel fill	L17th-M18thC	friable, greyish blue clay
3416	deposit		0.30	channel fill	L17th-M18thC	tenacious, light reddish brown clay
3417	deposit		0.04	channel fill		friable, dark orange brown sandy clay with occasional charcoal flecks

context no	type	Width (m)	Depth (m)	Comment	date	description
3418	deposit		0.12	channel fill		loose, orange brown sandy clay with pea grit and occasional charcoal
3419	deposit		0.18	channel fill		friable, mid orange brown gravelly sand
3420	deposit		0.26	channel fill		loose, dark grey/black clay with frequent wood fragments and occasional gravel pebbles
3421	deposit		0.34	channel fill - high concentration of horn cores etc		tenacious, dark grey clay
3422	deposit		0.50	channel fill		friable, light orange brown sandy clay
3423	deposit		0.20	channel fill		tenacious, dark grey clay with occasional charcoal and wood fragments
3424	deposit		0.12	channel fill		light orange brown clayey silt
3425	deposit		0.14	channel fill		friable, blue silty clay
3426	deposit		0.40	channel fill	M16th-17thC	loose, greyish orange sandy gravel
3427	deposit		0.18	channel fill		tenacious, dark grey gravelly clay
3428	deposit		0.30	channel fill - high concentrations of organic material and animal bone	M16th-17thC	loose, dark grey/black sandy clay with wood fragments and concentrations of gravel throughout
3429	deposit		0.28	channel fill? - dump of rubble filling 'cut' 3453		loose grey brown sandy clay matrix around limestone rubble
3430	wood			part of group 3450		post
3431	wood			part of group 3450		post
3432	wood			part of group 3450		post
3433	wood			part of group 3450		post
3434	wood			part of group 3450		post/stake
3435	wood			part of group 3450		stake
3436	wood			part of group 3450		post
3437	wood			part of group 3450		stake
3438	wood			part of group 3450		post

context no	type	Width (m)	Depth (m)	Comment	date	description
3439	wood			part of group 3450		stake
3440	cut			possible cut or drag line for post 3432 - cuts 3428		
3441	fill			fill of 3440		loose light yellow sand
3442	wood			post probably associated with group 3450 but not in-situ		post
3443	deposit		0.10	early fluvial fill of channel/ disturbed natural		compact light yellow gravel
3444	deposit		0.35	early fluvial fill of channel / disturbed natural		loose, greyish yellow sand
3445	fill		0.20	fill of 3446		loose light yellow sand
3446	cut		0.20	possible cut or drag line for post 3446 - cuts 3428, 3443, 3444		
3447	fill		0.12	fill of 3448		loose light yellow sand
3448	cut		0.12	possible cut or drag line for post 3436 - cuts 3428, 3443, 3444		
3449	fill		0.16	fill of 3451		loose light yellow sand
3450	group			group of timber posts and stakes		consists of 3430-3439
3451	cut		0.16	possible cut or drag line for post 3434 - cuts 3428, 3443, 3444		
3452	cut			sequence of 19th century ?rubbish pits		
3453	'cut'		0.28	possibly interface between underlying channel fills and dump of limestone rubble, although regularity of this interface was indicative of a cut feature		
3454	deposit			natural gravel		sand and gravel
3455	deposit		0.26	channel fill	17th-L17thC	loose yellowish orange silty sand
3456	deposit		0.14	channel fill	M16th-17thC	tenacious dark blue sandy clay
3457	deposit		0.18	channel fill	L15th-M16thC	tenacious light blue clay
3458	deposit		0.08	channel fill		friable brownish grey clayey sand
3459	deposit		0.20	channel fill		tenacious mid blueish brown clay

context no	type	Width (m)	Depth (m)	Comment	date	description
3460	deposit		0.14	channel fill		loose greenish grey sandy gravel
3461	deposit		0.10	channel fill		tenacious light brown clay
3462	deposit		0.15	channel fill	14thC	tenacious dark brown clay
3463	deposit		0.08	early fluvial fill of channel?		loose dark greyish brown sandy clay
3464	deposit		0.04	channel fill		loose reddish brown clayey silt with some organic material
3465	deposit		0.04	channel fill		loose reddish brown clayey silt
3466	deposit		0.14	early fluvial fill of channel?		loose mixed yellow clay and dark grey gravel
3467	deposit		0.08	early fluvial fill of channel?		loose light yellow sand
3468	layer			natural gravel		sand and gravel
3469	cut?			possible northern edge to channel seen in plan but fairly diffuse in section		

Trench 35

General description	Orientation	N-S
Timber structures and demolition deposits, possibly associated with an adjacent mill structure	Avg. depth (m)	(max)
	Width (m)	2.00
	Length (m)	

Contexts

context no	type	Width (m)	Depth (m)	Comment	date	description
3500	layer			natural gravel		sand and gravel
3501	deposit			organic deposit overlying gravel to east of trench but not present to west		mid brown silty clay with organic material throughout - paler in colour towards base of deposit
3502	deposit			very dark grey variation in organic deposit 3501 at interface with overlying ? high energy deposit 3503		very dark grey silty clay with organic material throughout
3503	deposit		0.10	possible fill of n-s aligned channel observed within Trench 30		mid-dark grey clay silt matrix with c60% gravel fragments
3504	deposit		0.20	possible fill of n-s aligned channel observed within Trench 30		mid greenish grey clay silt matrix with c65% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
3505	?fill		0.30	either a variation in the rubble deposits 3507/3512 or high energy deposit overlying 3504		dark grey clayey silt with c45% gravel fragments
3506	cut			possible construction cut for timber and rubble structure 3550		
3507	fill		0.20	rubble rich deposit abutting and underlying timber structure 3550		limestone rubble in a mid-dark grey clay silt matrix with c40% gravel fragments
3508	wood	0.14	0.14	possible roofing timber re-used as ?channel lining. part of group 3550		square cut timber
3509	fill		0.20	fill of construction cut for structure 3551?		mid-dark grey clay silt with 10-15% gravel fragments
3510	wood	0.35	0.24	eastern extent of southern timber of group 3551		timber 'plank'
3511	cut			construction cut for timber structure 3551		
3512	fill		0.40	rubble rich deposit abutting timber structure 3550		large limestone fragments in a dark grey silty clay matrix with 10-15% gravel fragments
3513	fill		0.20	gravel rich deposit underlying timber 3514 (g.3551) and overlying timber 3515 (g.3550) - possible fill of construction cut for g.3551/robbing of g.3550		mid-dark grey clay silt matrix with c65% gravel fragments
3514	wood	0.35	0.25	eastern extent of northernmost timber of group 3551		
3515	fill		0.12	possible in-situ fill of timber lined ?channel g.3551. Truncated to west by 3539		mid grey brown sandy clay with c15-20% gravel fragments
3516	fill		0.20	possible in-situ fill of timber lined ?channel g.3551. Truncated to west by 3539		mid blueish grey sandy clay
3517	fill		0.20+	fill of possible cut 3548 robbing structure 3551. similar in composition to demolition deposit 3525		mid orangey brown sand with c35% gravel fragments and 1-2% limestone fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
3518	wood			post, possibly associated with group 3550		post
3519	wood			post, possibly associated with group 3550		post
3520	fill		0.30	fill of cut 3548 robbing structure 3551. similar in composition to deposits butting timbers		dark grey clay silt with 35% gravel fragments, 2-3% oyster shell and c3% limestone fragments
3521	fill		0.25	rubble rich fill of cut 3548 robbing structure 3551		mid brownish grey clay silt with 20-25% limestone rubble
3522	fill		0.10	fill of cut 3548 robbing structure 3551		mid grey brown silty sand
3523	fill		0.18	?demolition deposit filling cut 3548 robbing structure 3551		mid grey clay silt matrix with 30% limestone rubble (roof tile predominant)
3524	fill		0.12	layer of re-deposited organic material within fills of cut 3548 robbing structure 3551		mid brown silty clay with organic material throughout
3525	fill		0.40	fill of cut 3548 robbing structure 3551 - interface between this deposit and underlying fills allocated cut number 3539		mid orange brown sandy matrix with 30% limestone rubble (roof tile predominant), decorated floor tile, mollusc rich lenses throughout
3526	fill		0.10	possibly upper fill of cut 3548/3539 robbing structure 3551 - alternatively may be base of post-medieval deposits (3534)		mid-dark brownish grey clay with c10% gravel fragments
3527			0.04	possibly sandy lens representing upper fill of cut 3548/3539 robbing structure 3551 - alternatively may be base of post-medieval deposits (3534)		mid orange brown sand
3528	fill		0.20	probably base of post-medieval deposits overlying fills of cut 3548 robbing structure 3551		mid grey sandy silt
3529	fill		0.12	possibly remnants of the fill of structure 3550 cut by 'construction/robbing' cut 3547		mid-pale grey clay silt with 15-20% gravel fragments

context no	type	Width (m)	Depth (m)	Comment	date	description
3530	fill		0.28	fill of 'construction cut' 3547 for structure 3551		mid-dark grey clay silt with 15-20% gravel fragments, 5% oyster shell, 2-3% charcoal and 2-3% limestone fragments
3531	wood			western extent of northern timber of group 3551		
3532	wood			western extent of southern timber of group 3550		
3533	wood			western extent of southern timber of group 3551		
3534	deposit		0.17	post-medieval ?alluvial soil representing reversion of area to floodplain following abandonment of underlying structures		mid blueish grey silty clay
3535	deposit		0.18	post-medieval ?alluvial soil representing reversion of area to floodplain following abandonment of underlying structures		mid orangey brown clay silt
3536	deposit		1.70	19th century and modern overburden		overburden
3537	fill		0.22	part of demolition backfill filling cut 3548/3539 robbing structure 3551		mid orange brown sand and 15% gravel fragments
3538	fill		0.32	shell rich deposit at base of deposit 3525		mid orange brown shelly sand with 10-15% limestone rubble
3539	'cut'			interface between demolition deposit 3525, and lower fills of cut 3548 robbing structure 3551		
3540	fill		0.28	fill of cut 3548/3539 robbing strucutre 3551		mid orange brown sand with c5% limestone fragments
3541	fill		0.35	rubble deposit filling construction cut 3546 and possibly forming part of structure 3550		limestone rubble in dark grey silty clay matrix
3542	fill		0.10	thin lens of wood fragments overlying rubble deposit 3541		concentration of wood fragments in dark grey silty clay matrix
3543	fill		0.14	shell rich sandy deposit overlying rubble rich deposit 3541		mid orangey brown very shelly sand

context no	type	Width (m)	Depth (m)	Comment	date	description
3544	?fill		0.30	?fluvial deposit overlying rubble deposit 3541		dark grey silty clay with c10% shell, 5% gravel fragments and lenses of mid brown silty clay with organic material
3545	fill		0.20	possibly remaining fill of strucutre 3550 truncated by cut robbing same (3547)		mid-pale grey clay silt with c15% gravel fragments
3546	cut			?construction cut for structure 3550		
3547	cut			?robbing of group 3550/construction of group 3551		
3548	cut			cut robbing structure 3551		
3549	fill		0.40	possible in-situ fill of timber structure 3551		same as 3530
3550	group			group number allocated to curvilinear timber structure		consists of 3508, 3532, 3553
3551	group			group number allocated to timber structure		consists of 3510, 3514, 3531, 3533
3552	group			two timber posts possibly associated with structure 3550		consists of 3518 and 3519
3553	wood			northern timber of structure 3550		

APPENDIX B. FINDS REPORTS

B.1 Pottery

By Paul Blinkhorn

B.1.1 The pottery assemblage comprised 906 sherds with a total weight of 16,608 g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 4.02. The material is entirely late Saxon and later, apart from a few sherds of residual prehistoric and Romano-British material. The bulk of the assemblage dates to the earlier part of the medieval period, particularly the 13th – 14th centuries, with very little later medieval pottery present. The post-medieval period saw a brief period of pottery deposition during the second half of 16th century and after the mid-18th century, but otherwise post-medieval wares were rare.

B.1.2 The medieval assemblage is fairly typical of others in the city of Oxford,

Fabric

B.1.3 The pottery was recorded utilizing the coding system and chronology of the Oxfordshire County type-series (Mellor 1984; 1994), with alphanumeric codes, prefixed by an 'F', used in the database and tables, as follows:

F100: OXR: St. Neots Ware type T1(1), 850-1100. 12 sherds, 92 g, EVE = 0.05.

F101: OXB: Late Saxon Oxford Ware. Late 8th– early 11th C. 7 sherds, 767 g, EVE = 0.12.

F200: OXAC: Cotswold-type ware, 975-1350. 61 sherds, 826 g, EVE = 0.22.

F202: OXBF: South-West Oxfordshire ware. c mid 11th – early 13th century. 14 sherds, 239 g, EVE = 0.25.

F300: OXY: Medieval Oxford ware, 1075–1350. 150 sherds, 1758 g, EVE = 1.13.

F329: OX68: Potterspury ware, late 13th-17th century. 1 sherd, 59 g, EVE = 0.10.

F330. OXBK: Medieval Shelly Coarseware, 1100-1350. 1 sherd, 24 g, EVE = 0.

F352: OXAM: Brill/Boarstall ware, 1200–1600. 371 sherds, 6079 g, EVE = 1.14.

F356: OXBG: Surrey Whiteware, mid 13th–mid 15th C. 6 sherds, 55 g, EVE = 0.11.

F365: OXAG: Abingdon ware, mid/late 11th-mid 14th century. 4 sherds, 79 g, EVE = 0.13.

F403: OXBN: Tudor Green Ware, late 14th C-c. 1500. 3 sherds, 6 g. EVE = 0.

F404: OXCL: Cistercian ware, 1475-1700. 8 sherds, 37 g, EVE = 0.

F405: OXST: Frechen Stoneware, 1550–1700. 31 sherds, 829 g, EVE = 0.69.

F408: OXAM: Brill/Boarstall 'Tudor Green' ware. 2 sherds, 5g, EVE = 0.08.

F410: OXCE: Tin-glazed Earthenware, 1613–1800. 17 sherds, 258 g.

F412: OXRESWL: Polychrome Slipware, 17th C. 7 sherds, 303 g.

F414: OXBEW: Staffordshire manganese wares. c. 1700-1800. 7 sherds, 122 g.

F416: OXBESWL: Staffordshire slip-trailed earthenware, 1650–1750. 6 sherds, 71 g.

F419: CRM: Creamware, mid 18th-early 19th C. 1 sherd, 3 g.

F425: OXDR: Red Earthenwares, 1550+. 127 sherds, 3981 g.

F428: OXEST: London stoneware. c. 1680 plus. 7 sherds, 48 g.

F430: OXFI: Chinese Porcelain, c. 1650+. 2 sherds, 11 g.

F443: OXFM: Staffordshire White-glazed English Stoneware, 1730–1800. 4 sherds, 52 g.

F451: OXFH: Border wares, 1550-1700. 23 sherds, 562 g.

F1000: WHEW: Mass-produced white earthenwares, mid 19th-20th C. 27 sherds, 215 g.

B.1.4 The pottery occurrence by number and weight of sherds per context by fabric type is shown in Tables B2 and B3. Each date should be regarded as a terminus post quem. The range of fabric types is fairly typical of sites in Oxford and its hinterland.

Chronology

B.1.5 Each context-specific assemblage was given a seriated phase date, based on the wares present, as shown above, along with the pottery occurrence per ceramic phase. is shown in Table B1. The context-specific dates will be checked against the stratigraphic matrix at the report stage, and the table adjusted accordingly.

Table B1: Ceramic Phase Chronology and Defining Wares

Phase	Date	Defining Fabric	No	Wt	EVE
LS	M 9th – 10th C	OXR, OXB	2	21	0
CP 1	E –L 11th C	OXAC	15	838	0.20
CP 2	L11th –12th C	OXY, OXBF	97	1155	0.22
CP 3	13th – 14th C	OXAM, OXBG, OX68	246	3395	1.52
CP 4	14th C	OXAM	12	223	0.38
CP 5	15th – late 15th C	OXBN	4	80	0.07
CP 6	L 15th – M16th	OXCL, OXAM, OXST	103	1602	0.98
CP 7	M16th – 17th C	OXDR, OXFH	65	2027	-
CP 8	17th – L 17th C	OXREWSL, OXCE	12	229	-
CP 9	M 17th – L 17th C	OXBEWSL	24	783	-
CP 10	L 17th – M 18th C	OXBEW	134	3237	-
CP 11	M – L 18th C	OXFM, CRM	15	144	-
MOD	19th C	WHEW	80	1050	-

B.1.6 The untested data in Table 1 show that there were three ‘peaks’ of activity at the site (in terms of ceramic deposition), between ceramic phases CP2 - CP3, ie. the late 11th – 14th century, and CP6 - CP7 (late 15th -17th century), and again during phase CP10 (late 17th – mid 18th century). There is evidence of pre-conquest activity, although most pottery of that date was redeposited in later contexts, and very little evidence of activity from the 14th – late 15th century (ceramic phases CP4 and CP5), and a similar hiatus during the first half of the 17th century (CP8). Two sherds (46 g) of residual Romano-British pottery were noted, as were five sherds (81 g) of prehistoric, probably Iron Age, wares.

Table B2: Pottery occurrence by number and weight (in g) of sherds per context by fabric type, late Saxon and medieval contexts

	F100		F101		F200		F202		F300		F329		F330		F352		F356		F365		F403		F404		F405		F408		
Cntxt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Date
1702															1	9													CP3
1801											1	59																	CP3
1903					2	33			4	49																			CP2
1908															1	5													CP3
2003	1	1024			2	25			2	29					2	15													CP3
2006	3				3	118	3	84	19	209																			CP2
2007					1	7	1	6	4	43																			CP2
2008					1	48													1	12									CP2
2018									1	14																			CP2
2035																			1	9									CP2
2106															10	317													CP3
2107															1	6													CP4
2108															2	7													CP3
2113									1	43																			CP2
2114	2	24							1	7																			CP2
2131	1	6																											LS
2149									1	25																			CP2
2155			7	767	1	5																							CP1
2163					6	76									1	4													CP3
2165					2	17									4	23													CP3
2172									2	16																			CP2
2187									1	22					1	19													CP3
2189	4	13			3	21			15	90																			CP2
2190					1	3			1	15			1	24	3	30													CP3

	F100		F101		F200		F202		F300		F329		F330		F352		F356		F365		F403		F404		F405		F408		
2197	1	15																											LS
2227					10	85			4	37					66	908									2	51			CP6
2228					2	16									4	59													CP3
2229					1	2			1	11					2	136													CP3
2231					3	24			6	44					4	68													CP3
2232							2	23	2	22					1	7													CP3
2324															1	179	1	21											CP3
2337															1	3													CP3
2339							1	28							1	7			1	52									CP3
2361															1	3													CP3
2362					1	24									1	12													CP3
2365															1	49													CP3
2372					1	9									1	5													CP1
2422									5	34																			CP2
2434									1	14																			CP1
2502																									1	40			CP6
2504					1	9																							CP1
2506									2	15																			CP2
2517									3	41					1	6													CP3
2601					1	4			10	93					2	47			1	6									CP3
2607															9	189													CP4
2608									3	17																			CP2
2612															1	1									1	18			CP6
2613															2	6													CP3
2707									2	24																			CP2
2708									2	25																			CP2
2711					1	17			3	19																			CP2
2712					1	4																							CP1
2715									1	8																			CP2
2716									1	5					1	4													CP3
2911																							2	9					CP6
2920															11	171													CP3

	F100		F101		F200		F202		F300		F329		F330		F352		F356		F365		F403		F404		F405		F408		
3006															1	4													CP3
3007					2	9			3	22					13	92	1	2											CP3
3039					1	38									6	33	1	7											CP3
3042					1	11																							CP1
3210									2	47					3	60													CP3
3211									3	35					23	225													CP3
3312									1	7					1	4													CP3
3315					1	54	1	9	1	4					2	19													CP3
3319							3	46	17	250					46	434	1	15											CP3
3321					3	25	2	36	6	85					7	137													CP3
3322					1	2																							CP1
3327							1	7	7	91					16	233													CP3
3328															9	127													CP3
3329					1	26									1	7													CP3
3457															3	58									1	27			CP6
3462															2	28													CP4
3505					1	17									4	156													CP1
3517									1	69					2	42													CP3
3521															1	24									1	42			CP6
3523					2	31									2	49													CP3
3525															7	250									1	47	2	5	CP6
3528					1	28									1	2													CP3
3530															1	140													CP3
3536															3	79					1	1							CP5
3540															5	69													CP3
3541															1	74													CP3
3549									1	18					17	377													CP3
Total	12	92	7	767	58	788	14	239	140	1599	1	59	1	24	314	5018	4	45	4	79	1	1	2	9	7	225	2	5	

Table B3: Pottery occurrence by number and weight (in g) of sherds per context by fabric type, post- medieval contexts

	F200		F300		F352		F356		F403		F404		F405		F410		F412		F414		F416		F419		F425	
Cntxt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt
1904			5	84	4	82																			2	29
1913	1	19	4	61	6	189																				
2225					1	27																			2	26
2314											2	8	6	85	3	14	3	60	4	60	2	8			25	682
2315																										
2325					1	33																			1	3
2332													4	151			1	12							2	13
2336													1	12							1	20			3	94
2338	1	3			2	24																			2	123
2391					3	132					1	4			5	221	2	208	2	38	1	19			23	797
2395																									1	166
2604					8	62							3	14	3	7									5	35
3000	1	16			8	60	1	7																		
3002																										
3014																										
3015					4	24							1	3												
3051					1	15																				
3150					2	16									1	2										
3152											2	6	1	5												
3203																										
3306																										
3411															5	14					1		2		1	
3415					11	210	1	3			1	10	4	152			1	23	1	24						
3426																										
3428			1	14	3	98							1	109												
3455					3	89							1	32							1		22			
3456									1	1			1	37												
3534									1	4			1	4												
3535																										
Total	3	38	10	159	57	1061	2	10	2	5	6	28	24	604	17	258	7	303	7	122	6		71		1	

Table B3 (cont.)

	F428		F430		F433		F451		F1000		
1904											CP7
1913									4	139	MOD
2225									7	12	MOD
2314							10	197			CP10
2315							1	4			CP7
2325							1	7			CP7
2332							2	35			CP8
2336							3	94			CP9
2338									1	6	MOD
2391	7	48					3	61			CP10
2395											CP7
2604									9	38	MOD
3000											CP7
3002									2	3	MOD
3014									1	5	MOD
3015											CP7
3051									2	9	MOD
3150											CP8
3152					1	4	1	8	1	3	MOD
3203							1	147			CP7
3306											CP7
3411			2	11	3	48					CP11
3415							1	9			CP10
3426											CP7
3428											CP7
3455											CP9
3456											CP7
3534											CP7
3535											CP7
Total	7	48	2	11	4	52	23	562	27	215	

B.2 Clay Pipe

By Andrew Norton

Introduction

B.2.1 The evaluation produced a total of 106 fragments of clay tobacco pipes. The assemblage was predominantly recovered from alluvial deposits and dumped deposits within the Trill Mill Stream or nearby drainage channels. Of note were deposits 2332 and 2391, which were associated with a horn core 'structure'.

Methodology

B.2.2 All fragments were examined for evidence of markings, decoration and name stamps. Unmarked bowls have been dated by reference to Oswald's general typology (Oswald 1975). No attempt has been made to consider the bowl shape in terms of regional variations. Plain stems have been counted. Sufficient dating information has been obtained from bowl shape typology so no attempt has been made to assess their dates on stem bore analysis.

Results

B.2.3 The results of the assessment are tabulated below by context.

B.2.4 Of the total 106 fragments of clay tobacco pipes 90 were stem fragments. Many of the 16 bowls were fragmentary and only 11 could be identified. The bowls ranged in date from 1640 to 1780, with 3 heeled bowls being comparable to London type 5G, dating from 1640-1660. Four spurred bowls were similarly dated being comparable to London type 17G, one of which had a particularly bulbous bowl. Four bowls were dated to the 18th century (one comparable to London type 8G; two comparable to London type 10G; and one comparable to London type 22G).

B.2.5 Contexts 2314 and 2391 contained 17th- and 18th-century bowls and the earlier bowls are likely to be redeposited. None of the stem fragments or bowls displayed makers marks or stamps.

B.2.6 Although the date ranges given are for London types it can be assumed that examples from Oxford will have been made at a similar time.

Table B4: Incidence of clay pipe stems and diagnostic fragments by context

Ctxt	No of stems	No of bowls	Heel/spur	Comments
1913	3			Burning on one stem
2314	40	6	h and s	3 stems show signs of burning; all bowls fragmented 1 x ?22G 1730-80; 2 x type 5G 1640-60
2324	1			
2332	4	1	h	burning on stem; type 8G 1680-1710
2336	1			
2338	1			
2391	11	5	h and s	1 x type 10G 1700-1740;1 x type 5G 1640-60; 3 x type 17G (2 fragmented) 1640-70 1 with very bulbous bowl
2394	2	2	h and s	1 x type 10G 1700-1740; 1 x type 17G 1640-70
2604	14	1	h	Fragmented heeled bowl
3039				2 pieces cremated bone??
3150	7	1	s	Fragmented, long narrow spur
3152	2			
3411	1			
3415	3			

B.3 Metal

B.3.1 A total of 48 metal objects were recovered from the excavation that took place at The West Gate Centre, Oxford. The assemblage comprises 9 copper alloy objects, 38 iron objects (including 21 nails) and 1 lead object. The assemblage is medieval/post-medieval in date.

B.3.2 The objects have been visually examined and identified. The assemblage has not been x-rayed at this stage as the majority of the objects are in fair/good condition and are identifiable without x-radiographic plates. This preliminary identification together with other basic details including contextual information, dimensions and a description have been recorded on the finds assessment database.

Copper alloy

B.3.3 The copper alloy assemblage includes a number of personal items, a coin and a bell.

B.3.4 The personal items comprise a buckle; a decorated mount, 2 buttons, and a hook from a hook and eye fastener and a fine point, possibly a pin. The buckle from context 3319 is medieval in date; it has a lipped oval frame with an offset narrow bar. The simple buckle plate is folded and recessed for the pin, it has two rivets at the end to attach it to the strap (there is a small section of leather still surviving between the plates). The pin has a raised ridge on the shaft near the loop which could have been for decoration (although it would have been obscured when the strap was fastened) or it could have helped to keep the buckle in place particularly if a tight fit was required (Egan and Pritchard 1991, 54). The decorated sheet metal mount SF 37 from context 2422 is circular with three small perforations for attachment (one still has a rivet in situ.). The mount is decorated with a many petalled flower design with dots inside each of the petals. Mounts were commonly used to decorate straps and girdles in the medieval period. The buttons are both incomplete; SF 31 from context 3401 is part of a hollow biconvex button, it has an inverted edge or rim where it would have been joined to the other half and there are traces of solder inside; the second button from context 2314 is a composite button comprising a domed and highly polished piece of bone with a copper alloy backing, the means of attachment is missing. SF 35 also from context 2314 is a hook from a hook and eye fastener. SF 18 from context 3013 is a fine copper alloy point possibly from a pin, the head is missing.

B.3.5 The coin recovered from context 3401 is a William IV farthing dating to 1835.

B.3.6 The bell SF 34 also from context 3401 is a clapper bell with a perforated rectangular tab for suspension, probably used with harness (Maynard and Zeepvat 1991, Fig 80, No. 216).

Lead

B.3.7 A single fragment of lead yotting was recovered from context 2716. Yotting was used to attach metalwork to masonry. A plug of lead would be inserted into a gap or hole in the masonry and then the shank of the hook or bracket would be inserted into the yotting. This fragment is roughly conical in shape with the square impression of the object that has been inserted into it.

Iron

B.3.8 The majority of the iron objects are either nails or miscellaneous (unidentifiable) fragments. There are only 5 other objects; a key, a knife, a knife handle, a buckle and a

fragment from a shoe patten. The key from context 1913 is designed for use with a mounted lock; it has an oval bow and a solid shank that projects beyond the bit. The bit is simple and symmetrical. The whittle tang knife SF 38 from context 3505 is complete and in good condition. It has a centrally placed tang and a pronounced triangular blade characteristic of knives of the late 13th century (Cowgill *et al* 1987, 80). The handle from a second knife, SF 26, was recovered from context 3152, it is a scale tang handle with 3 copper alloy rivets still *in situ*, very little of the blade remains. A simple D-shaped buckle frame with a wrap-around pin was recovered from context 3013. It is of utilitarian form and could have been used either on clothing or harness. Finally a fragment from a crinkle edged shoe patten was recovered from context 2391, this form of patten dates from the 17th-18th century.

B.3.9 Nails were recovered from contexts 1903, 2003, 2006, 2106, 2107, 2108, 2229, 2314, 2332, 2362, 3013, 3081 and 3152.

Statement of Potential

B.3.10 The metalwork assemblage from this investigation is small with very few notable objects. The medieval objects include the copper alloy buckle, the mount and the whittle tang knife all of which are in good condition. The rest of the assemblage is utilitarian in form and dates from the medieval/post-medieval period. A large and varied assemblage of metalwork has been recorded from previous excavations on this site in advance of the construction of the Westgate Centre and Multi-storey car park in the reports on excavations in St Ebbes Part 1: the Late Saxon and Medieval Domestic Occupation and Tenements and the Medieval Greyfriars (Hassall *et al* 1989) and Part 2 : Post-Medieval Domestic tenements and the Post Dissolution site of thr Greyfriars (Hassall *et al* 1984). These assemblages include examples of all the objects recovered from this more recent work and therefore there is little need for further work on this assemblage beyond a short note in the publication. There are no objects that require illustration.

B.4 Evaluation of avian and mammal bones.

By Lena Strid

Quantity of material

B.4.1 The animal bone assemblage consisted of 2318 re-fitted fragments. At the time of writing, the contexts have not been dated, but are broadly of medieval and post-medieval. The animal bone was recovered through hand collection during excavation and by the sieving of 40L bulk samples from organic-rich deposits. The sieved remains comprised 3.3% of the total number of fragments and were mostly unidentifiable to species.

Methodology

B.4.2 The bones were identified to species using a comparative reference collection, as well as osteological books and articles. Sheep and goat were not identified to species at this stage, but rather classified as 'sheep/goat'. Ribs and vertebrae, with the exception for atlas and axis, were classified by size: 'large mammal' representing cattle, horse and deer, 'medium mammal' representing sheep/goat, pig and large dog, and 'small mammal' representing small dog, cat and hare.

B.4.3 The condition of the bone was graded on a 6-point system (0-5), grade 0 equating to very well preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable.

B.4.4 For ageing, mandibles with two or more recordable teeth (Grant 1982), cattle horn cores (Armitage (1982) and fused and unfused epiphyses (Habermehl 1975) were noted. Sex estimation was carried out on cattle metapodials and pelves, sheep pelves, pig canine teeth and on presence of medullary bones in birds, using data from Boessneck *et al*. (1964), Prummel and Frisch (1986), Schmid (1972) and Vretemark (1997). Measurable bones were noted according to von den Driesch (1976).

Animal bone assemblages from around the Westgate centre.

B.4.5 During the previous phase of evaluation at the Westgate Centre, (OXWEST06, Strid 2006) a small assemblage of animal bone was recovered , comprising 192 bones identifiable to species. The main domesticates were present, as well as some wild mammals and birds. As could be expected, cattle, sheep/goat and pig are the most numerous species, followed by domestic fowl.

B.4.6 Additionally, a number of trenches from the 1967-76 excavation at the Greyfriars Priory (Hassall *et al*. 1984; Hassall *et al*. 1989), were situated within the present OXWEST07 excavation area. While only the avian fauna has been specifically reported, the raw data for the mammalian assemblage are available in the site archive for future research. A number of other small assemblages of animal bones have been reported from excavations at Church Street, around the Thames crossing and St Aldate (summarised in Wilson 2003), while the animal bone from Oxford Castle is a focus of ongoing analysis.

The assemblage

B.4.7 Of the 2318 re-fitted fragments, 1097 fragments (47.3%) could be determined to species (Tables B5 and B6). The species present included cattle (Bos taurus), sheep/goat (Ovis aries / Capra hircus), pig (Sus domesticus), horse (Equus caballus),

dog (Canis familiaris), cat (Felis catus), roe deer (Capreolus capreolus), rabbit (Oryctolagus cuniculus) domestic fowl (Gallus gallus), greylag goose/domestic goose (Anser anser / Anser domesticus), duck (Anatidae), swan (Cygnus sp.), pigeon (Columba sp.) and small passerine. Some micro-mammal (e.g. mouse and bank vole/field vole), amphibian and bird bones were also found.

B.4.8 Most bones were in a fair condition (see Table B7). There is a slight trend towards poorer preservation of bones found on the flood plain area. This is to be expected, since the bones would have been exposed to at least one re-deposition. Traces of burning and animal gnawing were found on 10 and 62 bones respectively. Such a small number of gnawed bones suggests a rapid disposal of waste. However, the surfaces of bones in poor condition (stage 3-5) were often so eroded that gnaw marks couldn't be observed. The assemblage may therefore have been affected by animal scavenging to a somewhat larger extent than is readily observed.

B.4.9 With the caveat that it is very difficult to distinguish between greylag goose and domestic goose, the assemblage seems to consist mostly of domestic species. The wild species in the assemblage - roe deer, swan - suggest a higher status origin for these remains. As the swan bone was found in a trench situated in the Priory grounds it may have derived from the Prior's table. The roe deer remains were found in land reclamation deposits, and their origin is therefore unknown.

B.4.10 The Priory assemblage and the flood plain assemblage are similar in the composition and number of species. The predominance of cattle and sheep/goat is the usual trend in most archaeological deposits, regardless of time period. While it is not possible to clearly distinguish domestic from other forms of waste in the flood plain assemblage, the faunal remains appears to be mostly domestic refuse. The bones from the Priory grounds comprises kitchen waste as well as butchery waste.

B.4.11 Age estimation could be carried out on 412 bones and 27 jaws (see Tables B8 and B9). The majority of the cattle and sheep/goats were found to be sub-adult/adult, whereas the majority of the pigs were juvenile. Neonatal/juvenile cattle, sheep/goat and pig remains were also found in the assemblage. The cattle and pig assemblages contain an almost equal number of males and females, whereas the sheep/goat assemblage is divided almost equally between males, females and castrates. One horse mandible and one fowl tarsometatarsus derived from males, whereas one fowl tibiotarsus and three unidentified bird long bones derived from females.

B.4.12 Butchering marks were found on 126 bones. These marks indicated skinning, sagittal butchering of vertebrae and skulls, as well as disarticulation/portioning of long bones and filleting. They occurred on cattle, sheep/goat, pig and fowl. Deposits of sheep horn cores, cattle horn cores and metapodials indicating waste from tannery and/or horn working occurred in four contexts (2314, 2332, 3415, 3428). The contexts derive from trenches situated on the flood plain area, and may have originated from the nearby tanning yard found on Faden's 1789 map. A sawn off deer antler (context 3006) is the sole remains of antler working in the assemblage.

B.4.13 Eighteen bones displayed pathological conditions. All were related to infections and/or muscle trauma. Most domestic species were affected, with the exception of dog, cat, goose and duck.

Conclusions

B.4.14 Although relatively small, the animal bone assemblage is fairly diverse and reasonably well preserved. Particularly if considered together with other bones recovered from

around the Westgate Centre, this assemblage has potential to to address questions concerning the provisioning of the Priory, as well as contributing to discussions about animal husbandry strategies and the nature of settlement (domestic or trade/industry) in the vicinity throughout the medieval period, as discussed by Wilson (1994; Wilson 2003). The bone should therefore be retained for full analysis, to be considered alongside any bone recovered from the main excavation.

Table B5. Identified bones/species

Species	Priory grounds	Flood plain	TOTAL
Cattle	92	545	637
Sheep/goat	91	143	234
Sheep	7	29	36
Pig	35	66	101
Horse	3	12	15
Roe deer		3	3
Deer sp.		2	2
Dog	6	5	11
Cat	1	10	11
Rabbit		1	1
Field vole / Bank vole	1		1
Rodent	1		1
Domestic fowl	18	18	36
Goose		7	7
Duck	1	2	3
Swan	1		1
Pigeon	1		1
Passerine	1		1
Indeterminate bird	29	20	49
Amphibian	1		1
Microfauna	11		11
Small mammal	1		1
Medium mammal	107	111	218
Large mammal	166	234	400
Indeterminate	268	268	536
Total fragment count	842	1476	2318
Total weight (g)	11085	54993	66078

Table B6. Sieved bones/species

Species	Sieved
Pig	1
Field vole / Bank vole	1
Rodent	1
Passerine	1
Indeterminate bird	4
Amphibian	1
Microfauna	11
Indeterminate	56
Total fragment count	76
Total weight (g)	11

Table B7. Preservation level for bones

	N	0	1	2	3	4	5
Priory grounds trenches	842	9.7%	28.1%	49.9%	11.2%	1.1%	
Floodplain	1476	3.7%	12.7%	51.7%	22.7%	9.1%	
TOTAL	2318	5.9%	18.3%	51.0%	18.5%	6.2%	

Table B8. Mandibles and bones (priory area) providing data for ageing, sexing and measuring data

Species	Ageable mandibles	Ageable bones	Sexable bones	Measurable bones
Cattle	3	16	2	3
Sheep/goat	7	9	6	6
Pig	1	9	2	1
Horse				1
Dog		1		1
Cat		1		
Rabbit				
Roe deer				
Domestic fowl		6		5
Goose				
Duck				
Swan		1		
Pigeon				
TOTAL	11	43	10	17

Table B9. Mandibles and bones (floodplain) providing data for ageing, sexing and measuring data

Species	Ageable mandibles	Ageable bones	Sexable bones	Measurable bones
Cattle	3	156	4	27
Sheep/goat	11	117	9	30
Pig	2	36	4	2
Horse		10	1	1
Dog		6		2
Cat		10		4
Rabbit		1		1
Roe deer		2		1
Domestic fowl		23	2	3
Goose		3		3
Duck		2		
Swan				
Pigeon		1		
TOTAL	16	369	22	74

Table B10. The assemblage

Context	Sample	Species	Element	Side
1702	0	Large mammal	ulna	
1702	0	Sheep/goat	tibia	left
1903	0	Cattle	femur	
1903	0	Cattle	mandible	right
1903	0	Cattle	phalanx 1	
1903	0	Cattle	tibia	left
1903	0	Cattle	tooth	
1903	0	Dog	mandible	left
1903	0	Fowl	pelvis	left
1903	0	Fowl	tarsometatarsus	right
1903	0	Indet	indet	
1903	0	Indet	indet	
1903	0	Large mammal	long bone	
1903	0	Large mammal	rib	
1903	0	Medium mammal	long bone	
1903	0	Medium mammal	rib	
1903	0	Medium mammal	vertebra	
1903	0	Pig	tibia	right
1903	0	Sheep/goat	axis	
1903	0	Sheep/goat	calcaneus	right
1903	0	Sheep/goat	mandible	right
1903	0	Sheep/goat	metacarpal	left
1903	0	Sheep/goat	metacarpal	right
1903	0	Sheep/goat	metatarsal	
1903	0	Sheep/goat	metatarsal	left
1903	0	Sheep/goat	pelvis	right
1903	0	Sheep/goat	pelvis	left
1903	0	Sheep/goat	radius	right
1903	0	Sheep/goat	radius	left
1903	0	Sheep/goat	tibia	left
1903	0	Sheep/goat	tooth	
1904	0	Fowl	tibiotarsus	right
1904	0	Indet	indet	
1904	0	Large mammal	long bone	
1904	0	Medium mammal	rib	
1904	0	Sheep/goat	mandible	
1904	0	Sheep/goat	mandible	left
1904	0	Sheep/goat	phalanx 2	
1904	0	Sheep/goat	ulna	right
1904	0	Swan	humerus	left
1913	0	Cattle	horncore	
1913	0	Cattle	metacarpal	right
1913	0	Cattle	phalanx 1	
1913	0	Indet	indet	
1913	0	Large mammal	long bone	
1913	0	Large mammal	rib	
1913	0	Large mammal	rib	
1913	0	Medium mammal	long bone	
1913	0	Medium mammal	rib	
1913	0	Medium mammal	rib	

Context	Sample	Species	Element	Side
1913	0	Pig	tooth	right
1913	0	Sheep	horncore	
1913	0	Sheep	horncore	right
2003	0	Bird	long bone	
2003	0	Cattle	tibia	left
2003	0	Large mammal	rib	
2003	0	Pig	metatarsal III	right
2003	0	Sheep/goat	metatarsal	
2003	0	Sheep/goat	metatarsal	right
2004	0	Cattle	mandible	left
2004	0	Cattle	mandible	right
2004	0	Large mammal	rib	
2006	0	Cattle	mandible	right
2006	0	Cattle	metacarpal	
2006	0	Cattle	metatarsal	left
2006	0	Cattle	metatarsal	
2006	0	Cattle	radius	left
2006	0	Cattle	tibia	left
2006	0	Cattle	ulna	left
2006	0	Indet	indet	
2006	0	Large mammal	pelvis	
2006	0	Large mammal	rib	
2006	0	Large mammal	rib	
2006	0	Medium mammal	long bone	
2006	0	Pig	humerus	left
2006	0	Pig	scapula	right
2006	0	Pig	tibia	left
2006	0	Sheep/goat	mandible	right
2006	0	Sheep/goat	metacarpal	left
2006	0	Sheep/goat	tibia	right
2006	0	Sheep/goat	tibia	right
2007	0	Cattle	pelvis	left
2007	0	Cattle	pelvis	left
2007	0	Cattle	scapula	left
2007	0	Dog	femur	left
2007	0	Dog	radius	right
2007	0	Dog	skull	right
2007	0	Fowl	femur	right
2007	0	Indet	indet	
2007	0	Large mammal	long bone	
2007	0	Large mammal	rib	
2007	0	Large mammal	rib	
2007	0	Large mammal	vertebra	
2007	0	Medium mammal	long bone	
2007	0	Medium mammal	rib	
2007	0	Pig	atlas	
2007	0	Pig	radius	left
2007	0	Sheep	metatarsal	left
2007	0	Sheep/goat	mandible	
2007	0	Sheep/goat	metatarsal	left
2007	0	Sheep/goat	metatarsal	left

Context	Sample	Species	Element	Side
2007	0	Sheep/goat	ulna	left
2008	0	Cattle	radius	left
2008	0	Indet	indet	
2008	0	Large mammal	rib	
2008	0	Large mammal	vertebra	
2008	0	Medium mammal	long bone	
2008	0	Sheep	skull	right
2008	0	Sheep/goat	mandible	right
2008	0	Sheep/goat	skull	left
2017	0	Bird	fibula	
2017	0	Bird	radius	left
2017	0	Bird	rib	
2017	0	Bird	tibiotarsus	
2017	0	Cat	metatarsal IV	left
2017	0	Cattle	phalanx 1	
2017	0	Cattle	skull	left
2017	0	Cattle	skull	right
2017	0	Duck	coracoid	right
2017	0	Foel	femur	right
2017	0	Fowl	coracoid	left
2017	0	Fowl	pelvis	left
2017	0	Indet	indet	
2017	0	Large mammal	long bone	
2017	0	Large mammal	rib	
2017	0	Large mammal	vertebra	
2017	0	Medium mammal	long bone	
2017	0	Medium mammal	rib	
2017	0	Medium mammal	vertebra	
2017	0	Pigeon	ulna	right
2017	0	Sheep/goat	mandible	right
2017	0	Sheep/goat	pelvis	left
2017	0	Sheep/goat	scapula	left
2018	0	Large mammal	rib	
2102	0	Indet	indet	
2102	0	Large mammal	long bone	
2106	0	Bird	furcula	
2106	0	Bird	humerus	left
2106	0	Bird	long bone	
2106	0	Bird	mandible	
2106	0	Bird	rib	
2106	0	Bird	tibiotarsus	left
2106	0	Bird	tibiotarsus	right
2106	0	Bird	tibiotarsus	right
2106	0	Bird	tibiotarsus	left
2106	0	Bird	ulna	right
2106	0	Bird	ulna	right
2106	0	Bird	ulna	left
2106	0	Cattle	astragalus	left
2106	0	Cattle	axis	

Context	Sample	Species	Element	Side
2106	0	Cattle	calcaneus	right
2106	0	Cattle	femur	right
2106	0	Cattle	femur	right
2106	0	Cattle	metacarpal	
2106	0	Cattle	patella	right
2106	0	Cattle	phalanx 2	
2106	0	Cattle	phalanx 3	
2106	0	Cattle	radius	right
2106	0	Cattle	scapula	right
2106	0	Cattle	scapula	right
2106	0	Cattle	skull	
2106	0	Cattle	tibia	right
2106	0	Cattle	tibia	left
2106	0	Cattle	ulna	left
2106	0	Fowl	coracoid	left
2106	0	Fowl	humerus	left
2106	0	Fowl	humerus	right
2106	0	Fowl	sternum	
2106	0	Fowl	tibiotarsus	right
2106	0	Fowl	tibiotarsus	left
2106	0	Fowl	tibiotarsus	right
2106	0	Fowl	ulna	left
2106	0	Indet	indet	
2106	0	Large mammal	long bone	
2106	0	Large mammal	rib	
2106	0	Large mammal	rib	
2106	0	Large mammal	rib	
2106	0	Large mammal	vertebra	
2106	0	Large mammal	vertebra	
2106	0	Medium mammal	long bone	
2106	0	Medium mammal	rib	
2106	0	Medium mammal	rib	
2106	0	Medium mammal	skull	
2106	0	Medium mammal	vertebra	
2106	0	Medium mammal	vertebra	
2106	0	Medium mammal	vertebra	
2106	0	Pig	scapula	left
2106	0	Sheep/goat	atlas	
2106	0	Sheep/goat	axis	
2106	0	Sheep/goat	axis	
2106	0	Sheep/goat	calcaneus	right
2106	0	Sheep/goat	pelvis	left
2106	0	Sheep/goat	tibia	left
2108	0	Bird	tibiotarsus	right
2108	0	Cattle	atlas	
2108	0	Cattle	skull	right
2108	0	Cattle	tooth	

Context	Sample	Species	Element	Side
2108	0	Indet	indet	
2108	0	Large mammal	long bone	
2108	0	Large mammal	rib	
2108	0	Large mammal	rib	
2108	0	Large mammal	rib	
2108	0	Large mammal	skull	
2108	0	Large mammal	vertebra	
2108	0	Medium mammal	long bone	
2108	0	Medium mammal	long bone	
2108	0	Medium mammal	rib	
2108	0	Medium mammal	rib	
2108	0	Sheep/goat	atlas	
2108	0	Sheep/goat	tarsal	right
2114	0	Large mammal	rib	
2114	0	Medium mammal	rib	
2114	0	Pig	mandible	left
2114	0	Sheep/goat	pelvis	left
2130	0	Medium mammal	long bone	
2130	0	Medium mammal	rib	
2131	0	Horse	radius	right
2131	0	Horse	ulna	right
2131	0	Indet	indet	
2131	0	Sheep/goat	radius	left
2149	0	Cattle	femur	left
2149	0	Indet	indet	
2149	0	Large mammal	long bone	
2155	0	Indet	indet	
2155	0	Medium mammal	rib	
2163	0	Indet	indet	
2163	0	Large mammal	long bone	
2163	0	Medium mammal	long bone	
2163	0	Medium mammal	rib	
2163	0	Sheep	horncore	right
2163	0	Sheep/goat	scapula	right
2165	0	Cattle	calcaneus	left
2165	0	Cattle	calcaneus	left
2165	0	Cattle	humerus	left
2165	0	Medium mammal	long bone	
2165	0	Medium mammal	vertebra	
2165	0	Sheep/goat	humerus	left
2172	0	Cattle	pelvis	left
2172	0	Cattle	pelvis	right
2172	0	Cattle	phalanx 1	
2172	0	Indet	indet	
2172	0	Large mammal	long bone	
2172	0	Large mammal	rib	
2172	0	Large mammal	rib	
2172	0	Large mammal	vertebra	
2172	0	Pig	scapula	left
2172	0	Pig	skull	left
2187	0	Cattle	humerus	right

Context	Sample	Species	Element	Side
2187	0	Cattle	metatarsal	right
2187	0	Large mammal	long bone	
2189	0	Cattle	humerus	left
2189	0	Cattle	metapodial	
2189	0	Indet	indet	
2189	0	Large mammal	vertebra	
2189	0	Medium mammal	rib	
2189	0	Pig	ulna	left
2189	0	Sheep/goat	metatarsal	left
2189	0	Sheep/goat	metatarsal	left
2189	0	Sheep/goat	tibia	left
2189	0	Sheep/goat	tooth	
2190	0	Indet	indet	
2190	0	Large mammal	rib	
2190	0	Medium mammal	long bone	
2190	0	Medium mammal	rib	
2190	0	Sheep/goat	astragalus	left
2190	0	Sheep/goat	pelvis	right
2190	0	Sheep/goat	tibia	right
2190	0	Sheep/goat	tooth	
2196	0	Indet	indet	
2196	0	Large mammal	long bone	
2196	0	Large mammal	rib	
2196	0	Pig	radius	right
2197	0	Cattle	metacarpal	right
2197	0	Pig	tibia	left
2197	0	Sheep/goat	mandible	left
2197	0	Sheep/goat	mandible	left
2197	0	Sheep/goat	tibia	right
2225	0	Sheep/goat	tibia	left
2227	0	Bird	tibiotarsus	right
2227	0	Bird	ulna	left
2227	0	Cattle	humerus	left
2227	0	Cattle	phalanx 1	
2227	0	Cattle	phalanx 1	
2227	0	Cattle	phalanx 3	
2227	0	Indet	indet	
2227	0	Large mammal	long bone	
2227	0	Large mammal	pelvis	left
2227	0	Large mammal	radius	left
2227	0	Large mammal	rib	
2227	0	Large mammal	rib	
2227	0	Medium mammal	long bone	
2227	0	Medium mammal	rib	
2227	0	Medium mammal	rib	
2227	0	Medium mammal	vertebra	
2227	0	Pig	humerus	right
2227	0	Pig	tooth	
2227	0	Sheep/goat	femur	left
2227		Sheep/goat	femur	right

Context	Sample	Species	Element	Side
2227	0	Sheep/goat	humerus	right
2227	0	Sheep/goat	humerus	left
2227	0	Sheep/goat	metacarpal	
2227	0	Sheep/goat	metacarpal	left
2227	0	Sheep/goat	metacarpal	left
2227	0	Sheep/goat	metatarsal	left
2227	0	Sheep/goat	metatarsal	left
2227	0	Sheep/goat	pelvis	right
2227	0	Sheep/goat	scapula	right
2228	0	Large mammal	rib	
2228	0	Large mammal	vertebra	
2228	0	Large mammal	vertebra	
2229	0	Bird	phalanx 1	
2229	0	Bird	radius	
2229	0	Fowl	carpometacarpus	right
2229	0	Large mammal	rib	
2229	0	Large mammal	vertebra	
2229	0	Medium mammal	long bone	
2229	0	Medium mammal	vertebra	
2229	0	Pig	radius	left
2229	0	Sheep/goat	tibia	right
2231	0	Bird	carpometacarpus	
2231	0	Cattle	phalanx 1	
2231	0	Cattle	scapula	right
2231	0	Dog	pelvis	left
2231	0	Horse	calcaneus	right
2231	0	Indet	indet	
2231	0	Large mammal	long bone	
2231	0	Large mammal	rib	
2231	0	Large mammal	vertebra	
2231	0	Large mammal	vertebra	
2231	0	Medium mammal	long bone	
2231	0	Medium mammal	rib	
2231	0	Medium mammal	vertebra	
2231	0	Sheep/goat	radius	right
2231	0	Sheep/goat	tooth	
2232	0	Indet	indet	
2232	0	Medium mammal	rib	
2232	0	Pig	humerus	right
2232	0	Sheep/goat	metatarsal	
2232	0	Sheep/goat	phalanx 1	
2232	0	Sheep/goat	ulna	right
2314	0	Cattle	atlas	
2314	0	Cattle	femur	right
2314	0	Cattle	femur	right
2314	0	Cattle	horncore	right
2314	0	Cattle	horncore	
2314	0	Cattle	horncore	
2314	0	Cattle	horncore	
2314	0	Cattle	horncore	
2314	0	Cattle	horncore	

Context	Sample	Species	Element	Side
2314	0	Cattle	humerus	left
2314	0	Cattle	metacarpal	
2314	0	Cattle	metacarpal	
2314	0	Cattle	metatarsal	left
2314	0	Cattle	metatarsal	left
2314	0	Cattle	metatarsal	right
2314	0	Cattle	phalanx 1	
2314	0	Cattle	skull	right
2314	0	Cattle	skull	right
2314	0	Cattle	skull	right
2314	0	Cattle	skull	right
2314	0	Cattle	skull	
2314	0	Cattle	skull	right
2314	0	Cattle	skull	right
2314	0	Cattle	skull	left
2314	0	Cattle	skull	left
2314	0	Cattle	skull	right
2314	0	Cattle	tarsal	
2314	0	Cattle	tibia	right
2314	0	Cattle	tibia	left
2314	0	Cattle	tibia	right
2314	0	Fowl	tarsometatarsus	left
2314	0	Indet	indet	
2314	0	Indet	indet	
2314	0	Indet	indet	
2314	0	Large mammal	mandible	left
2314	0	Large mammal	pelvis	
2314	0	Large mammal	pelvis	
2314	0	Large mammal	rib	
2314	0	Large mammal	skull	
2314	0	Large mammal	vertebra	
2314	0	Large mammal	vertebra	
2314	0	Medium mammal	long bone	
2314	0	Medium mammal	rib	
2314	0	Pig	tooth	
2314	0	Pig	ulna	left
2314	0	Sheep	metacarpal	
2314	0	Sheep/goat	femur	left
2314	0	Sheep/goat	femur	left
2314	0	Sheep/goat	humerus	left
2314	0	Sheep/goat	tibia	
2314	0	Sheep/goat	tibia	
2314	0	Sheep/goat	tibia	right
2314	0	Sheep/goat	tooth	
2324	0	Cattle	tibia	left
2324	0	Cattle	ulna	right
2324	0	Indet	indet	
2324	0	Large mammal	femur	
2324	0	Large mammal	long bone	
2324	0	Large mammal	rib	

Context	Sample	Species	Element	Side
2324	0	Medium mammal	rib	
2324	0	Pig	fibula	
2324	0	Sheep/goat	metacarpal	
2324	0	Sheep/goat	pelvis	left
2324	0	Sheep/goat	radius	
2324	0	Sheep/goat	tibia	left
2325	0	Cattle	horncore	
2325	0	Horse	sesamoid	
2325	0	Large mammal	rib	
2325	0	Large mammal	ulna	right
2325	0	Medium mammal	long bone	
2325	0	Sheep/goat	humerus	right
2329	0	Bird	tibiotarsus	right
2332	0	Cattle	horncore	
2332	0	Cattle	horncore	
2332	0	Cattle	horncore	
2332	0	Cattle	horncore	right
2332	0	Cattle	humerus	
2332	0	Cattle	skull	left
2332	0	Cattle	skull	left
2332	0	Cattle	skull	right
2332	0	Cattle	skull	right
2332	0	Cattle	skull	left
2332	0	Medium mammal	rib	
2332	0	Pig	femur	right
2332	0	Sheep/goat	femur	right
2336	0	Cattle	skull	left
2336	0	Fowl	femur	right
2336	0	Large mammal	rib	
2337	0	Indet	indet	
2337	0	Sheep/goat	metatarsal	left
2338	0	Cattle	horncore	
2338	0	Cattle	skull	right
2338	0	Cattle	skull	
2338	0	Large mammal	long bone	
2338	0	Medium mammal	rib	
2338	0	Medium mammal	rib	
2338	0	Medium mammal	vertebra	
2338	0	Sheep/goat	humerus	left
2339	0	Cattle	metacarpal	left
2339	0	Cattle	tibia	left
2339	0	Horse	tooth	
2339	0	Indet	indet	
2339	0	Large mammal	long bone	
2339	0	Large mammal	rib	
2339	0	Medium mammal	long bone	
2339	0	Medium mammal	rib	
2339	0	Sheep/goat	metacarpal	left
2339	0	Sheep/goat	metatarsal	right
2362	0	Fowl	tibiotarsus	right
2362	0	Large mammal	long bone	

Context	Sample	Species	Element	Side
2362	0	Medium mammal	long bone	
2362	0	Sheep/goat	radius	left
2363	0	Bird	long bone	
2363	0	Cattle	femur	right
2363	0	Large mammal	rib	
2363	0	Rabbit	humerus	left
2363	0	Sheep/goat	femur	left
2372	0	Sheep/goat	scapula	left
2391	0	Cattle	horncore	
2391	0	Cattle	mandible	right
2391	0	Cattle	metacarpal	
2391	0	Cattle	metatarsal	
2391	0	Indet	indet	
2391	0	Large mammal	long bone	
2391	0	Large mammal	rib	
2391	0	Large mammal	vertebra	
2391	0	Pig	pelvis	left
2391	0	Sheep/goat	humerus	right
2391	0	Sheep/goat	radius	right
2391	0	Sheep/goat	scapula	right
2391	0	Sheep/goat	scapula	left
2391	0	Sheep/goat	tibia	right
2394	0	Cat	femur	left
2394	0	Cat	femur	right
2394	0	Cat	fibula	
2394	0	Cat	tibia	left
2394	0	Cat	tibia	right
2394	0	Cattle	horncore	
2394	0	Cattle	metacarpal	
2394	0	Indet	indet	
2394	0	Pig	mandible	left
2394	0	Sheep/goat	mandible	right
2394	0	Sheep/goat	mandible	left
2405	0	Large mammal	rib	
2411	0	Indet	indet	
2411	0	Large mammal	rib	
2411	0	Large mammal	scapula	
2411	0	Large mammal	vertebra	
2434	0	Cattle	metatarsal	left
2434	0	Cattle	phalanx 1	
2434	0	Cattle	ulna	
2434	0	Indet	indet	
2434	0	Large mammal	rib	
2434	0	Large mammal	vertebra	
2434	0	Medium mammal	rib	
2434	0	Medium mammal	vertebra	
2434	0	Pig	skull	
2434	0	Sheep/goat	pelvis	right
2441	0	Large mammal	humerus	right
2441	0	Large mammal	long bone	
2441	0	Medium mammal	rib	

Context	Sample	Species	Element	Side
2441	0	Pig	tibia	left
2457	0	Medium mammal	vertebra	
2457	0	Sheep/goat	metacarpal	right
2457	0	Sheep/goat	metatarsal	left
2504	0	Cattle	metatarsal	
2504	0	Indet	indet	
2504	0	Large mammal	long bone	
2504	0	Medium mammal	rib	
2504	0	Sheep/goat	mandible	right
2504	0	Sheep/goat	pelvis	right
2506	0	Cattle	astragalus	left
2506	0	Cattle	astragalus	right
2506	0	Cattle	axis	
2506	0	Cattle	calcaneus	right
2506	0	Cattle	calcaneus	left
2506	0	Cattle	femur	
2506	0	Cattle	humerus	left
2506	0	Cattle	humerus	right
2506	0	Cattle	mandible	left
2506	0	Cattle	mandible	left
2506	0	Cattle	metacarpal	
2506	0	Cattle	metatarsal	left
2506	0	Cattle	metatarsal	
2506	0	Cattle	phalanx 1	
2506	0	Cattle	radius	right
2506	0	Cattle	radius	left
2506	0	Cattle	scapula	left
2506	0	Cattle	ulna	left
2506	0	Dog	femur	right
2506	0	Indet	indet	
2506	0	Large mammal	rib	
2506	0	Large mammal	vertebra	
2506	0	Medium mammal	long bone	
2506	0	Medium mammal	rib	
2506	0	Pig	humerus	left
2506	0	Pig	pelvis	left
2506	0	Pig	tibia	right
2506	0	Pig	tooth	
2506	0	Sheep	skull	left
2506	0	Sheep/goat	pelvis	right
2506		Sheep/goat	skull	right
2517	615	Amphibian	tibiofibula	
2517	615	Bird	long bone	
2517	615	Bird	rib	
2517	615	Bird	phalanx 1	
2517	615	Indet	indet	
2517	615	Indet	indet	
2517	615	Indet	indet	
2517	615	Microfauna	long bone	

Context	Sample	Species	Element	Side
2517	615	Microfauna	vertebra	
2517	615	Passerine	tarsometatarsus	right
2601	0	Cattle	calcaneus	left
2601	0	Cattle	humerus	left
2601	0	Cattle	phalanx 1	
2601	0	Cattle	tooth	
2601	0	Indet	indet	
2601	0	Large mammal	long bone	
2601	0	Large mammal	rib	
2601	0	Large mammal	vertebra	
2601	0	Medium mammal	long bone	
2601	0	Medium mammal	rib	
2601	0	Pig	calcaneus	right
2601	0	Pig	femur	right
2601	0	Pig	tooth	right
2601	0	Pig	tooth	
2601	0	Sheep/goat	femur	right
2601	0	Sheep/goat	mandible	left
2601	0	Sheep/goat	tibia	right
2604	0	Cattle	tooth	
2604	0	Fowl	ulna	right
2604	0	Indet	indet	
2604	0	Large mammal	long bone	
2604	0	Pig	tooth	
2604	0	Sheep/goat	metatarsal	left
2607	0	Bird	phalanx 1	
2607	0	Bird	radius	right
2607	0	Indet	indet	
2607	0	Pig	metapodial	
2607	0	Pig	phalanx 1	
2607	0	Sheep/goat	tibia	left
2607	0	Small mammal	long bone	
2608	0	Fowl	humerus	right
2608	0	Large mammal	vertebra	
2608	0	Pig	humerus	left
2608	0	Sheep/goat	radius	right
2608	0	Sheep/goat	radius	left
2610	598	Bird	phalanx 3	
2610	598	Indet	indet	
2610	598	Indet	indet	
2610	598	Indet	indet	
2610	598	Microfauna	long bone	
2610	598	Microfauna	long bone	
2610	598	Pig	tooth	
2610	598	Rodent	tooth	
2610	598	Vole	femur	left
2611	0	Cattle	tooth	

Context	Sample	Species	Element	Side
2612	0	Large mammal	rib	
2612	0	Large mammal	rib	
2612	0	Large mammal	vertebra	
2612	0	Medium mammal	rib	
2612	0	Pig	metatarsal III	left
2612	0	Sheep/goat	mandible	right
2612	0	Sheep/goat	scapula	left
2707	0	Large mammal	rib	
2707	0	Sheep/goat	mandible	right
2708	0	Large mammal	long bone	
2711	0	Large mammal	long bone	
2711	0	Large mammal	rib	
2711	0	Pig	ulna	left
2711	0	Sheep/goat	pelvis	right
2712	0	Pig	radius	left
2713	0	Medium mammal	rib	
2715	0	Cattle	tibia	right
2715	0	Indet	indet	
2716	0	Large mammal	rib	
2716	0	Large mammal	vertebra	
2716	0	Medium mammal	long bone	
2820	0	Deer	tibia	right
2920	0	Bird	sternum	
2920	0	Bird	vertebra	
2920	0	Cat	ulna	right
2920	0	Cattle	metatarsal	
2920	0	duck	tibiotarsus	right
2920	0	Fowl	humerus	right
2920	0	Fowl	pelvis	right
2920	0	Fowl	tarsometatarsus	right
2920	0	Fowl	tarsometatarsus	right
2920	0	Fowl	tibiotarsus	left
2920	0	Indet	indet	
2920	0	Large mammal	long bone	
2920	0	Large mammal	rib	
2920	0	Large mammal	rib	
2920	0	Medium mammal	rib	
2920	0	Medium mammal	vertebra	
2920	0	Sheep/goat	mandible	right
2920	0	Sheep/goat	mandible	left
2920	0	Sheep/goat	metatarsal	right
3000	0	Bird	long bone	
3000	0	Bird	tibiotarsus	
3000	0	Bird	ulna	left
3000	0	Cattle	axis	
3000	0	Cattle	metacarapal	left
3000	0	Cattle	metacarpal	
3000	0	Cattle	phalanx 1	
3000	0	Cattle	scapula	right
3000	0	Cattle	skull	

Context	Sample	Species	Element	Side
3000	0	Cattle	tibia	left
3000	0	Cattle	tibia	right
3000	0	Cattle	tooth	
3000	0	Cattle	ulna	
3000	0	Dog	tibia	left
3000	0	Duck	tibiotarsus	right
3000	0	Fowl	humerus	left
3000	0	Fowl	pelvis	left
3000	0	Fowl	tibiotarsus	right
3000	0	Fowl	ulna	right
3000	0	Goose	femur	left
3000	0	Goose	tarsometatarsus	left
3000	0	Goose	tibiotarsus	left
3000	0	indet	indet	
3000	0	Large mammal	humerus	
3000	0	Large mammal	long bone	
3000	0	Large mammal	rib	
3000	0	Large mammal	rib	
3000	0	Large mammal	vertebra	
3000	0	Large mammal	vertebra	
3000	0	Large mammal	vertebra	
3000	0	Large mammal	vertebra	
3000	0	Medium mammal	femur	right
3000	0	Medium mammal	femur	
3000	0	Medium mammal	long bone	
3000	0	Medium mammal	rib	
3000	0	Medium mammal	rib	
3000	0	Medium mammal	rib	
3000	0	Medium mammal	vertebra	
3000	0	Medium mammal	vertebra	
3000	0	Pig	femur	right
3000	0	Pig	humerus	left
3000	0	Pig	lateral metapodial	
3000	0	Pig	metacarpal IV	left
3000	0	Pig	skull	left
3000	0	Roe deer	radius	left
3000	0	Sheep	metacarpal	left
3000	0	Sheep	metacarpal	left
3000	0	Sheep	metacarpal	right
3000	0	Sheep	metatarsal	left
3000	0	Sheep	metatarsal	left
3000	0	Sheep	metatarsal	left
3000	0	Sheep	metatarsal	left
3000	0	Sheep/goat	atlas	
3000	0	Sheep/goat	pelvis	right
3000	0	Sheep/goat	radius	right
3000	0	Sheep/goat	radius	left
3000	0	Sheep/goat	scapula	left
3000	0	Sheep/goat	scapula	right
3000	0	Sheep/goat	tibia	right
3000	0	Sheep/goat	tibia	right

Context	Sample	Species	Element	Side
3002	0	Medium mammal	vertebra	
3005	0	Cattle	metacarpal	left
3005	0	Cattle	metatarsal	
3005	0	Fowl	ulna	right
3005	0	Indet	indet	
3005	0	Medium mammal	rib	
3005	0	Pig	femur	right
3005	0	Pig	mandible	right
3005	0	Pig	pelvis	right
3005	0	Pig	tibia	right
3005	0	Sheep/goat	humerus	right
3005	0	Sheep/goat	metatarsal	right
3006	0	Cattle	femur	right
3006	0	Cattle	femur	left
3006	0	Cattle	femur	right
3006	0	Cattle	metatarsal	left
3006	0	Cattle	tibia	left
3006	0	Deer	antler	
3006	0	Horse	metatarsal	right
3006	0	Large mammal	fenur	
3006	0	Large mammal	vertebra	
3006	0	Medium mammal	long bone	
3006	0	Sheep	skull	left
3006	0	Sheep/goat	tibia	left
3007	0	Bird	femur	
3007	0	Bird	tarsometatarsus	
3007	0	Cattle	phalanx 1	
3007	0	Indet	indet	
3007	0	Indet	indet	
3007	0	Large mammal	long bone	
3007	0	Large mammal	long bone	
3007	0	Large mammal	rib	
3007	0	Large mammal	rib	
3007	0	Large mammal	rib	
3007	0	Large mammal	vertebra	
3007	0	Large mammal	vertebra	
3007	0	Medium mammal	long bone	
3007	0	Medium mammal	rib	
3007	0	Medium mammal	rib	
3007	0	Medium mammal	ulna	left
3007	0	Pig	metatarsal III	right
3007	0	Pig	radius	left
3007	0	Sheep	metatarsal	left
3007	0	Sheep/goat	pelvis	left
3007	0	Sheep/goat	radius	left
3007	0	Sheep/goat	tibia	right
3007	0	Sheep/goat	tibia	right
3007	0	Sheep/goat	tibia	right
3014	0	Cattle	femur	right

Context	Sample	Species	Element	Side
3014	0	Large mammal	rib	
3015	0	Cattle	scapula	
3015	0	Horse	metatarsal	left
3015	0	Pig	skull	left
3016	0	Indet	indet	
3016	0	sheep	horncore	left
3038	0	Cattle	metacarpal	right
3038	0	Cattle	metatarsal	
3038	0	Cattle	metatarsal	right
3038	0	Cattle	metatarsal	
3038	0	Cattle	metatarsal	left
3038	0	Cattle	pelvis	right
3038	0	Cattle	phalanx 1	
3038	0	Cattle	phalanx 2	
3038	0	Cattle	tooth	right
3038	0	Horse	femur	right
3038	0	Indet	indet	
3038	0	Large mammal	long bone	
3038	0	Large mammal	rib	
3038	0	Large mammal	rib	
3038	0	Sheep	metatarsal	right
3038	0	Sheep/goat	humerus	left
3038	0	Sheep/goat	scapula	right
3039	0	Bird	tibiotarsus	right
3039	0	Cattle	phalanx 1	
3039	0	Horse	ulna	right
3039	0	Indet	indet	
3039	0	Large mammal	rib	
3039	0	Pig	metatarsal IV	right
3039	0	Sheep/goat	scapula	right
3039	0	Sheep/goat	tibia	left
3039	0	Sheep/goat	ulna	left
3040	0	Indet	indet	
3040	0	Medium mammal	mandible	
3042	0	Medium mammal	rib	
3043	0	Large mammal	vertebra	
3051	0	Large mammal	rib	
3051	0	Large mammal	rib	
3053	0	Cattle	humerus	right
3053	0	Cattle	metatarsal	
3053	0	Large mammal	vertebra	
3053	0	Medium mammal	pelvis	right
3053	0	Pig	humerus	right
3056	0	Cattle	femur	right
3145	0	Cattle	tooth	
3145	0	Indet	indet	
3145	0	Large mammal	rib	
3145	0	Pig	humerus	right
3150	0	Cattle	tooth	

Context	Sample	Species	Element	Side
3150	0	Indet	indet	
3150	0	Medium mammal	rib	
3152	0	Bird	tibiotarsus	right
3152	0	Cattle	horncore	
3152	0	Cattle	humerus	right
3152	0	Cattle	metatarsal	
3152	0	Cattle	pelvis	right
3152	0	Cattle	phalanx 1	
3152	0	Cattle	phalanx 3	
3152	0	Cattle	tibia	left
3152	0	Fowl	femur	right
3152	0	Fowl	tibiotarsus	left
3152	0	Indet	indet	
3152	0	Large mammal	long bone	
3152	0	Large mammal	rib	
3152	0	Large mammal	vertebra	
3152	0	Medium mammal	long bone	
3152	0	Medium mammal	rib	
3152	0	Pig	radius	left
3152	0	Pig	tooth	
3152	0	Sheep/goat	humerus	right
3152	0	Sheep/goat	metacarpal	
3152	0	Sheep/goat	metatarsal	
3152	0	Sheep/goat	radius	right
3152	0	Sheep/goat	scapula	left
3203	0	Bird	sternum	
3203	0	Cattle	metatarsal	right
3203	0	Medium mammal	rib	
3203	0	Sheep/goat	metatarsal	right
3210	0	Cattle	scapula	right
3210	0	Cattle	scapula	left
3210	0	Cattle	scapula	right
3210	0	Dog	ulna	left
3210	0	Indet	indet	
3210	0	Large mammal	long bone	
3210	0	Large mammal	rib	
3210	0	Large mammal	vertebra	
3210	0	Medium mammal	rib	
3210	0	Pig	femur	left
3210	0	Pig	skull	left
3211	0	Bird	femur	right
3211	0	Bird	tibiotarsus	right
3211	0	Cattle	metatarsal	right
3211	0	Cattle	pelvis	left
3211	0	Cattle	tooth	
3211	0	Goose	scapula	left
3211	0	Indet	indet	
3211	0	Large mammal	long bone	
3211	0	Large mammal	rib	
3211	0	Large mammal	vertebra	

Context	Sample	Species	Element	Side
3211	0	Medium mammal	long bone	
3211	0	Medium mammal	rib	
3211	0	Medium mammal	rib	
3211	0	Medium mammal	rib	
3211	0	Pig	phalanx 1	
3211	0	Pig	radius	
3211	0	Pig	skull	right
3211	0	Pig	tooth	
3211	0	Sheep/goat	femur	left
3211	0	Sheep/goat	humerus	left
3211	0	Sheep/goat	mandible	left
3211	0	Sheep/goat	metatarsal	right
3211	0	Sheep/goat	pelvis	right
3214	0	Sheep	metacarpal	
3214	0	Sheep/goat	humerus	right
3214	0	Sheep/goat	humerus	left
3214	0	Sheep/goat	radius	left
3230	0	Sheep/goat	humerus	right
3230	0	Sheep/goat	scapula	left
3230	0	Sheep/goat	tibia	right
3306	0	Cat	humerus	left
3306	0	Cat	tibia	right
3306	0	Cattle	metapodial	
3306	0	Indet	indet	
3306	0	Large mammal	long bone	
3306	0	Large mammal	rib	
3306	0	Pig	tibia	right
3306	0	Sheep/goat	scapula	right
3312	0	Cat	femur	left
3312	0	Cattle	calcaneus	right
3312	0	Cattle	femur	left
3312	0	Cattle	humerus	right
3312	0	Cattle	humerus	right
3312	0	Cattle	hyoid	
3312	0	Cattle	phalanx 1	
3312	0	Cattle	phalanx 3	
3312	0	Cattle	skull	
3312	0	Cattle	skull	
3312	0	Cattle	skull	
3312	0	Cattle	skull	
3312	0	Cattle	skull	right
3312	0	Cattle	skull	
3312	0	Cattle	tibia	right
3312	0	Cattle	tibia	left
3312	0	Fowl	tibiotarsus	right
3312	0	Goose	pelvis	right
3312	0	Goose	synsacrum	
3312	0	Indet	indet	

Context	Sample	Species	Element	Side
3312	0	Large mammal	long bone	
3312	0	Large mammal	rib	
3312	0	Large mammal	rib	
3312	0	Large mammal	vertebra	
3312	0	Large mammal	vertebra	
3312	0	Medium mammal	long bone	
3312	0	Medium mammal	rib	
3312	0	Medium mammal	rib	
3312	0	Medium mammal	sternum	
3312	0	Medium mammal	vertebra	
3312	0	Pig	calcnaeus	left
3312	0	Pig	femur	left
3312	0	Pig	femur	right
3312	0	Pig	mandible	right
3312	0	Pig	scapula	left
3312	0	Pig	skull	left
3312	0	Pig	tibia	right
3312	0	Sheep	horncore	
3312	0	Sheep	metacarpal	left
3312	0	Sheep/goat	femur	left
3312	0	Sheep/goat	humerus	right
3312	0	Sheep/goat	humerus	right
3312	0	Sheep/goat	humerus	left
3312	0	Sheep/goat	humerus	left
3312	0	Sheep/goat	metacarpal	left
3312	0	Sheep/goat	radius	
3312	0	Sheep/goat	radius	left
3312	0	Sheep/goat	radius	left
3312	0	Sheep/goat	scapula	left
3312	0	Sheep/goat	scapula	right
3312	0	Sheep/goat	scapula	right
3312	0	Sheep/goat	scapula	right
3312	0	Sheep/goat	scapula	right
3312	0	Sheep/goat	scapula	right
3312	0	Sheep/goat	skull	right
3312	0	Sheep/goat	tibia	left
3312	0	Sheep/goat	tibia	left
3312	0	Sheep/goat	tooth	
3315	0	Large mammal	long bone	
3315	0	Large mammal	rib	
3315	0	Large mammal	vertebra	
3315	0	Medium mammal	vertebra	
3315	0	Sheep/goat	tibia	left
3319	0	Cattle	metatarsal	
3319	0	Cattle	pelvis	right
3319	0	Cattle	scapula	right
3319	0	Indet	indet	
3319	0	Large mammal	long bone	
3319	0	Large mammal	rib	
3319	0	Large mammal	rib	
3319	0	Large mammal	rib	

Context	Sample	Species	Element	Side
3319	0	Large mammal	vertebra	
3319	0	Sheep/goat	mandible	left
3319	0	Sheep/goat	mandible	left
3319	0	Sheep/goat	radius	left
3319	0	Sheep/goat	tibia	right
3321	0	Cattle	tibia	left
3321	0	Horse	tooth	
3321	0	Indet	indet	
3321	0	Large mammal	rib	
3321	0	Large mammal	rib	
3321	0	Medium mammal	long bone	
3321	0	Medium mammal	rib	
3321	0	Pig	humerus	left
3321	0	Pig	pelvis	right
3321	0	Sheep/goat	radius	right
3321	0	Sheep/goat	scapula	right
3321	0	Sheep/goat	scapula	right
3322	0	Large mammal	rib	
3326	0	Large mammal	atlas	
3327	0	Cattle	mandible	left
3327	0	Cattle	radius	left
3327	0	Dog	mandible	left
3327	0	Horse	mandible	
3327	0	indet	indet	
3327	0	Large mammal	rib	
3327	0	Large mammal	rib	
3327	0	Pig	pelvis	left
3327	0	Pig	tooth	left
3327	0	Sheep/goat	mandible	left
3327	0	Sheep/goat	mandible	left
3327	0	Sheep/goat	metacarpal	right
3327	0	Sheep/goat	radius	right
3327	0	Sheep/goat	tibia	left
3328	0	Cattle	humerus	right
3328	0	Cattle	humerus	right
3328	0	Cattle	scapula	left
3328	0	Cattle	tooth	
3328	0	Indet	indet	
3328	0	Large mammal	rib	
3328	0	Large mammal	vertebra	
3328	0	Medium mammal	rib	
3328	0	Pig	phalanx 1	
3328	0	Sheep	mandible	right
3328	0	Sheep/goat	femur	left
3328	0	Sheep/goat	phalanx 1	
3328	0	Sheep/goat	tibia	left
3328	0	Sheep/goat	tooth	right
3329	0	Cattle	mandible	left
3329	0	Cattle	mandible	left
3329	0	Cattle	metatarsal	left
3329	0	Cattle	tooth	

Context	Sample	Species	Element	Side
3329	0	Fowl	humerus	right
3329	0	Ggoose	tibiotarsus	left
3329	0	Indet	indet	
3329	0	Large mammal	long bone	
3329	0	Large mammal	rib	
3329	0	Large mammal	rib	
3329	0	Large mammal	vertebra	
3329	0	Large mammal	vertebra	
3329	0	Medium mammal	rib	
3329	0	Sheep	metatarsal	right
3329	0	Sheep	metatarsal	right
3329	0	Sheep	skull	
3329	0	Sheep/goat	calcaneus	left
3329	0	Sheep/goat	pelvis	left
3329	0	Sheep/goat	scapula	right
3329	0	Sheep/goat	tibia	left
3329	0	Sheep/goat	tooth	left
3411	0	Bird	humerus	
3411	0	Cattle	phalanx 3	
3411	0	Cattle	skull	right
3411	0	Cattle	tarsal	left
3411	0	indet	indet	
3411	0	Large mammal	mandible	left
3411	0	Large mammal	rib	
3411	0	Sheep/goat	radius	left
3412	0	Cat	femur	right
3412	0	Indet	indet	
3412	0	Medium mammal	rib	
3415	0	Cattle	axis	
3415	0	Cattle	femur	left
3415	0	Cattle	horncore	
3415	0	Cattle	humerus	left
3415	0	Cattle	humerus	left
3415	0	Cattle	mandible	left
3415	0	Cattle	mandible	right
3415	0	Cattle	metacarpal	right
3415	0	Cattle	metacarpal	right
3415	0	Cattle	metacarpal	left
3415	0	Cattle	metacarpal	left
3415	0	Cattle	metacarpal	right
3415	0	Cattle	metacarpal	right
3415	0	Cattle	metacarpal	left
3415	0	Cattle	metacarpal	left
3415	0	Cattle	metatarsal	left
3415	0	Cattle	metatarsal	left
3415	0	Cattle	metatarsal	
3415	0	Cattle	metatarsal	right
3415	0	Cattle	metatarsal	left
3415	0	Cattle	pelvis	left
3415	0	Cattle	pelvis	right
3415	0	Cattle	phalanx 1	

Context	Sample	Species	Element	Side
3415	0	Cattle	radius	left
3415	0	Cattle	scapula	left
3415	0	Cattle	skull	
3415	0	Cattle	tibia	right
3415	0	Cattle	tibia	left
3415	0	Cattle	tibia	left
3415	0	Cattle	tooth	
3415	0	Horse	humerus	right
3415	0	Indet	indet	
3415	0	Large mammal	long bone	
3415	0	Large mammal	rib	
3415	0	Large mammal	vertebra	
3415	0	Large mammal	vertebra	
3415	0	Medium mammal	long bone	
3415	0	Medium mammal	rib	
3415	0	Pig	humerus	left
3415	0	Pig	humerus	right
3415	0	Pig	scapula	left
3415	0	Pig	tibia	left
3415	0	Sheep/goat	femur	left
3415	0	Sheep/goat	metacarpal	right
3415	0	Sheep/goat	radisu	left
3415	0	Sheep/goat	radius	right
3415	0	Sheep/goat	radius	right
3415	0	Sheep/goat	radius	right
3415	0	Sheep/goat	radius	right
3415	0	Sheep/goat	radius	left
3415	0	Sheep/goat	scapula	right
3428	0	Cattle	atlas	
3428	0	Cattle	atlas	
3428	0	Cattle	atlas	
3428	0	Cattle	calcaneus	right
3428	0	Cattle	calcaneus	left
3428	0	Cattle	femur	right
3428	0	Cattle	femur	right
3428	0	Cattle	femur	right
3428	0	Cattle	femur	left
3428	0	Cattle	femur	left
3428	0	Cattle	femur	right
3428	0	Cattle	femur	right
3428	0	Cattle	femur	right
3428	0	Cattle	femur	right
3428	0	Cattle	horncore	right
3428	0	Cattle	humerus	left
3428	0	Cattle	humerus	right
3428	0	Cattle	humerus	right
3428	0	Cattle	humerus	right
3428		Cattle	humerus	left
3428	0	Cattle	mandible	right
3428	0	Cattle	mandible	right
3428		Cattle	mandible	right

Context	Sample	Species	Element	Side
3428	0	Cattle	mandible	left
3428	0	Cattle	mandible	right
3428	0	Cattle	mandible	
3428	0	Cattle	mandible	left
3428	0	Cattle	mandible	left
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	right
3428	0	Cattle	metacarpal	left
3428	0	Cattle	metapodial	
3428	0	Cattle	metapodial	
3428	0	Cattle	metatarsal	left
3428	0	Cattle	metatarsal	right
3428	0	Cattle	metatarsal	left
3428	0	Cattle	metatarsal	right
3428	0	Cattle	metatarsal	right
3428	0	Cattle	metatarsal	left
3428	0	Cattle	metatarsal	right
3428	0	Cattle	metatarsal	left
3428	0	Cattle	metatarsal	right
3428	0	Cattle	pelvis	right
3428	0	Cattle	pelvis	right
3428	0	Cattle	pelvis	left
3428	0	Cattle	phalanx 1	
3428	0	Cattle	phalanx 3	
3428	0	Cattle	sacrum	right
3428	0	Cattle	skull	right
3428	0	Cattle	skull	right
3428	0	Cattle	skull	right
3428	0	Cattle	skull	left
3428	0	Cattle	skull	right
3428	0	Cattle	skull	left
3428	0	Cattle	skull	
3428	0	Cattle	skull	right
3428	0	Cattle	skull	
3428	0	Cattle	skull	left
3428	0	Cattle	skull	
3428	0	Cattle	skull	
3428	0	Cattle	skull	right
3428	0	Cattle	skull	left

Context	Sample	Species	Element	Side
3428	0	Cattle	skull	right
3428	0	Cattle	skull	left
3428	0	Cattle	skull	left
3428	0	Cattle	skull	right
3428	0	Cattle	skull	left
3428	0	Cattle	skull	occipital
3428	0	Cattle	skull	left
3428	0	Cattle	skull	
3428	0	Cattle	skull	right
3428		Cattle	skull	right
3428	0	Cattle	tibia	right
3428	0	Cattle	tooth	
3428	0	Dog	femur	left
3428	0	Dog	skull	
3428	0	Horse	pelvis	left
3428	0	Horse	ulna	left
3428	0	Indet	indet	
3428	0	Indet	indet	
3428	0	Indet	indet	
3428	0	Large mammal	long bone	
3428	0	Large mammal	rib	
3428	0	Large mammal	rib	
3428	0	Large mammal	ulna	right
3428	0	Large mammal	vertebra	
3428	0	Large mammal	vertebra	
3428	0	Large mammal	vertebra	
3428	0	Large mammal	vertebra	
3428	0	Large mammal	vertebra	
3428	0	Pig	femru	left
3428	0	Pig	femur	right
3428	0	Pig	femur	right
3428	0	Pig	femur	left
3428	0	Pig	humerus	right
3428	0	Pig	humerus	right
3428	0	Pig	mandible	right
3428	0	Pig	mandible	left
3428	0	Pig	scapula	right
3428	0	Pig	skull	right
3428	0	Roe deer	metatarsal	right
3428	0	Sheep	horncore	right
3428	0	Sheep	horncore	right
3428	0	Sheep	skull	
3428	0	Sheep	skull	
3428	0	Sheep/goat	femur	right
3428	0	Sheep/goat	humerus	right
3428	0	Sheep/goat	mandible	right
3428	0	Sheep/goat	scapula	left
3428	0	Sheep/goat	scapula	left
3428	0	Sheep/goat	skull	

Context	Sample	Species	Element	Side
3428	0	Sheep/goat	skull	
3428	0	Sheep/goat	tibia	left
3429	0	Cattle	femur	left
3429	0	Cattle	metatarsal	left
3429	0	Cattle	metatarsal	right
3429	0	Cattle	scapula	left
3429	0	Cattle	skull	right
3429	0	Horse	calcaneus	right
3429	0	Indet	indet	
3429	0	Large mammal	vertebra	
3429	0	sheep	horncore	right
3453	0	Cattle	metacarpal	right
3453	0	Cattle	metatarsal	left
3453	0	Cattle	metatarsal	left
3453	0	Cattle	metatarsal	left
3453	0	Large mammal	vertebra	
3453	0	Sheep/goat	scapula	left
3455	0	Cattle	mandible	left
3455	0	Cattle	metacarpal	right
3455	0	Cattle	metacarpal	
3455	0	Cattle	metacarpal	left
3455	0	Cattle	metatarsal	right
3455	0	Cattle	metatarsal	
3455	0	Cattle	metatarsal	left
3455	0	Cattle	metatarsal	left
3455	0	Cattle	scapula	right
3455	0	Indet	indet	
3455	0	Indet	indet	
3455	0	Large mammal	vertebra	
3455	0	Medium mammal	long bone	
3455	0	Medium mammal	rib	
3455	0	Pig	mandible	
3455	0	Pig	tibia	left
3455	0	Sheep	horncore	
3455	0	Sheep	metacarpal	right
3455	0	Sheep/goat	humerus	left
3455	0	Sheep/goat	humerus	right
3455	0	Sheep/goat	metacarpal	right
3455	0	Sheep/goat	tibia	left
3456	0	Cattle	mandible	right
3456	0	Cattle	skull	right
3456	0	Cattle	tibia	right
3456	0	indet	indet	
3456	0	Large mammal	rib	
3456	0	Medium mammal	rib	
3456	0	Pig	pelvis	right
3456	0	Pig	tooth	left
3456	0	Sheep	horncore	
3456	0	Sheep/goat	metacarpal	right
3457	0	Medium mammal	femur	
3457	0	Sheep	metacarpal	right

Context	Sample	Species	Element	Side
3462	0	Cattle	mandible	left
3462	0	Cattle	metatarsal	left
3462	0	Cattle	metatarsal	left
3462	0	Cattle	metatarsal	left
3462	0	Cattle	phalanx 2	
3464	0	Sheep/goat	mandible	right
3464	0	Sheep/goat	mandible	left
3505	0	Indet	indet	
3517	0	Large mammal	tibia	right
3520	0	Roe deer	metacarpal	right
3523	0	Cattle	metatarsal	right
3525	0	Cattle	hyoid	
3525	0	Cattle	metacarpal	right
3525	0	Cattle	metatarsal	left
3525	0	Cattle	metatarsal	left
3525	0	Indet	indet	
3525	0	Large mammal	rib	
3525	0	Large mammal	rib	
3525	0	Medium mammal	vertebra	
3525	0	Sheep/goat	pelvis	right
3525	0	Sheep/goat	radius	left
3528	0	Cattle	scapula	right
3528	0	Large mammal	rib	
3534	0	Medium mammal	tibia	
3537	0	Large mammal	rib	
3540	0	Bird	ulna	left
3540	0	Cattle	femur	
3540	0	Cattle	humerus	right
3540	0	Cattle	metacarpal	
3540	0	Cattle	tooth	
3540	0	Fowl	tibiotarsus	left
3540	0	Indet	indet	
3540	0	Large mammal	long bone	
3540	0	Large mammal	rib	
3540	0	Large mammal	vertebra	
3540	0	Medium mammal	rib	
3540	0	Pig	axis	
3540	0	Pig	tooth	
3540	0	Sheep	metatarsal	right
3540	0	Sheep/goat	pelvis	left
3540	0	Sheep/goat	tibia	right
3549	0	Bird	long bone	
3549	0	Cattle	tibia	left
3549	0	Cattle	ulna	right
3549	0	Indet	indet	
3549	0	Large mammal	rib	
3549	0	Large mammal	vertebra	
3549	0	Sheep/goat	ulna	left

B.5 Fish remains

by Rebecca Nicholson

Introduction

B.5.1 A small number of fish bones and scales were recovered by hand and from bulk soil samples taken during the excavation. All bones were identified by eye, and identifications should be seen as provisional.

Results

B.5.2 The hand collected assemblage, unsurprisingly, was dominated by bones from large gadid (cod family) fish, including cod (*Gadus morhua*), ling (*Molva molva*) and probably haddock (*Melanogrammus aeglefinus*). Conger eel (*Conger conger*) and a medium sized flatfish (Pleuronectidae) were also identified. Of the six bulk samples which were processed, only two (samples 598 and 615) produced fish remains, with the small assemblage including freshwater fish: pike, *Esox lucius*), a cyprinid (Cyprinidae) and possibly perch (*Perca fluviatilis*), as well as the euryhaline eel (*Anguilla anguilla*) and marine fish represented by a clupeid (probably herring, *Clupea harengus*) and gurnard (Triglidae).

Table B11: Fish remains

Context	Mode of Recovery	Identification
2106	Hand retrieved	1 large ling caudal vertebra 1 frag..conger eel premaxilla 1 frag. large gadid cleithrum 5 indeterminate frags.
2107	Hand retrieved	1 medium gadid preopercular, cf. haddock
2190	Hand retrieved	1 frag. medium cod parasphenoid
2108	Hand retrieved	1 frag. large cod cleithrum 1 plaice/flounder/dab caudal vertebra
3152	Hand retrieved	1 medium ling caudal vertebra
2610 (sample 598) pit fill	9 L soil, sieved to 0.5 mm	1 medium-large cyprinid caudal vertebra 1 eel vertebra 1 frag gurnard skull 1 frag percoid scale, cf. Perch 1 pike tooth
2517 (sample 615) probable occupation surface	10 L soil, sieved to 0.5 mm	1 eel dentary 1 frag clupeid vertebra

Discussion

B.5.3 The number of fish remains retrieved from this second evaluation was particularly low, which is a reflection of both the paucity of identifiably cultural deposits and the small volume of processed soil from this stage of work. Nevertheless, a range of fish were represented, and since the relevant contexts were probably associated with the Greyfriars complex, it demonstrates the range of fish available in the town at that time. The 2006 evaluation produced a much larger fish bone assemblage, but included bones from a very similar range of fish.

B.6 Ceramic Building Material

Introduction

B.6.1 A total of 377 fragments of ceramic building material weighing 28,262 g were recovered from the archaeological investigation at the West Gate Centre, Oxford carried out in 2007 (EV2). The assemblage is in a relatively poor condition; the tiles are fragmentary and abraded, with only one or two tiles surviving with a complete measurable dimension (other than thickness). The assemblage is predominately roofing material, mainly flat/peg tiles of both medieval and post-medieval date. A small number of fragments of glazed crested ridge tile were also present. The floor tiles include a number of decorated examples dating to the 13th-14th centuries. Very few bricks were seen, but some fragments appeared to be medieval or Tudor rather than later post-medieval.

Methodology

B.6.2 The assemblage has been briefly scanned and recognisable forms have been identified and recorded in a Word table (Table B10 below). Distinguishing features have been noted in the comments field together with any complete dimensions (other than thickness). No attempt at fabric identification has been made at this stage except in a very few instances where the fabric is easily recognisable.

Floor tiles

B.6.3 A total of 45 fragments of floor tile weighing 4851 g were recovered from the site. The majority of these are stabbed Wessex type with the characteristic circular indentations or stab marks on the underside (some very deep). Fourteen fragments were decorated with cream inlay, 3 of which had a green glaze over the inlaid design. The production period for this type of tile is *c* 1280-1330, perhaps as early as 1250 (Lambrick and Mellor 1985, 185-6). In most cases the fragments are too small and the design too abraded to identify but 5 fragments have enough of the pattern remaining to identify them as Loyd Haberly types. A fragment with a measurable width of 154 mm recovered from context 2106 has a floral/geometric design and is an example of LH XLIX, a second smaller fragment from context 3525 has the same design. Two very small fragments from contexts 3007 and 3549 bear traces of an eagles wing (the later also has a floral motif and a band running around the border) these are probably examples of LH LXVI. A final fragment from context 2920, another floral/geometric design is probably LH XXV. Similar examples of all these types were recovered from the previous excavations on the site of the Medieval Greyfriars (Mellor 1989, 252).

B.6.4 Two fragments from contexts 3415 and 3523 bear faint traces of a printed pattern but too little remains to identify the design. These fragments date to the 14th-15th century.

B.6.5 Other floor tiles of note include an example from context 3415 which has been deliberately cut to fit a particular space in the floor/border (this is also the case with the fragment from 3525 that bears the LH XLIX design) and a fragment of Penn-Chilten fabric from context 3535 with bright yellow glaze (similar fragments were recovered from the Greyfriars (Mellor 1989, 252).

Roof tiles

B.6.6 The bulk of the assemblage (187 fragments weighing 11,573 g) comprises fragments of flat roofing material with no distinguishing features other than the fact that they are relatively thin (Th: 11-15 mm). The majority of these are made of an orange/red sandy fabric with the exception of 7 fragments which are of a characteristic 13th-14th century

pale cream/pink fabric with chalk flecks. A further 30 fragments (3,443 g) are from peg tiles and all have the remains of 1 or 2 perforations, there are examples of peg tiles with holes in the two top corners and others where the holes are nearer together at the centre of the upper edge of the tile. An example of this second type recovered from context 3621 has a complete width measuring 190 mm.

B.6.7 The assemblage also includes 32 fragments of ridge tile (4463 g) many of these are small fragments with a green/brown glaze. Larger fragments from contexts 3540, 3541 and 3549 have crested ridges with thumbing and pinching. The example from contexts 3540 and 3541 both have a copper green glaze and date to the 13th-14th century. One of the fragments from context 3549 is probably slightly earlier in date (late 12th-14th century).

Bricks

B.6.8 A total of 7 fragments of brick were recovered (2620 g) two of the more complete examples from contexts 2391 and 3415 have a measurable thickness of 54-56 mm and a width of 102-104 mm, they are well made with straight cut edges and are probably Tudor in date.

Roman tiles

B.6.9 Two fragments of Roman tile were recovered from the site; a fragment of tegula with a complete flange came from context 2131 and a floor tile fragment came from context 3530.

Conclusion

B.6.10 The assemblage, although small and fragmentary, comprises a number of notable examples of floor and roofing material that complement the examples recovered in the previous excavations carried out at the Greyfriars.

Further work

B.6.11 The assemblage should be fully recorded including fabric analysis and a short report should be produced for publication. The decorated floor tiles will not need illustrating as the identifiable types have already been published in the previous report.

Table B10 ceramic building material

Context	Spot date	No. of fragments	Weight	Comment
1904		1	8	Floor tile fragment with a splash of light brown glaze
1904		2	110	Flat roof tile fragments
1904	1280-1330	1	57	Decorated floor tile, stabbed Wessex type, trace of inlaid design
1904	1280-1330	1	84	Decorated floor tile, stabbed Wessex type, inlaid design with green glaze over the top
1904		1	41	Ridge tile fragment with green glaze
2018		1	58	Flat roof tile fragment
2035		1	31	Flat roof tile fragment
2106		1	12	Misc fragment
2106	1280-1330	1	355	Decorated floor tile, stabbed Wessex

Context	Spot date	No. of fragments	Weight	Comment
				type, deeply inlaid decoration (floral and central geometrical shape)
2107		1	6	Misc fragment
2108		1	69	Flat roof tile fragment
2131	Roman	1	349	Tegula fragment
2150		1	14	Flat roof tile fragment
2163		2	169	Flat roof tile fragments
2163		1	55	Peg tile fragment (perforated)
2163		2	164	Ridge tile fragments with green glaze
2187		1	313	Brick fragment. Pale fabric Th: 60mm
2189		3	89	Flat roof tile fragments
2227		5	159	Floor tile fragments
2227		7	59	Misc fragments
2227		1	35	Ridge tile fragment with light brown/orange glaze
2228		1	57	Flat roof tile fragment
2229		3	179	Flat roof tile fragments
2229		1	26	Flat roof tile fragment with green glaze
2229	C13th-C14th	1	80	Flat roof tile fragment. Pale chalk flecked fabric.
2229	1280-1330	1	192	Floor tile fragment, stabbed Wessex type. Plain
2231		1	7	Flat roof tile fragment
2314		1	88	Peg tile fragment (perforated)
2314		4	105	Flat roof tile fragments
2315		1	32	Floor tile fragment
2315		1	27	Misc fragment
2324		1	30	Misc fragment (brick)
2324	1280-1330	1	32	Floor tile fragment, stabbed Wessex type glaze on under side in stab holes upper surface missing
2324		1	77	Flat roof tile fragment (pale chalk flecked fabric)
2325		1	49	Flat roof tile fragment
2325		3	141	Floor tile fragments
2332		1	19	Misc fragment (brick)
2337		2	188	Peg tile fragments (perforated)
2338		1	25	Flat roof tile fragment
2339		2	100	Flat roof tile fragments
2339		1	74	Floor tile fragment, pale fabric
2339		2	114	Flat roof tile fragments
2339	C13th-C14th	1	71	Flat roof tile fragment with splashed green glaze. Very pale chalk flecked fabric
2339		4	91	Floor tile fragment
2339		3	33	Misc fragments
2341		1	67	Peg tile fragment? Two perforations very close together. Very crudely made

Context	Spot date	No. of fragments	Weight	Comment
2362		1	128	Flat roof tile fragment
2365		1	25	Ridge tile fragment dark brown glaze
2365	C13th-C15th	1	100	Angled ridge tile fragment with green/ brown glaze
2372		1	71	Flat roof tile fragment
2391	Tudor?	1	750	Brick fragment. W:102 mm, Th: 54 mm
2391		1	84	Flat roof tile fragment
2391		1	172	Ridge tile fragment, plain
2391		1	351	Ridge tile fragment, plain
2391		1	22	Flat roof tile fragment with green glaze
2422		1	46	Flat roof tile fragment
2434		3	65	Misc fragments
2504		14	672	Flat roof tile fragments
2504		3	128	Ridge tile fragments with green glaze
2506		10	383	Flat roof tile fragments
2601		1	107	Flat roof tile fragments, one with cream/yellow glaze
2601		2	12	Misc fragments
2601		3	129	Flat roof tile fragments
2601		2	48	Flat roof tile fragments (pale chalk flecked fabric)
2601		1	55	Floor tile fragment with yellow/light green glaze
2601		1	16	Floor tile fragment with traces of green slip
2604		1	35	Ridge tile fragment (dark green glaze)
2604		1	14	Misc fragment
2607		2	164	Floor tile fragments with green glaze
2612		2	131	Flat roof tile fragments
2612		2	220	Peg tile fragments (perforated, one fragment has 2 holes)
2612		2	58	Flat roof tile fragments (one with dark green glaze)
2707		1	19	Flat roof tile fragment
2711		1	61	Ridge tile fragment with green glaze
2712		2	148	Flat roof tile fragments one with a splash of green glaze
2713		1	192	Floor tile fragment? Plain
2716		1	32	Ridge tile fragment with green glaze
2716		2	46	Flat roof tile fragments
2716		3	54	Misc fragments
2717		1	52	Flat roof tile fragment
2911		1	65	Flat roof tile fragment
2920	1280-1330	1	73	Decorated floor tile, stabbed Wessex type, inlaid decoration (border with circles and a daisy inside)
2920		4	80	Flat roof tile fragments
2920		4	222	Flat roof tile fragments

Context	Spot date	No. of fragments	Weight	Comment
2920		1	59	Floor tile, corner fragment, glazed on edge and traces of glaze on upper surface.
3000	C13th-C15th	1	31	Ridge tile fragment dark green/brown glaze
3000		1	76	Peg tile (perforated) chunky Th: 17 mm
3000		3	175	Flat roof tile fragments
3000		5	29	Misc fragments
3000		1	74	Flat roof tile fragment, slightly curved, possibly from a ridge tile. Very worn and abraded Th:10 mm
3007	C13th-C14th	1	23	Flat roof tile fragment, pale chalk flecked fabric Th: 11 mm
3007	1280-1330	1	9	Small fragment from a decorated floor tile. Stabbed Wessex type. Design is possibly from the wing of an eagle
3008	C13th-C14th	1	92	Flat tile, stabbed Wessex type, very worn
3014		3	110	Flat roof tile fragments
3016		1	10	Misc fragment
3038		2	20	Misc fragments
3038		2	120	Peg tile fragments (perforated)
3038		1	63	Flat roof tile fragment
3039	C13th-C14th	1	119	Flat roof tile fragment, very pale chalk flecked fabric with a splash of clear glaze on the upper surface
3039		1	56	Floor tile fragment
3039		1	28	Flat roof tile fragment, green glaze on upper surface (possibly ridge tile)
3051		1	19	Misc fragment (brick ?)
3152		1	58	Flat roof tile fragment
3152		1	127	Brick fragment, no complete dimensions
3306		1	3	Misc fragment
3328		2	12	Misc fragments
3329		2	63	Flat roof tile fragments
3329	C13th-C14th	1	52	Peg tile (perforated). Pale chalk flecked fabric Th: 11 mm
3329	C18th-C19th	1	23	Drain pipe fragment
3411		1	21	Floor tile fragment
3412		1	262	Brick fragment (burnt on the underside)
3415	Tudor?	1	593	Brick, thin but well made, W:104 mm, Th: 48 mm
3415	C15th-C16th	1	291	Floor tile fragment, Late medieval - Flemish
3415		2	170	Flat roof tile fragments
3415		1	120	Floor tile fragment, triangular glazed

Context	Spot date	No. of fragments	Weight	Comment
				on one edge and both faces. Probably deliberately cut to fit into a floor pattern or border.
3415	C14th-C15th	1	177	Floor tile fragment, corner, vague traces of a printed design on the upper surface
3415		1	269	Floor tile fragment Th: 31 mm. fairly worn quarry tile
3415		13	784	Flat roof tile fragments
3415		1	507	Peg tile fragment, corner, one complete perforation and half of another
3415		11	289	Misc fragments
3415		3	102	Flat roof tile fragments
3415		2	90	Floor tile fragment
3428		10	695	Flat roof tile fragments
3428		3	350	Peg tile fragments (perforated)
3455		3	233	Flat roof tile fragments
3455		2	103	Flat roof tile fragments
3455		1	47	Flat roof tile fragment
3455		1	31	Peg tile fragment (perforated)
3455		3	161	Flat roof tile fragments
3455		2	184	Peg tile fragments (perforated)
3455		1	10	Misc fragment
3455		5	456	Flat roof tile fragments
3455		1	18	Peg tile fragment (perforated)
3455		1	16	Ridge tile fragment with dark green glaze
3455	1280-1330	1	100	Decorated floor tile, Stabbed Wessex type. Inlaid scroll decoration with green glaze over the top
3455		1	150	Floor tile fragment with burnt/abraded surface
3456		1	36	Flat roof tile fragment
3456		2	143	Flat roof tile fragments
3456		1	65	Peg tile fragment (perforated)
3456		2	106	Misc fragments
3457		18	1352	Flat roof tile fragments
3457		3	358	Peg tile fragments (perforated)
3457		9	166	Misc fragments
3457		1	98	Roof tile fragment (with animal bird/rodent print on upper surface)
3460		1	129	Misc fragments (brick)
3462		1	181	Peg tile fragment (perforated)
3462		1	206	Flat roof tile fragment
3505	1280-1330	1	59	Decorated floor tile, stabbed Wessex type, inlaid fleur de lys decoration
3505		1	37	Floor tile fragment, stabbed Wessex type
3516		1	269	Flat roof tile fragment

Context	Spot date	No. of fragments	Weight	Comment
3517		1	33	Misc fragment
3517	Late C12th-C14	1	183	Ridge tile fragment, limestone tempered (fabric 1B).
3520		2	143	Flat roof tile fragments
3520		1	205	Ridge tile fragment
3520		1	169	Ridge tile, glazed. Due to waterlogged conditions the glaze has been reduced to a dark green almost black colour.
3521		1	123	Peg tile fragment (perforated)
3521		1	53	Flat roof tile fragment
3521		1	69	Ridge tile fragment
3523	C14th-C15th	1	41	Decorated floor tile fragment, printed design
3523		1	84	Ridge tile frag. green/dark brown glaze
3525		2	242	Flat roof tile
3525	1280-1330	1	220	Decorated floor tile, stabbed Wessex type. Floral inlaid decoration with glaze over the top.
3525		1	282	Ridge tile fragment with green glaze
3525		5	360	Flat roof tile fragments
3525		1	92	Peg tile fragment (perforated)
3525	1280-1330	1	61	Decorated floor tile, stabbed Wessex type. Inlaid decoration no glaze surviving
3525		1	91	Floor tile fragment, stabbed Wessex type. Upper surface missing
3528	1280-1330	2	38	Decorated floor tile fragments, stabbed Wessex type, inlaid decoration.
3530	Roman?	1	157	Thick, hard-fired floor tile fragment Th: 34 mm.
3534		2	133	Flat roof tile fragments
3534	C15th-C16th	2	674	Floor tile fragments, well-made and well-finished, very thick and chunky Th: 40 mm. Tiny fragment of upper surface surviving possibly with a trace of slip decoration.
3535	C14th	1	158	Floor tile fragment, plain yellow glaze. Penn-Chiltern fabric
3536	1280-1330	1	96	Decorated floor tile, deep inlaid design (floral) with a very dark glaze over the top which has probably reduced due to waterlogged conditions
3536		1	42	Flat roof tile fragment with a splash of light brown glaze
3537		1	34	Floor tile fragment, stabbed Wessex type. Upper surface has worn away.

Context	Spot date	No. of fragments	Weight	Comment
3540	Late C13th-14th	1	197	Crested ridge tile fragment (crest broken off) pale fabric, copper green glaze
3540	1280-1330	1	303	Decorated floor tile fragment, stabbed Wessex type. Inlaid decoration fleur de lys design
3540		1	40	Flat roof tile fragment
3541	Late C13th-14th	1	192	Crested ridge tile fragment, the crest is thumbed. Cream coloured sandy fabric with a copper green glaze
3549	Late C12th-14th	3	480	Crested ridge tile fragments with pinching. Fabric 1B with reduced glaze (black)
3549		1	50	Ridge tile fragment with green/dark brown glaze
3549		1	203	Ridge tile fragment green/brown glaze
3549	Late C13th-C14th	1	94	Crested ridge tile frag. (crest broken off) with thumbing. Dark green glaze
3549	1280-1330	1	64	Decorated floor tile, stabbed Wessex type. Inlaid decoration (floral and line around border)
3549	1280-1330	3	217	Decorated floor tile fragments, stabbed Wessex type. Inlaid decoration covered with a light green glaze
3549		1	196	Flat roof tile fragment
3603		4	703	Flat roof tile fragments
3603		1	274	Peg tile fragment (perforated)
3621	Late C12th-C13th	3	394	Peg tile with two (almost funnel shaped perforations quite close together towards the centre of the tile). Pale fabric. Warped across the width which is complete W :190 mm

B.7 Leather

B.7.1 A total of 41 fragments of leather were recovered during the second evaluation phase at The Westgate Centre, Oxford. This is currently undergoing analysis and a report is expected shortly. The majority of the leather is either off cuts from leather working or unidentifiable pieces. However there are some pieces of shoe. The table below gives a quantification by context number.

Context	SF No	No of Bags	No of Objects	Material	Object
2324		1	1	Leather	Unidentified
2362		1	1	Leather	Unidentified
2391		1	1	Leather	Unidentified
2612	43	1	1	Leather	Unidentified
2712		1	1	Leather	Unidentified
3005	15	1	1	Leather	Shoe sole
3006		1	1	Leather	Shoe sole
3007	23	1	1	Leather	Unidentifieded
3013	20	1	1	Leather	Shoe sole
3015	16	1	1	Leather	Unidentified
3203		1	1	Leather	Unidentified
3203		1	1	Leather	Shoe Fragments
3203		1	1	Leather	Shoe Fragments
3210		1	1	Leather	Unidentified
3210		1	1	Leather	Unidentified
3210		1	1	Leather	Shoe sole
3210		1	1	Leather	Unidentified
3312		1	1	Leather	Shoe Fragments
3312		1	1	Leather	Unidentified
3312		1	1	Leather	Unidentified
3312		1	1	Leather	Unidentified
3312		1	1	Leather	Unidentified
3312		1	1	Leather	Unidentified
3312		1	1	Leather	Unidentified
3315		1	1	Leather	Shoe Fragments
3315		1	1	Leather	Unidentified
3319		1	1	Leather	Strap
3323		1	1	Leather	Unidentified
3328		1	1	Leather	Unidentified
3329		1	1	Leather	Unidentified
3329		1	1	Leather	Unidentified
3415		1	1	Leather	Shoe Fragments
3428		1	1	Leather	Shoe Sole and Fragments
3428		1	1	Leather	Unidentified
3428		1	1	Leather	Unidentified
3428		1	1	Leather	Unidentified
3428		1	1	Leather	Unidentified
3456		1	1	Leather	Unidentified
3525		1	1	Leather	Shoe Fragments
3525		1	1	Leather	Unidentified
3549		1	1	Leather	Unidentified

B.8 Dendrochronological dating

B.8.1 Samples of the timbers from Trenches 23, 34 and 35 were assessed for their suitability for dendrochronological dating.

B.8.2 The curvilinear timber from Trench 35 (3532) was oak but only had between 15 and 40 rings which was considered insufficient.

B.8.3 One of the posts from Trench 34 (3438) had 122 rings and almost complete sapwood but failed to date, probably due to some very narrow bands.

B.8.4 Of the sample analysed from Trench 23, the following were datable:

- a board and peg (3614) forming part of the lining of channel 3613 dated to 1255, with no heartwood or sapwood boundary.
- five individual boards (numbered collectively as 3636) which had been disturbed, but probably formed part of the same channel lining, produced last heartwood ring dates of 1186, 1196, 1234, 1245 and 1246. As with 3614, none of these showed any indication of sapwood or heartwood/sapwood boundaries. It was also established that some of these were from the same parent tree as 3614, which strongly suggests that they are part of the same structure, and gave a *terminus post quem* date of 1246 for the entire group.

APPENDIX C. ENVIRONMENTAL REPORTS

C.1 Geoarchaeological Assessment Report

By Carl Champness

INTRODUCTION

C.1.1 A geoarchaeological assessment was undertaken by Oxford Archaeology (OA) in April 2008 as part of the second phase of evaluation work at the Westgate Centre, Oxford to help understand and contextualise the archaeology identified during the fieldwork. The site is situated on the edge of the Oxford floodplain and was found to contain a complex sequence of deeply stratified channel and alluvial sequences interstratified with archaeological deposits. Due to the large number of samples taken during the field evaluation and the need to ultimately address the aims of the evaluation, a post fieldwork environmental assessment strategy was proposed (OA, 2008).

C.1.2 The aim of this assessment was to provide a deeper understanding of the channel and alluvial sequence across the site, and place any identified archaeological deposits within a wider sedimentary context. The new trench data were used to update the existing deposit model that was presented within the first evaluation report (OA, 2007). The next step was to record the levels of the Pleistocene gravels within the new trenches, and investigate the size and direction of palaeochannel(s) to inform the study of Oxford's early topography. The second stage was to select a sample of represented monolith sequences for further detailed assessment to help stratigraphic correlations between trenches and identify deposits with the potential for further palaeoenvironmental analysis.

C.1.3 It is hoped that the assessment will provided sufficient baseline information on the archaeological potential of the floodplain sequence to help inform any proposed mitigation strategies.

GEOARCHAEOLOGICAL BACKGROUND

C.1.4 Unlike many other floodplain sequences of the Upper Thames, the Oxford floodplain has been studied in greater detail and it's sedimentary sequence is comparably well understood. Our understanding of this sequence is based on the previous excavations undertaken on the floodplain since the 1970s (Lambrick and Robinson 1985) and the seminal work of Professor Mark Robinson in *Oxford Before the University* (Dodd 2003). The following background summarises much of this previous work and has been updated in line with the findings from recently completed archaeological investigations.

C.1.5 In the late Devensian minor and rapidly shifting channels reworked part of the first Thames terrace and lowered it to create the undulating gravel surface beneath the modern floodplain. There was no significant Holocene (post-glacial) reworking of the floodplain gravels which, together with evidence of major late Devensian channels at Farmoor and Yarnton, suggests that river flow became restricted to multiple incised channels.

C.1.6 The early changes on the floodplain were almost certainly related to climatic change, and the timing and duration of snow-melt at the end of the last glaciation. Initially as the annual volume of melt-water increased, erosion outstripped accumulation of the floodplain gravels. The surface of the first gravel terrace which became the floodplain was therefore lowered. As the climate warmed and the snow-melt was increasingly

concentrated in the spring, the high volumes of melt water will have incised major channels within the gravels. When the climate had warmed further, melt-water discharges reduced, leaving excess channel capacity for the warmer temperate climate. As a result many underused channels silted up or were cut off from the main channel flow.

C.1.7 It is clear that water-levels were significantly lower in the early Holocene than the present day due to factors like greater woodland coverage and lower sea levels. The floodplain may therefore have been relatively dry throughout much of the early prehistoric period with areas of only localised flooding. Extensive prehistoric landscape features have been previously identified on the floodplain at Port Meadow (Atkinson 1942; Lambrick and Robinson 1985) Binsey (Rhodes 1949) and Northfield (Thomas 1980). This activity was based on dry land soils that developed on top of the floodplain gravels and were preserved under later accumulations of alluvium.

C.1.8 Many of the late Devensian / early Holocene channels were reactivated during the late prehistoric period. The excavations at Yarnton have shown that many of these silted up channels were re-incised during the middle Iron Age (Hey in prep). The accumulation of organic deposits overlying the gravels during this period have been shown to represent a period of rising water-levels on the floodplain. Environmental analysis of these deposits has shown that they represent a reed swamp that developed within a drowned floodplain environment.

C.1.9 This suggests that there was a rise in the water-table of the floodplain from the middle prehistoric period, and probably represents the onset of regular seasonal inundation of much of the area covered by the modern floodplain. Nowhere in the Upper Thames has alluvial clay been observed stratified earlier than the mid-Iron Age. Sites such as Gravelly Guy (Lambrick and Allen 2004), Farmoor (Lambrick 1979) and Drayton, show that this alluviation was well under way in the Roman period, and organic preservation at Mingies Ditch and Port Meadow suggest a continuing rise in water table after the Iron Age occupation (Robinson in Dodd 2003). Similar evidence at Drayton shows that the Roman water-table was much higher than it had been in the late Neolithic. This theory is supported by the recent excavations at Yarnton (Hey in prep) but it is uncertain whether alluviation or flooding continued in this area into the early Saxon period.

C.1.10 The main phase of clay alluviation accumulated before the early medieval management of the various streams that run through Oxford. Sedimentation on the floodplain continued during the medieval and post-medieval periods. The depth of organic preservation in later archaeological features shows that the water-table on the floodplain remained high to the present day, and historical records show that seasonal flooding continued throughout the post-medieval period. Alluviation, however, may have decreased from the late post-medieval period onwards.

AIMS

C.1.11 The aims of the assessment have been previously outlined with the archaeological specification and the proposed post fieldwork assessment. This report attempts to identify sequences and samples that have the potential to provide baseline information with which to address the aims of the project.

Assessment aims:

- Attempt to correlate the deposits between evaluation trenches in order to develop a more in-depth understanding of the sedimentary sequence and archaeology on the site.

- Help establish the palaeohydrology of the site and relate this to the regional deposit model that has been proposed for the Upper Thames and Oxford floodplains (Robinson in Dodd 2003 76-82).
- Progress the understanding of the 'late Devensian (early Holocene) channel' in the light of evidence of early prehistoric crossing points at Thames Street Oxford and other potential early channel crossings generally.
- Identify evidence for any pre-medieval activity on the floodplain and ways in which the wetland environment may have been exploited.
- Relate the palaeohydrological sequence to changes within the archaeological record in order to examine how people in the past responded to and contributed to environmental change on the floodplain.
- Establish a chronology for the sequence with radiocarbon dating or other forms of sedimentary dating.
- Investigate the origins of the Trill Mill Stream as a natural branch of the river, an artificial cut, or an embanked mill channel, and how this relates to the floodplain alluvium.
- Seek to identify any leat of the Mill Stream predating the Greyfriars stone-lined leat identified in Hassall, and any related late Saxon/Norman use of the floodplain.
- Investigate the process of reclamation at the site in terms of whether this was piecemeal or part of a more widely organised process that was occurring within this area of the Oxford floodplain.
- Assess the palaeoenvironmental potential of a range of sediment sequences within the floodplain.

METHODOLOGY

C.1.12 In order to achieve the aims of the project an assessment of the sediment sequence was undertaken to identify key sequences for further detailed sedimentary descriptions and palaeoenvironmental assessment. Following initial analysis of the results of the evaluation, the site was divided into six zones which reflected the potential of the surviving archaeological and paleoenvironmental evidence. Representative sequences from each zone were selected for further detailed assessment.

C.1.13 The trench monolith samples were examined, photographed and logged by an OA geoarchaeologist using standard sediment terminology according to Jones *et al* 1999, and in accordance with EH guidelines for geoarchaeological recording (EH, 2007). This included information on colour, composition, texture, structure, compaction, erosional contacts, and artefactual and ecofactual inclusions. Sub-sampling for palaeoenvironmental remains and dating purposes was undertaken from selected sequences under laboratory conditions. The assessment of these sequences indicated the preservation of palaeoenvironmental remains (plant macro remains, snails, fish bones and insects). The selection of the samples was based on the perceived character, interpretative importance and chronological significance of the strata under investigation. Environmental sampling procedures were in accordance with the OA Environmental Sampling Guidelines and Instruction Manual (OA, first edition, July 2000), which is based on guidelines presented by English Heritage (2002).

C.1.14 The new trench lithologies were used to update the existing sub-surface deposit model for the site and refine our understanding of the underlying floodplain topography. The topographic template is a major factor in determining the sedimentation patterns of an area. The mapping of this template within the site area is therefore a key aim to understanding the patterns of sedimentation and assessing the potential for detecting human activity within the sequence.

Selection of representative trench sediment sequence within each zone

C.1.15 The following trenches were selected for more detailed specialist sedimentary and palaeoenvironmental assessments from each of the 6 sediment zones:

- Zone 1 - The floodplain sequence (Trenches 28, 29 and test pits C1-5)
- Zone 2 – The Trill Mill Stream (Trenches 23, 26, 27)
- Zone 3 – Managed water course and floodplain (Trenches 30 and 31)
- Zone 4 - Possible Mill Structure (Trench 35)
- Zone 5 - Shopmobility (Trench 15)
- Zone 6 – The Priory (Trenches 20 and 21)

RESULTS

Phase I: Holocene topography and pre-alluvial deposits

C.1.16 The reconstruction of the undulating topography of the first terrace gravel within the application area was originally presented within the first evaluation report (OA 2007) and has been updated here in line with the new trench data. The revised gravel topography is shown in Figure 9. This is based on the relative OD levels of the gravel recorded during the evaluation. Interpretive cross sections across the floodplain are also present in Figures 3 and 4. The significance of the relative depth of the gravel and the overlying deposits is discussed in detail in the main report.

C.1.17 The topographic plot indicates a rise to the north of the site between Trenches 21 and 24, representing the edge of the second gravel terrace. The elevations of the terrace are between 54 m OD and 61 m OD. The southern limits of the terrace are delimited by a trough running from east to west across the site at elevations between 52.42 m OD and 54 m OD. Previous archaeological work at St Aldates has shown that this trough continues to the east and is almost certainly the ‘proto’-Trill Mill channel (Dodd 2003).

C.1.18 The main floodplain lies between 53.35 m OD and 54.30 m OD, with the exception of Trenches 30 and 31 in the south and south-east of site which recorded a gradual rise of the gravels up to 54.25 m OD. This was tentatively interpreted during the first phase of evaluation works as indicating the possible western limits of a gravel island identified at Blackfriars (Lambrick, 1985).

C.1.19 The gravel topography essentially defines the template on which subsequent sedimentation would have taken place during the onset of the Holocene. The mapping of the gravel template is one of the essential steps to understand and interpret patterns of sedimentation and flooding (Bates and Bates 2000). Variations within this template can therefore dictate patterns of sedimentation, hydrology and even early settlement activity. This provides a framework to help understand and develop a chronology to the floodplain sequence. This approach is particularly useful in sites where the present day surface reveals little of the underlying buried topography.

C.1.20 Hydrological and sedimentation changes are often difficult to establish due to the general lack of deposition during the early Holocene on the floodplain. It is well known that water-levels were significantly lower than present day due to factors like greater woodland coverage and a lower sea-level. The floodplain may therefore have been relatively dry throughout much of the early prehistoric period with only areas of localised flooding. This would help to explain the extensive prehistoric landscape features that have been recorded on the floodplain at Port Meadow and on the other side of the river at Binsey. This activity was based on dry land soils (Robinson in Dodd 2003) that developed on top of the floodplain gravels and were preserved under later accumulations of alluvium.

C.1.21 The original soils of the floodplain would have been a combination of alluvium, loess and weathering products of the gravel. By the Neolithic period, pedological processes of soil formation may have predominated over alluvial accretion for much of the floodplain, and only a thin soil, not necessarily of alluvial origin, covered the gravel on most of these sites. Most of the pre-Iron Age soils are ungleyed and non-calcareous; it is difficult to prove that flooding without alluviation was not taking place.

C.1.22 Excavations on the floodplain revealed a lack of preserved organic remains or gleying in Neolithic and Bronze Age ditches (Robinson and Lambrick, 1984); this indicates at least seasonally low water-table on the floodplain. However, ditches of similar depth dating between the Late Bronze Age and the Middle Iron Age are known to contain both a high degree of organic preservation and gleying. This suggests that there was a rise in the water-table of the floodplain from the middle prehistoric period, potentially rejuvenating the channel activity and marking the onset of regular seasonal inundation and alluviation on the floodplain.

C.1.23 It appears that later prehistoric activity may have moved up on to the higher ground and gravel islands within the floodplain as a response to this increased frequency of flooding. Evidence of prehistoric settlement on the floodplain islands has been discovered at Whitehouse Road (Mudd 1993) and The Hamel (Palmer 1980). The only evidence of possible prehistoric activity identified during the first evaluation was in the form of daub recovered previously within Trench 9 at the edge of the potential Blackfriars ‘island’. This was targeted during the second phase of trenching with Trenches 30, 31 and 34. The new elevations of the gravel from the trenches within the south-east corner of the site indicate that this area may not have been submerged until the late Saxon period. This corner of the site therefore has the potential for early prehistoric to mid Saxon activity to be identified underneath the alluvial sequence.

C.1.24 The environmental samples from these deposits revealed a sequence of organic gravel deposits that contained occasional lumps of organic spongy material and reddish flecks (previously interpreted as daub). More detailed sampling and examination of these deposits confirmed the presence of waterlogged coprolites (animal dung), with an oxidised outer surface and an organic core from potential mixed trample deposits (3054). These deposits were found to contain frequent freshwater molluscs that indicated that this area may have been increasingly prone to flooding. The concentration of this material within the sample would suggest this area was probably being used to access the island. This is also supported by the cereal bran and fly puparia indicative of cess or foul waste material recovered from the samples taken during the previous evaluation from Trench 9.

C.1.25 The overlying gravel deposits (eg 3053) identified within the same trench may represent an attempt to try to consolidate the area, and also raise it above the level of seasonal

flooding. At present these deposits are undated, although similar deposits identified on the floodplain have been tentatively dated to the prehistoric period.

Phase II: Channel Sequences and Floodplain alluviation

C.1.26 The assessment has been most helpful in correlating deposits between evaluation trenches. A generalised Holocene stratigraphic sequence has been reconstructed based on lithology, together with a comparison of OD levels and evidence from palaeo-environmental samples.

C.1.27 The sequence of alluvial and fluvial deposits identified during the previous evaluation overlaying the undulating floodplain gravels has been revised using the additional data gained from the second phase of trenching. The sequence has now been broadly divided into 3 main stratigraphical channel sequences and 4 main alluvial units. Localised variations within these units may exist and a small amount of datable artefactual evidence recovered suggests that a mosaic of different environments may have been present on various parts of the floodplain at the same time. Consequently, the trenches have been assigned to the main stratigraphic units, which simplifies and represents a much more varied and complex sequence.

Channel sequences

C.1.28 Fluvial (Channel) sediment sequence:

- *Late Devensian Channel:* largely sandy and gravelly sand deposits within a trough identified within the gravels at the edge of the second terrace.
- *Proto Trill Mill Stream:* the natural un-managed channel of the proto Trill Mill Stream that was filled with organic clays and silts. These deposits likely accumulated between the Iron Age and late Saxon period.
- *Trill Mill Stream:* Part of a system of early medieval managed and canalised waterways that was filled with sandy and silty clays. The Trill Mill Stream was possibly part of a wider network of channels that were straight cut channels, clay lined and revetted with wooden stakes.

Late Devensian Channel

C.1.29 The potential late Devensian channel was filled with high energy alluvial sands and silts in Trenches 22 and 23, across a width of 50 m. These deposits accumulated within the trough identified within the gravel topography. The base of the deposits consisted of round pebble gravel inclusions with a coarse sandy matrix. The deposits gradually became finer in texture up the profile, with occasional fine grit lenses.

C.1.30 These deposits represent high energy conditions during the transition during the late Devensian / early Holocene from one large channel to multiple incised channels. They have largely remained stable throughout the Holocene, reducing in number and concentrating the flow of the river as channels silted up and became cut off.

Proto Trill Mill Stream

C.1.31 The proto Trill Mill Stream was directly incised into the late Devensian channel at the edge of the second terrace. The channel was more than half the width of the late Devensian channel at 30 m across. It is likely that the channel would have meandered episodically within the footprint of the earlier channel. It was recorded between 52.30 m OD and 53.81 m OD, and was potentially incised to a greater depth than the previous

channel. It was filled with organic silts and blueish grey silt, which were very similar in nature to deposits overlying the gravels within the floodplain.

C.1.32 These deposits represent low energy stream conditions within a channel that was shallow enough to allow the growth of vegetation. The presence of both minerogenic and organic clays within the channel sequence suggests that a range of different dynamic wetland zones existed within the channel at the same time. The development of this channel was a potential response to an increase in water levels that started to occur from the late Bronze Age and intensified in the Iron Age. The organic alluvial deposits identified on the floodplain also likely developed from this rise in the water-table that was initially reflected in the channel. This channel started to silt up in the late Saxon period. An upper organic deposit was radiocarbon dated to the late Saxon period (see Saxon organic deposit).

Trill Mill Stream

C.1.33 The Trill Mill Stream represents the reorganisation and management of the waterways during the late 12th-13th centuries, and was possibly related to the construction of the Greyfriars Friary. The Trill Mill Stream was dug through the silted up channel of the proto Trill Mill Stream. The channel was clay lined and reveted with wooden stakes. A mixture of early medieval gravel dumps (similar in nature to the reclamation deposits) and re-deposited clays were used to create a straight sided channel that was reinforced possibly in order to reduce bank erosion. The channel was approximately 15 m in width and just over 1 m in depth. The creation of the Trill Mill Stream was part of the reclamation of northern edge of the channel sequence. This extended out from the second gravel terrace in the area of the Greyfriars over the silted up channel deposits of the late Devensian Channel and the Proto Trill Mill Stream.

C.1.34 The main channel deposits consisted of mid brown and grey organic silty clays that contained frequent gravel and organic inclusions such as wood. These deposits represent low energy channel flow with frequent episodes of dumping of organic and waste material within the stream. A series of aligned wooden stakes and wattle revetments identified at the edges of the channel could have served a number of purposes.

C.1.35 The fluvial deposits identified within Trenches 29, 30 and 31 are potentially the fills of associated north-south aligned channels. A network of smaller auxiliary channels was possibly dug as part of the Greyfriars phase of remodelling of the Trill Mill Stream. It seems likely that these channels are the same as or precursors of those shown on historical maps. The conjectured mill structure and leat identified within Trench 35 should be seen as a possible part of this wider pattern of medieval management of the floodplain. It is of note that the potential mill structure is below the level of organic preservation within the Trill Mill Stream.

C.1.36 The Trill Mill Stream was later re-cut in the post-medieval period, again with wooden revetments and gravel dumps to protect the banks. In the 18th century the channel was lined with a timber and horn core revetment, then stone walls and finally a brick culvert, each time the width of the channel being further reduced. The present day concrete culvert channel on the site was constructed in the 1970s.

Floodplain sequence

C.1.37 Alluvial Floodplain sediment sequence:

- *Iron Age organic deposits (formerly Deposit A):* Organic deposits which displayed a certain degree of variation between the trenches, although where encountered (Trenches 28, 29, 32 and 33) they were relatively consistent in depth and composition and in their relationship with the overlying alluvial deposits and the gravel. It is therefore likely that these deposits represent the development of a reed swamp environment during the Middle Iron Age.
- *Alluvium B:* Predominantly mid-dark bluey-grey clay overlying the Iron Age organics, with localised variations in inclusions such as molluscs. Present in Trenches 28, 29, 32 and 33, and representing alluviation in a wet floodplain that never sufficiently dried out to become oxidised.
- *Late Saxon organic deposits:* Organic clay deposits that overlay the high elevation gravels at the edge of the potential island towards the south-east. Very similar in nature to the Iron Age organic reed swamp deposits.
- *Alluvium C:* Reddish-brown clay deposits overlying the Saxon organic deposits and Alluvium B. This deposit produced artefacts of early medieval date. These deposits represent over-bank seasonal alluviation within an environment that was frequently dry for periods of time. Present in all undisturbed trenches.

Iron Age organic silts (formerly Deposit A)

C.1.38 The organic silt deposits identified above the gravel during the previous evaluation were found to contained frequent flowing water aquatic and marsh taxa. Previously these deposits were interpreted as Iron Age organic deposits based on comparison with similar deposits from St Aldates. In order to help confirm these correlations to those recorded at St Aldates, waterlogged seeds were recovered from the samples and sent for dating. The top and bottom of these deposits were radiocarbon dated in Trench 28 to 620±80 cal BC and 630±150 cal BC respectively.

C.1.39 The botanical and molluscan evidence reflects shallow water and marsh taxa within a reed swamp environment. These deposits represent a rise in the water-table during the Iron Age that created a drowned landscape over much of the lower elevations of the floodplain. Not all of the floodplain was drowned during this period; the levels of gravels towards the south-east suggest areas of seasonally dry high ground towards the Blackfriars gravel island.

C.1.40 In parts of the floodplain these organic deposits appeared to be overlying a potential prehistoric soil. This could have been the pre-alluvial surface identified previously on the floodplain at St Aldate's (Robinson, 2003), which is believed to have formed under dry conditions during the early to mid Holocene. Detailed pedological assessment is required to reveal the origin and formation of these deposits. This should be undertaken as part of any further mitigation strategy. In other areas, evidence of this palaeosoil was less identifiable in the trenches and may have been either eroded or obscured by post-depositional processes.

C.1.41 One of the characteristics of the upper surfaces of these deposits is slight truncation and replacement by a thin deposit of fine sand. The sand deposit represents higher energy deposition on the floodplain that may represent a particular storm period or event when the river flow was likely much higher. The duration of these deposits may have been brief, representing a particular flash flood or an extended year of bad weather.

Alluvium B

C.1.42 Alluvium B was identified overlying the Iron Age deposits within Trenches 28, 29 and the northern edge of Trench 30. This was a soft structureless gleyed blueish grey clay deposit with no coarse inclusions. It was identified to the west of the site overlying the Iron Age organic silt. The upper accumulations of these deposits are possibly contemporary with the Saxon organic deposits that were identified in the south-east of the site.

C.1.43 These deposits represent accumulation under anaerobic conditions within an environment that never dried out completely. The waterlogged plant remains indicate deposition within standing water conditions that would have created islands of higher ground within areas of permanent water.

Saxon organic

C.1.44 A second phase of organic deposition was identified on the floodplain towards the south east of the site where the gravels were recorded as rising up. The organic deposits consisted of organic silts, which contained frequent plant remains. No high energy sand deposits were recorded truncating their upper surface. These deposits were radiocarbon dated to 970±80 cal AD within Trench 22.

C.1.45 These deposits represent a period when the water table rose again to submerge the edges of the high gravel elevations over the south-eastern part of the site. The environmental samples from these deposits suggest a similar transition from drier soil conditions to reed swamp.

Alluvium C

C.1.46 Alluvium C was identified within all of the trenches on the floodplain overlying either Alluvium B in the west or the Saxon Organic deposits in the south-east. These deposits consisted of reddish brown structureless silty clay that represented over-bank alluviation. To the west of Trench 22 they were overlain by the medieval reclamation deposits that are thought to be associated with the construction of 13th-14th century Greyfriars. This relationship would indicate that most of the clay alluviation occurred in the early medieval period prior to the construction of the Friary.

DISCUSSION AND CONCLUSION

C.1.47 The necessity for shoring and artificial lighting, together with the constant influx of ground water, occasionally hindered the interpretation and correlation of deposits in the field. However, the detailed sampling strategy undertaken during the post fieldwork assessment of the alluvial sequence within the majority of trenches allowed the sequence to be examined more closely under laboratory conditions. This allowed the correlation of the trench sequences to be made with a much higher level of confidence than was previously possible in the field. Whilst the coverage of the site area was limited by health and safety considerations, a reasonable interpretation of the alluvial and channel deposits can be presented.

C.1.48 The further development of the site's deposit model has helped to provide a deeper understanding of the floodplain sequence represented across the site than was previously possible in the first phase of trenching. The updated deposit model has not only allowed the Westgate sequence to be compared to the proposed wider model for Oxford and the Upper Thames, but also examined localised variations in sedimentation due to the site specific topographic features. As a result of the presence of these

localised features on the floodplain, the onset of flooding and alluviation was by no means synchronous between all areas and sites.

Channel sequences and floodplain alluviation

C.1.49 The evaluation has helped confirm the presence of a late Devensian / early Holocene channel that eroded and defines the edge of the 2nd terrace. The channel was recorded at a width of just over 50 m, filled with high energy sands and silts, with occasional rounded gravels at its base. It marks the final transition from a high energy single channel that lowered the gravels to form the base of the 1st gravel terrace, to multiple incised braided sandy channels. These developed as the glacial ice retreated at the end of the late Devensian and the onset of the early Holocene.

C.1.50 Throughout the early to mid Holocene soil formation processes would have started to develop on the floodplain. Localised flooding may still have occurred but this may not have involved any alluviation. At the lower elevations of the floodplain (53.35 m to 54.30 m OD), towards the west of site (within Zone 1) a wetland environment developed in the middle Iron Age. In the higher ground on the floodplain to the east of the site, lying above 54.25 OD, flooding would probably have occurred much later, possibly during the late Saxon period.

C.1.51 This meant that for much of the early Holocene the site area would have been relatively dry, and that archaeological activity, dating from the Mesolithic period to the middle/late Bronze Age period, could potentially be found associated with the buried land surfaces overlying the gravel. The evidence of early prehistoric activity on the Oxford floodplain has been growing since the mid 1970s. Barrows and field systems north-west of the city have been identified on the floodplain at Port Meadow and Binsey. The topography of the floodplain would have been an important factor in determining the location of settlement and ritual monuments. On the higher ground located at the south-eastern edge of the site, activity could have continued for longer as inundation would have occurred much later.

C.1.52 The evidence from the Westgate Centre indicates that the history of channel change has been one of a transition from a braided system of Pleistocene age into an anastomising river system. The anastomising channel pattern has been maintained throughout the Holocene, although with a later reduction in channel number, with the siltation of smaller branches. The changes in the channel patterns that have occurred were often minor, with very little lateral movement and no reworking of the floodplain gravels. The late Devensian / early Holocene channels was reactivated during the late prehistoric period. The investigations at Yarnton has shown a similar pattern of silted up Late Devensian channels being re-incised during the late Bronze Age and middle Iron Age.

C.1.53 The Proto Trill Mill Stream therefore may have developed naturally as a response to a rise in the water-table during this period. The channel was just over half the size of the late Devensian channel and likely followed a sinuous course within its footprint. The lower channel fills consisted of organic clays indicating sluggish water, but the deposition of blueish grey clays may indicate deep water and faster flowing conditions were present later in the prehistoric period.

C.1.54 The accumulation of organic deposits overlying the gravels on the floodplain provide further evidence of a rising water levels during this period. These deposits have provided two radiocarbon dates of middle Iron Age date. Environmental assessment of these deposits has shown that they represent a transition from dry soils to reed swamp that developed within a drowned floodplain environment. These deposits continued to

accumulate within areas of the floodplain into the Saxon period, whilst other areas at the lower elevations showed the first signs of over-bank alluviation in the post Iron Age period.

C.1.55 The deposition of Alluvium B in the west of site overlying the Iron Age organic deposits, represents the beginning of clay alluviation within the floodplain. This is believed to have been a result of increased arable agriculture on the slopes of the catchment during the late Iron Age and Roman period (Robinson in Dodd 2003). This saw a transition from the deposition of organic to minerogenic deposits in the west side of the floodplain. Similar deposition of in-organic alluvial clay has been recorded at St Aldates. This would have created a series of seasonally flooded islands set amongst stretches of permanent water.

C.1.56 The rise in the gravels recorded towards the south and south-east of the site within Trench 34 was encountered at 54.25 m OD. Previous comparison of excavations of the nave and cloister of the Blackfriars church to the east (54.12 - 54.27 m OD) indicate that the rise in the gravel to the south-east of the site corresponds with the western extent of an island of higher ground suggested on the re-construction models shown in *Oxford Before the University* (Dodd 2003).

C.1.57 At the edges of the island dark greenish brown silty sand with 20% sub-rounded gravel inclusions was identified. The gravel spread identified within Trench 30 and 31 was at the edge of the Blackfriars island. These deposits were possibly laid down in order to re-establish access to the island, possibly as a response to increased frequency of flooding during the later prehistoric period. Similar observations of man-made dumps of limestone gravel sealing the pre-Iron Age surface of the floodplain have been recorded at St Aldates. Prior to the later Saxon period, natural causeways may have offered seasonal access to the islands and parts of the floodplain. It has been suggested by Davies (1973) that it may have been possible for people and stock to cross the river, by 'island hoping' their way across the floodplain using a combination of islands, fords and bridges.

C.1.58 The edges of the Blackfriars island may well have been submerged in the late Saxon period with a rise in the water table. The accumulation of organic deposits over the edges of the gravel island marked the development of a reed swamp environment similar in nature to that which had developed overlying the lower elevated gravels in the Iron Age.

C.1.59 The post-conquest period saw a significant amount of change on the floodplain with the reclamation of the edges of the floodplain and the reorganisation and management of various streams like the Trill Mill Stream. Within the site the Proto Trill Mill Stream was re-cut and lined with clay and reveted with wooden stakes. A network of interconnected minor channels was also created between streams in order to power the network of mills that had developed at this time in the area. The discovery of parallel timber beams between a small straight cut channel suggesting a possible mill leat within Trench 35.

C.1.60 The main phase of clay alluviation accumulated before the early medieval construction of the Trill Mill Stream. The depth of organic preservation in later archaeological features shows that the water-table on the floodplain remained high to the present day, and historical records show that seasonal flooding continued throughout the medieval and post-medieval periods. Alluviation, appears to have significantly decreased in the post-medieval period onwards.

Conclusions

C.1.61 The deposit model has successfully allowed the correlation of deposits between trenches and provided sufficient information to help assess the archaeological and palaeoenviromental potential of the sites sedimentary zones. This information has also provided sufficient detail information on the floodplain sequence to help develop and inform any proposed mitigation strategies. Based on the results of the evaluations and geoarchaeological assessment the following summary conclusions can be drawn:

- The model has demonstrated the presence of a complex sequence of alluvial and fluvial deposits overlying the gravel within the site area, interstratified with archaeological features and deposits. This sequence conforms in broad sense to the proposed sedimentary model for the Upper Thames.
- The model has identified a series of channel sequences within a trough in the gravel topography running east to west across the site. The model has helped to establish a sequence of channel fills that are thought to represent the course of the late Devensian channel, Proto Trill Mill Stream and the Trill Mill Stream (Dodd 2003).
- The evidence from the Westgate Centre indicates the development of an anastomising river system in the Holocene, with later silting up of smaller branches. The changes in the channel history that have occurred were often minor, with very little lateral channel movement and no reworking of the floodplain.
- The new trench data have also identified the presence of significant localised variations within the site which has help to confirm the rise in the gravel to the south-east likely equated to the edge of higher ground identified at the Blackfriars (Lambrick 1985). Elevations on the gravel in the trenches indicate that this part of the floodplain was not submerged until the late Saxon period and would have survived as an island within a drowned floodplain.
- The identification of animal trampling and waste, along with gravel dumps within Trenches 9, 30 and 31 may possibly indicate that this area was used at first as a natural causeway off the island and then reinstated later due to increasing risk of flooding. However no more extensive evidence for ‘habitable gravel islands’ similar to that at White House Road-type was recovered during the evaluation.
- The assessment results indicate that prehistoric activity could potentially be located anywhere on the floodplain prior to the Middle Iron Age. The fact that no signs of early activity have been uncovered during the two phases of evaluation may suggest that other factors like soil types, site topography, and social factors may have helped to determine the selection of sites in the past.
- The interpretation of two parallel timber beams in Trench 35 as a possible mill structure associated with the Greyfriars is consistent both in terms of its stratigraphic relationship within the wider sequence and in the nature of its deposits.
- The anomalous deposits recorded within the previous evaluation identified in the south-east of site within Trenches 29, 30 and 31 possibly reflect 13th-14th century channel activity that is later represented on historical maps.

C.2 Waterlogged and Charred Plant Remains (Trenches 22 and 28)

By Wendy Smith

C.2.1 Excavations carried out by Oxford Archaeology at The Westgate Centre included interval sampling along a column through waterlain sediments and/or palaeochannels. This report presents the detailed assessment results for waterlogged plant remains sampled in Trenches 22 and 28 and includes a record of any other classes of environmental remains observed in these samples during the assessment.

C.2.2 It is believed that context 2215 in Trench 22 is the equivalent of context 2820 in Trench 28; and that these contexts also relate to context 919, from Trench 9 of the previous 2006 field evaluation (C. Champness, pers. comm.). Abundant charred and waterlogged plant macrofossils were assessed from previous field evaluation at Oxford Westgate Centre (Smith and Pinska 2006) and it was hoped that archaeobotanical sampling during the 2007 excavations would further augment these results. Waterlogged plant remains from Oxford Westgate Centre Trenches 22 and 28 were assessed in order to determine:

- if waterlogged plant remains were preserved and, if so, were these likely to be interpretable
- if these deposits provide information on the surrounding settlement
- if these deposits provide information on the surrounding environment
- if insect remains were present and well-preserved

METHOD

C.2.3 Sample volumes range from 0.6 to 1 L. In all cases, additional sediment from these deposits has been retained, primarily for possible archaeoentomological analysis. Samples were processed by flotation using a modified Siraf flotation machine. Flots (the material which floats) were sieved to 0.25 mm and heavy residues (the material which does not float) were retained in a 0.5 mm mesh. For this assessment, only the flots were analysed.

C.2.4 Samples were scanned rapidly under a low-power binocular microscope at x12.5 magnification. Identifications were made without comparison to the Oxford Archaeology's reference collection and, therefore, should all be seen as provisional. Nomenclature for the plant remains follows Stace (1997). With the exception of poor samples, where 100% of the flot was scanned, in most cases a sub-sample of between 10–20% of the flot was scanned in order to generally characterise the assemblage.

RESULTS

C.2.5 Samples from Trench 22 were generally better preserved than those from Trench 28. Nevertheless, both trenches produced deposits with clearly rich plant macrofossil assemblages and abundant insect remains. Notably the lower deposits from Trench 28 were the best preserved; whereas, the upper deposits from Trench 22 were best preserved, with the widest range of taxa. Tables C1 and C2 present the semi-quantified results for those samples which have produced waterlogged plant remains from Trench 22 and Trench 28 respectively.

Trench 22

C.2.6 Plant remains recovered from Trench 22 were primarily waterlogged, although charred cereal grain and chaff were recovered from the upper deposits (samples 330–333, context 2212–2215). In all cases these were small quantities of cereal remains. The recovery of a spelt (Triticum spelta L.) grain from samples 331 (context 2213) suggests this deposit could date anywhere form the Iron Age to the Saxon period. Waterlogged plant remains are primarily typical of damp and wet conditions and are likely to be indicative of the immediate environment. Notably the recovery of arrowhead (Sagitarria sagittifolia L.), horned pondweed (Zannichellia palustris L.), pondweed (Potamogeton spp.), reed sweet-grass (Glyceria maxima (Hartm.) Holmb.), water-pepper (Persicaria hydropiper L.) and water-plantain (Alisma spp.) in these deposits suggests slow-flowing or standing water, possibly of some depth was present throughout the entirety of this sequence. Other taxa recovered, such as bittersweet (Solanum dulcamara L.), buttercups (Ranunculus acris L./ repens L./ bulbosus L. and Ranunculus sceleratus L.), crowfoot (Ranunculus subg. BATRACHIUM (DC.) A. Gray, fool's watercress (Apium nodiflorum (L.) Lag., sedge (Carex spp.), spike-rush (Eleochars sp.) and possibly the abundant mint (Mentha spp.) seeds recovered are all indicative of damp and waste ground. Several taxa, such as knotgrass (Polygonum spp.), knotweed (Persicaria spp.), meadow-rue (Thalictrum spp.), thistle (Cirsium spp.), also suggest that grassland (possibly seasonally flooded) was present, although these taxa can also occur on grassy river banks. Chrinomid (non-biting midges) and Coleoptera (beetle) remains were abundant in all but sample 330 (context 2212). Molluscs were present in all of the Trench 22 samples, but most abundant in the lower samples (302–305).

Trench 28

C.2.7 Charred plant remains were not recovered from any of the samples analysed from Trench 28. Several samples (samples 313–318 and 322–324, context 2817–2818) from Trench 28 contained no plant macrofossils. It seems likely that these deposits have dried out *in situ* at some point(s) in the past, possibly even through medieval drainage of the area. Only the lower samples (samples 337–341, from context 2820) contained reasonably well-preserved and relatively abundant waterlogged plant remains. Many of the taxa typical of damp or wet conditions recovered from Trench 22 were also present in Trench 28 samples. In addition, a few alder (Alnus glutinosa (L.) Gaertn.) remains were also noted from samples 338 and 339. The limited quantity of alder seed/ female cone fragments recovered from these deposits is likely to mean that alder was sparse in the immediate area or that it has been washed in from elsewhere. Similar possible grassland/ river bank taxa were recovered in the lower deposits from Trench 28. Chrinomids (non-biting midges) were recovered in samples 337–341 and Coleoptera (beetle) remains were recovered in samples 336, 337 and 339–341. Molluscs were nearly entirely absent from the Trench 28 samples, with only a few snail shells observed in sample 321.

RECOMMENDATIONS

C.2.8 Upper deposits from Trench 22 (samples 330–333) and lower deposits from Trench 28 (samples 336-341) appear to have been the most productive in terms of waterlogged plant macrofossils and insect remains. Analysis of these samples is likely to provide detailed information on the surrounding environment. At the time of this assessment these deposits were not fully dated and it was also not completely certain how much

replication between trenches may be occurring. As a result, it is only possible to indicate that the upper four samples from Trench 22 (samples 330–333) and the lower six samples from Trench 28 are worth further analysis. Molluscs from lower deposits in Trench 22 are particularly rich and because these deposits were unproductive in terms of archaeoentomological and archaeobotanical evidence, analysis of the molluscs recovered from these sediments seems worthwhile, since they form our only proxy environmental evidence for these deposits.

CONCLUSIONS

C.2.9 At the time of this assessment the deposits were undated; however, the recovery of spelt (Triticum spelta L.) grain suggests that some of the deposits recommended for further analysis are of Iron Age to Saxon date. Upper samples (contexts 2212–2215, samples 330–333) in Trench 22 and lower samples in Trench 28 (contexts 2819–2821, samples 336–341) clearly contain abundant plant macrofossils and insect remains. The upper samples from Trench 22 also contained small quantities of charred cereal remains, which only provides limited indication for the disposal of settlement waste into this water system.

C.2.10 Analysis of these archaeobotanical assemblages is likely to provide information on water conditions and the surrounding environment in the immediate area. Analysis of the insect remains is likely to generate information regarding both the immediate environment, but also has the potential to better characterise the surrounding floodplain. The wild taxa recovered from Oxford Westgate are consistent with those generated in the nearby St. Aldate (see Brown 1977; Durham 1984; Robinson 2003a–d) or High Street (see Robinson 2001) area excavations in Oxford.

C.2.11 If Saxon, these results differ from the mid- to late-Saxon deposits from the St. Aldate area (Brown 1977 170–2; Robinson 2003a and 2003d) where sampling established repeated evidence for flax retting. Areas for flax retting are often controlled, because of the foul smell generated from the decay of the flax stem to release the bast fibres (eg Bond and Hunter 1987; Pals and van Dierendonck 1988). If further work at Oxford Westgate Centre continues to produce waterlogged plant assemblages where flax is entirely absent, it may be that this absence is significant and might be used to identify specifically where such activities were located in Oxford during the mid- to late-Saxon period.

Table C1: Assessment results for waterlogged plant remains and other environmental remains from Trench 22

Key: + = <5 items, ++ = 5 – 25 items, +++ = 25 – 100 items, ++++ = >100 items. Preservations: P = Poor, F = Fair, G = Good and E = Excellent. Habitats: A = weed of arable crops, C = cultivar, Ca = calcareous soils, Da = damp ground, Di = disturbed ground, G = grassland, H = heavy soils, He = hedges, N = nitrogen-rich ground, O - open ground (=unshaded), Sc = scrub, V = various, unspecified habitats, W = wet places (e.g. ponds, rivers, ditches, etc...), Wa = waste places, Wb = wood borders, Wo = woodland and Wy = wayside. Shading indicates taxa which cannot be securely attributed to a few habitats and codes preceded by 't' = typical but not exclusively found in such habitats (e.g. tG = typically found in grassland). Habitat information based on Stace 1997.

Sample number	302	303	304	305	306	307	330	331	332	333	**Habitat**	
Context number	2215	2216	2216	2216	2217	2218	2212	2213	2214	2215		
Depth (cm)	0-10	10-20	30-40	40-50	50-60	80-90	0-20	20-40	40-60	60-80		
Sample volume (L.)	1 L	1 L	1 L	1 L	1 L	1 L	1 L	1 L	1 L	1 L		
Latin Binomial												**English Common Name**
Charred plant remains												
Hordeum sp. - grain							+				C	Hulled barley grain
Triticum spelta L. - grain								+			C	Spelt grain
Triticum sp. - rachis node								+			C	Indet. wheat rachis
Indeterminate Cereal grain								+	+		C	Indet. cereal grain
Avena spp./ *Bromus* spp. - caryopsis								+		+	C/ A	Wild or cultivated oat/ Brome grass
Waterlogged plant remains												
Weed/ wild plants												
Nymphaea alba L.					+	+					W	White water-lily
Nuphar lutea (L.) Sm.											W	Yellow water-lily
Ranunculus acris L./ repens L./ *bulbosus* L.			+	+				+		+	Da/ tG	Meadow/ Creeping/ Bulbous Buttercup
Ranunculus sceleratus L.		+									W/ Da	Celery-leaved buttercup
Ranunculus subg. BATRIACHIUM (DC.) A. Gray	+	+	+	++				+	+	+	W/ Da	Crowfoot
cf. *Thalictrum* spp. - fruit									+		Da/ G	Meadow-rue
Urtica dioica L.								+		+	W/ Cu/ Wy/ N	Common nettle
Urtica urens L.								+			Cu/ Wa/ Wy	Small nettle
Alnus glutinosa (L.) Gaertn. - seed											Da/ W	Alder
Alnus glutinosa (L.) Gaertn. - infrustructure											Da/ W	Alder (female cone)
Chenopodium spp.			++								V/ Cu/ A	Goosefoot
Atriplex spp.	+					+					V/ Cu/ A	Orache
Atriplex spp. - small-seeded								+			V/ Cu/ A	Small-seeded orache
Stellaria media (L) Vill. - agg.										+	tCu/ tO	Common chickweed
Silene sp. - large-seeded				+								Campion
CARYOPHYLLACEAE - unident., large-seeded		+	+									Pink Family
Persicaria hydropiper L.	+					+					W	Water-pepper

Table C1: Assessment results for waterlogged plant remains and other environmental remains from Trench 22 continued...

Sample number	302	303	304	305	306	307	330	331	332	333	**Habitat(s)**	
Context number	2215	2216	2216	2216	2217	2218	2212	2213	2214	2215		
Depth (cm)	0-10	10-20	30-40	40-50	50-60	80-90	0-20	20-40	40-60	60-80		
Latin Binomial												**English Common Name**
Persicaria spp.						+		+++			V/ tDa/ tG	Knotweed
Polygonum aviculare L.			+						+		tO	Knotweed
Polygonum spp.	+										V/ tG/ tA	Knotgrass
Rumex spp.		+						+++		+	V/ tG/ tCu/ tA	Dock
Reseda sp.								+			Di/ Wa/ A/ Ca	Mignonette
Rubus section Rubus									+		tWa	Bramble/ Blackberry
Crataegus monogyna Jacq.											Wo/ Sc/ He	Hawthorn
FABACEAE – unidentified large-seeded												Pea Family – unidentified
Linum sp. - wild form								+			V/ tGa	Flax (wild form)
Chaerophyllum temulum L.	+++	++	++	+		++		+	++	++	G/ He/ Wb	Rough chervil
Berula erecta (Huds.) Coville	+										W	Lesser water-parsnip
Oenanthe spp.	+									+	Da/ W	Water dropwort
Apium nodiflorum (L.) Lag.	+	+	+	+		+				+	Da/ W	Fool's water-cress
APIACEAE – unidentified												Carrot Family – unidentified
cf. *Atropa belladonna* L.									+		Wo/ Sc/ Cu	Deadly nightshade
Solanum nigrum L.									+		Wa/ Cu	Black nightshade
Solanum dulcamara L.							+				He/ Wo/ Da/ W	Bittersweet
Menyanthes trifoliata L.	+						+				W	Bog bean
Ajuga spp.			+								V	Bugle
Lycopus europaeus L.										+	Da/ W	Gypsywort
Mentha spp. (smooth–coated seed)	+					++				+	V/ ?Da/ ?W	Mint (most likely aquatic)
LAMIACEAE – unidentified Stachys sp. type												Dead-nettle family
Plantago major L.											O/ tG	Greater plantain
Galium aparine L.											Cu/ A/ He/ Sc	Cleaver
Sambucus nigra L.				+						+	He/ Wo/ Wa/ tN	Elder
Cirsium spp.								+	+		V/ tG	Thistle

Table C1: Assessment results for waterlogged plant remains and other environmental remains from Trench 22 continued...

Sample number	302	303	304	305	306	307	330	331	332	333	**Habitat(s)**	
Context number	2215	2216	2216	2216	2217	2218	2212	2213	2214	2215		
Depth (cm)	0-10	10-20	30-40	40-50	50-60	80-90	0-20	20-40	40-60	60-80		
Latin Binomial												**English Common Name**
Picris echioides L.	+								+		Di/ Wa	Bristly oxtongue
Sonchus asper (L.) Hill											Wa/Cu	Prickly sow-thistle
Anthemis cotula L.			+	+					+		A/ Wa/ tH	Stinking chamomile
ASTERACEAE - small-seeded					+							Daisy Family
Sagittaria sagittifolia L.			+							+	W	Arrowhead
Sagittaria sp./ *Alisma* sp. – internal structure	+		+	+							W/ Da	Arrowhead/ Water-plantain
Alisma spp.								+		+	W/ Da	Water-plantain
Potamogeton spp.	++	+	+	++					+	+	W	Pondweed
Zannichellia palustris L.											W	Horned pondweed
Eleocharis spp.	+		+					+	+		W	Spike-rush
Schoenoplectus spp.	+	+	+	+	+	++					Da/ W	Club-rush
Carex spp. – 2-sided										+	tDa/ tW	Sedge
Carex spp. – 3-sided	+		+	+	+	+		+		++	tDa/ tW	Sedge
Glyceria maxima (Hartm.) Holmb.			+	+		+				+	W	Reed sweet-grass
POACEAE - unidentified												Grass Family
Sparganium spp. (*S. emersum*/ *angustifolium* type)	+						+				Da/ W	Bur-reed
cf. *Sparganium* spp.											Da/ W	Possible bur-reed
Unidentified												Unidentified
Other Remains												
Charcoal									+			
Chironomid	+++	+++	++++	+++	+++	+++		+	+++	+++		
Coleoptera	++	++	+++	++	+	++		++	++			
Mollusca	+++	+++	+++	++++	+	++	+	+	++	++		
Wood				+ (Lg)			+		+			
Preservation	**G**	**F-G**	**F-G**	**F-G**	**P - F**	**F**	**P**	**G**	**F**	**F-G**		

Table C2: Assessment results for waterlogged plant remains and other environmental remains from Trench 28 (NB no plant remains were recovered from samples 313-318 and samples 322–324, in all cases 100% of the flot was sorted)

Sample number	321	325	336	337	338	339	340	341	**Habitat(s)**	
Context number	2817	2819	2819	2820	2820	2820	2820	2821		
Depth	60-70 cm	100-110 cm	110-123 cm	123-133 cm	133-143 cm	143-150 cm	150-160 cm	160-166 cm		
Sample volume (L.)	1 L	1 L	1 L	0.8 L	1 L	1 L	1 L	1 L		
Latin Binomial										**English Common Name**
Charred plant remains										
Cereals										
Hordeum sp. - grain									C	Barley grain
Triticum spelta L. - grain									C	Spelt grain
Triticum sp. - rachis node									C	Indet. wheat rachis
Indeterminate Cereal grain									C	Indet. Cereal grain
Avena spp./ *Bromus* spp. - caryopsis									C/ A	Wild or cultivate oat/ brome grass
Waterlogged plant remains										
Weed/ wild plants										
Nymphaea alba L.						+		+	W	White water-lily
Nuphar lutea (L.) Sm.							+		W	Yellow water-lily
Ranunculus acris L./ *repens* L./ *bulbosus* L.			+			+	+	+	Da/ tG	Meadow/ Creeping/ Bulbous Buttercup
Ranunculus sceleratus L.						++	+		W/ Da	Celery-leaved buttercup
Ranunculus subg. BATRIACHIUM (DC.) A. Gray			++	++				+	W/ Da	Crowfoot
cf. *Thalictrum* spp. - fruit									Da/ G	Meadow-rue
Urtica dioica L.			+	+		+		+	W/ Cu/ Wy/ N	Common nettle
Urtica urens L.									Cu/ Wa/ Wy	Small nettle
Alnus glutinosa (L.) Gaertn. - seed					+				Da/ W	Alder
Alnus glutinosa (L.) Gaertn. - infrustructure						+			Da/ W	Alder (female cone)
Chenopodium spp.									V/ Cu/ A	Goosefoot
Atriplex spp.				+		+			V/ Cu/ A	Orache
Atriplex spp. - small-seeded									V/ Cu/ A	Small-seeded Orache
Stellaria media (L) Vill. - agg.			+	+				+	tCu/ tO	Common chickweed
Silene sp. - large-seeded										Campion

Table C2: Assessment results for waterlogged plant remains and other environmental remains from Trench 28 continued...

Sample number	321	325	336	337	338	339	340	341	Habitat(s)	
Context number	2817	2819	2819	2820	2820	2820	2820	2821		
Depth	60-70 cm	100-110 cm	110-123 cm	123-133 cm	133-143 cm	143-150 cm	150-160 cm	160-166 cm		
Waterlogged plant remains continued...										
Weed/ wild plants continued...										
CARYOPHYLLACEAE - unident., large-seeded										Pink Family
Persicaria hydropiper L.			+		+	++	+		W	Water-pepper
Persicaria spp.				+				+	V/ tDa/ tG	Knotweed
Polygonum aviculare L.									tO	Knotweed
Polygonum spp.									V/ tG/ tA	Knotgrass
Rumex spp.						+			V/ tG/ tCu/ tA	Dock
Reseda sp.									Di/ Wa/ A/ Ca	Mignonette
Rubus section Rubus									tWa	Bramble/ Blackberry
Crataegus monogyna Jacq.				+					Wo/ Sc/ He	Hawthorn
FABACEAE – unidentified large-seeded										Pea Family – unidentified
Linum sp. - wild form									V/ tGa	Flax (wild)
Chaerophyllum temulum L.			+			+	+		G/ He/ Wb	Rough chervil
Berula erecta (Huds.) Coville									W	Lesser water-parsnip
Oenanthe spp.									Da/ W	Water dropwort
Apium nodiflorum (L.) Lag.			+						Da/ W	Fool's water-cress
APIACEAE – unidentified										Carrot Family – unidentified
cf. *Atropa belladonna* L.									Wo/ Sc/ Cu	Deadly nightshade
Solanum nigrum L.									Wa/ Cu	Black nightshade
Solanum dulcamara L.									He/ Wo/ Da/ W	Bittersweet
Menyanthes trifoliata L.									W	Bog bean
Ajuga spp.									V	Bugle
Lycopus europaeus L.									Da/ W	Gypsywort
Mentha spp.		++	++	++					V/ ?Da/ ?W	Mint (most likely aquatic)
LAMIACEAE – unidentified Stachys sp. type										Dead-nettle family
Plantago major L.				+					O/ tG	Greater plantain
Galium aparine L.									Cu/ A/ He/ Sc	Cleaver

Table C2: Assessment results for waterlogged plant remains and other environmental remains from Trench 28 continued...

Sample number	321	325	336	337	338	339	340	341	Habitat(s)	
Context number	2817	2819	2819	2820	2820	2820	2820	2821		
Depth	60-70	100-110	110-123	123-133	133-143	143-150	150-160	160-166		
Sambucus nigra L.			+						He/ Wo/ Wa/ tN	Elder
Cirsium spp.									V/ tG	Thistle
Picris echioides L.									Di/ Wa	Bristly oxtongue
Sonchus asper (L.) Hill								+	Wa/Cu	Prickly sow-thistle
Anthemis cotula L.									A/ Wa/ tH	Stinking chamomile
ASTERACEAE - small-seeded										Daisy Family
Sagittaria sagittifolia L.									W	Arrowhead
Sagittaria sp./ *Alisma* sp. – internal structure							+		W/ Da	Arrowhead/ Water-plantain
Alisma spp.				+		+	++		W/ Da	Water-plantain
Potamogeton spp.			+			+		+	W	Pondweed
Zannichellia palustris L.								+	W	Horned pondweed
Eleocharis spp.									W	Spike-rush
Schoenoplectus spp.									Da/ W	Club-rush
Carex spp. – 2-sided									tDa/ tW	Sedge
Carex spp. – 3-sided	+	+	+++	++	++	++	++	++	tDa/ tW	Sedge
Glyceria maxima (Hartm.) Holmb.									W	Reed sweet-grass
POACEAE - unidentified										Grass Family
Sparganium spp. (*S. emersum*/ *angustifolium* type)						+			Da/ W	Bur-reed
cf. *Sparganium* spp.					+				Da/ W	Possible bur-reed
Unidentified										Unidentified
Other Remains										
Charcoal	+	+								
Chironomid				+++	+++	+++	+++	+++		
Coleoptera			+	++		++	++	++		
Mollusca	+									
Wood				+						
Preservation	F	F	F	F-G	P - F	F	F-G	G		

C.3 Waterlogged and Charred Plant Remains (Trenches 25 and 26)

C.3.1 Six samples, all presumed to be of medieval date and directly associated with archaeological features relating to Greyfriars, were collected for the recovery of both waterlogged and charred plant remains from Oxford Archaeology's excavations at the Westgate Centre, Oxford (NGR SP 510 059). At the time of this assessment, context information for the deposits studied was not fully available. Four (samples 598–601) are believed to be associated with pits and two (samples 614–615) are associated with floor surfaces (not necessarily only within buildings). Assessment of plant remains from these samples was carried out in order to establish whether:

- waterlogged or charred plant remains are present and of interpretable value.
- plant remains provide information on the surrounding environment.
- plant remains provide information on settlement activities.
- plant remains provide information on disposal of rubbish, especially into the pit deposits.
- other classes of environmental remains (e.g. fish bone, molluscs, insects, etc…) of potentially interpretable value are present.

METHOD

C.3.2 The soil samples collected range from approximately 20–40 L in volume. In all cases a 1 L sub-sample was processed by flotation using a modified Siraf flotation machine for the recovery of waterlogged plant macrofossils. Flots (the material which floats) were sieved to 0.25 mm and heavy residues (the material which does not float) were retained in a 0.5 mm mesh. Both the flot and heavy residue were stored in water in the OA cold store at approximately 10°C. 9 L of sediment was reserved specifically for the recovery of insect remains in each case.

C.3.3 If charred plant remains were observed in the flot or heavy residue during processing for the recovery of waterlogged plant remains any available sediment was processed for the recover of charred plant remains, using the same method, but allowing the flot and heavy residue to dry. If charred plant remains were not observed during flotation, the remainder of available sediment was wet-sieved to 0.5 mm for the recovery of ecofacts (especially animal/ fish bone) and artefacts.

C.3.4 Heavy residues were sorted by eye by environmental technicians at Oxford Archaeology; however, if smaller fractions of the heavy residue clearly contained substantial quantities of environmental remains (e.g. charcoal, fish bone, molluscs etc) the entire residue fraction was reserved for scanning by the appropriate specialist. The author rapidly scanned the flots, using a low-power binocular microscope at a magnification of x12.5. Identification of charcoal to an individual genus or group was made at x40 magnification; based on the transverse section, only using existing breaks. In all cases, only a small sub-sample of charcoal was scanned. Radial and tangential features on the charcoal, which would require higher powers of magnification, were not examined for this assessment. As a result, wood charcoal identifications should be seen as an indication of whether assemblages are varied. Identification of dried-out waterlogged wood was not attempted for this assessment, largely because the transverse sections examined were too abraded for general characterisation. Comparative material was not consulted for charcoal and other plant macrofossil identifications during this assessment. As a result, all of the identifications presented

here should be seen as highly provisional. In addition, quantification is subjective and likely to underestimate smaller-sized plant macrofossils.

RESULTS

C.3.5 The assessment results for waterlogged and charred plant remains (including charcoal) from archaeological excavation at Oxford Westgate Centre are presented in Tables C3, C4 and C5. Both waterlogged and charred plant remains (including wood/ charcoal) were observed in the flots and/or heavy residue fractions; animal bone, molluscs and insects also were noted. Nomenclature for economic plants follows Zohary and Hopf (2000) and nomenclature for indigenous taxa follows Stace (1997).

C.3.6 Table C3 presents a summary of the waterlogged plant remains observed in assessment of samples 598–601 (contexts 2610, 2611, 2615 and 2603 respectively) and 614-615 (contexts 2511 and 2517). The quantity and range of waterlogged taxa was quite limited. In most cases, the taxa identified are typical weeds of arable or cultivated ground and also frequently occur on wasteland. Small quantities of charred cereal grain and a few charred cereal chaff fragments were also observed (Tables C3, C4 and C5). Sediment from sample 598 (context 2610) was processed for the recovery of charred plant remains as well, and the results of the assessment of this flot is presented in Table C4. Sample 598 (context 2610) was not productive for the recovery of charred plant remains, but did produce abundant dried-out waterlogged plant remains (see Table C4). Material recovered from sorting heavy residues or from hand-picked material collected on site was dominated by dried-out waterlogged wood and charcoal. Hazel (Corylus avellana L.) nutshell fragments were frequently recovered in heavy residues. A single acorn (Quercus sp. – context 3019) and a half shell of a walnut (Juglans regia L. – context 3211) were hand-collected on site during excavation. Finally, a single grape (Vitis vinifera L.) pip was recovered from the heavy residue of sample 598 (context 2610).

C.3.7 Molluscs were fairly abundant in sample 598 (context 2610), but were relatively limited in other samples. Small quantities of animal/ fish bone and eggshell were also noted in flots and heavy residue fractions from sample 598 (context 2610). Small quantities of Coleoptera (beetle) remains were also noted in the waterlogged flot from sample 598 (context 2610).

POTENTIAL

C.3.8 Most of the samples assessed were unproductive in terms of the recovery of waterlogged or charred plant remains, as well as other classes of environmental evidence. Only sample 598 (context 2610) was reasonably productive in terms of the recovery of waterlogged and charred plant remains; however, this sample only produced a small archaeobotanical assemblage of limited interpretable value. Small quantities of animal bone, fish bone, eggshell and insect remains were noted from the flot and/or heavy residue fractions from this sample. Molluscs were frequently observed in the waterlogged and charred flots, as well as heavy residue fractions from sample 598. It is clear that sample 598 (context 2610) contains settlement waste; however, it is not particularly abundant.

RECOMMENDATION FOR FURTHER WORK

Retain all flots/ residues from sample 598 (context 2610) for possible future analysis

C.3.9 Only sample 598 (context 2610) produced a potentially interpretable assemblage, although the quantity and range of taxa recovered is fairly limited. Settlement waste (e.g. charred cereal grain and chaff, as well as the dried-out waterlogged grape pip) is clearly present in this deposit, but quite limited. The weed/ wild component recovered typically occurs on cultivated ground or waste places and, therefore, may not necessarily be indicative of the immediate surrounding environment.

C.3.10 Further analysis is unlikely to greatly enhance the information already gained through this assessment. Nevertheless further background information about the archaeology may help to clarify the mixture of weed/ wild plants and crops/ cultivated plants observed, since these may represent two separate depositional routes (e.g. surrounding environment and settlement rubbish). Since sample 598 (context 2610) has proven to be the most productive sample in terms of waterlogged plant remains and other forms of environmental evidence (e.g. charred plant remains, insects and molluscs), it is recommended that all flots and residues from this sample are retained at this stage, should this sample prove to be the only productive sample from the medieval priory.

Discard material associated with samples 599, 600, 601, 614 and 615

C.3.11 The five other samples were remarkably unproductive in terms of plant remains (including charcoal/ waterlogged wood) and other classes of environmental evidence. These samples have now been assessed and can be discarded.

Continue to sample for both waterlogged and charred plant remains from the medieval priory

C.3.12 The results from this assessment do feed into our future sampling strategy at the Oxford Westgate Centre. Although the samples collected for this assessment were not particularly productive, they do establish that waterlogged plant remains are preserved in medieval features associated with the priory. As a result, sampling for the recovery of plant macrofossils should be carried out for both waterlogged and charred plant remains. The system of processing a 1 L sub-sample from a 40 L bulk soil sample for the recovery of waterlogged plant remains, as well as the detection of other forms of environmental evidence, does appear to effectively characterise deposits. 9-10 L of unprocessed sediment should be retained from each sample for possible retrieval of insect remains. If flotation of the 1 L sub-sample does not indicate preservation of charred plant remains (including charcoal), the remainder of sediment can be wet sieved to 0.5 mm, particularly for the recovery of animal and fish bone.

Table C3: Waterlogged plant remains from medieval deposits at Oxford Westgate Centre, Oxford

Sample No	**598**	**599**	**600**	**601**	**614**	**615**		
Context	**2610**	**2611**	**2615**	**2603**	**2511**	**2517**		
Dating	?Med	?Med	?Med	?Med	?Med	?Med		
Feature Type	?pit	?pit	?pit	?pit	surface	surface		
Sample Volume (L.)	1 L	1 L	1 L	1 L	1 L	1 L		
Proportion scanned	ca. 15%	ca. 50%	50%	ca. 60%	100%	100%		
Latin Binomial							**Habitat Code(s)**	**English Common Name**
Charred plant remains								
Triticum sp. - indeterminate grain			+		+		C	Wheat grain
Indeterminate Cereal grain						+	C	Indet. cereal grain
Indeterminate Cereal / POACEAE – caryopsis						+	C/ A	Indet. cereal grain/ large grass seed
Waterlogged plant remains								
Weed/ wild plants								
Ranunculus acris L./ *repens* L./ *bulbosus* L.	+						Da/ tG	Meadow/ Creeping/ Bulbous Buttercup
Urtica dioica L.	++	+	+				W/ Cu/ Wy/ N	Common nettle
Urtica urens L.			+				Cu/ Wa/ Wy	Small nettle
Chenopodium murale L.	+						Wa/ Cu	nettle-leaved goosefoot
Chenopodium spp.		+	++	++			V/ Cu/ A	Goosefoot
Stellaria media (L) Vill. - agg.	+	+	+				tCu/ tO	Common chickweed
Persicaria spp.	+						V/ tDa/ tG	Knotweed
Polygonum spp.	+						V/ tG/ tA	Knotgrass
Brassica cf *nigra* (L.) W.D.J. Koch	+						Da/ Wa	Black mustard
Aethusa cynapium L.	+	+	cf. +				A/ Wa	Fool's parsley
Solanum nigrum L.	+						Wa/ Cu	Black nightshade

Table C3 (cont.): Waterlogged plant remains from medieval deposits at Oxford Westgate Centre, Oxford

Sample No	**598**	**599**	**600**	**601**	**614**	**615**		
Context	**2610**	**2611**	**2615**	**2603**	**2511**	**2517**		
Waterlogged plant remains								
Weed/ wild plants continued…								
Mentha spp. (smooth–coated seed)			cf. +				V/ ?Da/ ? W	Mint (most likely aquatic)
LAMICAEAE - unidentified			+					Dead-nettle family
Sambucus nigra L.			+				He/ Wo/ Wa/ tN	Elder
Lapsana communis L.	+						He/ Wa/ Wo	Nipplewort
Picris echioides L.		+					Di/ Wa	Bristly oxtongue
Sonchus asper (L.) Hill		+					Wa/Cu	Prickly sow-thistle
Carex spp. – 3-sided	+		+	+			tDa/ tW	Sedge
Unidentified	+							Unidentified
Other Remains								
Charcoal			++		++			Charcoal
Charaphyte						+		Green algae
Chironomid	++	+++						Non-biting Midge
Coleoptera	+		+					Beetles
Daphnia	+							Waterflea
Diptera - pupae	+							Fly pupae
Mollusca	++	+	++	+				Snails
Moss	+							Moss
Wood	++	+						Wood
Preservation	F-G	F-G	P - G	F-G	No WPR	No WPR		

Habitats: A = weed of arable crops, C = cultivar, Cu = cultivated ground, Da = damp ground, Di = disturbed ground, G = grassland, He = hedges, O - open ground (=unshaded), V = various, unspecified habitats, W = wet places (e.g. ponds, rivers, ditches, etc...), Wa = waste places and Wo = woodland. Shading indicates taxa which cannot be securely attributed to a few habitats and codes preceded by 't' = typical but not exclusively found in such habitats (e.g. tG = typically found in grassland). Habitat information based on Stace 1997.

Table C4: Charred plant remains recovered from <598>, context 2610 – a medieval deposit at Oxford Westgate Centre

Sample	Ctxt	Dating Decision	Feature Type	Sample Volume (L.)	Flot Vol (ml)	Grain	chaff	weeds	other CPR	Dried-out WPR	Dried-out Insect	Animal Bone	Fish Bone	Charcoal	Molluscs	Comments on CPR	Potential	Further Analysis
598	2610	? Med	n/a	9 L	130 ml	+	+	-	-	+++ +	++	-	+	+	+++	ca. 10% of flot rapidly scanned. Abundant dried-out waterlogged plant remains. Weed/ wild plants observed include buttercup (*Ranunculus acris* L/ *repens* L./ *bulbosus* L.), henbane (*Hyoscyamus niger* L.), fool's parsley (*Aethusa cynapium* L.), knotgrass (*Polygonum* spp.), knotweed (*Persicaria* spp.), common nettle (*Urtica dioica* L.), sedge (*Carex* spp.) and a single wild strawberry (*Fragaria vesca* L.) seed. Charred wheat (*Triticum* sp.) and indeterminate cereal/ large grass (POACEAE) caryopses observed. One charred free-threshing wheat (*Triticum* sp.) rachis internode also observed. CPR assessed as POOR. Dried-out waterlogged material is abundant.	C for CPR/ A for WPR	?N - WPR sample also abundant. Possibly use to enhance taxa list?

Table C5: Summary of material recovered from wet sieving or hand-picked on site

MATERIAL FROM WET SIEVED RESIDUES TO 0.5mm					
SAMPLE	**CTXT**	**VOL. (L.)**	**MATERIAL**	**NO. OF BAGS**	**COMMENTS**
598	2610	9 L	CPR and plant remains from heavy residue. 2 bags of 2 – 0.5 mm fraction are retained for molluscs.	1	'Plant Remains' - primarily dried-out waterlogged wood (>25 items). A few hazel (*Corylus avellana* L.) nutshell fragments and one grape (*Vitis vinifera* L.) pip observed. One unidentified item - possibly a seed pod - also recovered. Charcoal also present (c 30-50 frags) - most hawthorn group (MALOIDEAE) or oak (*Quercus* sp.). One charred cereal/ large grass (POACEAE) culm node observed. The 10-4 mm fraction was retained - but since it was quite small this was fully sorted by KMS on 7/3/08. - mollusc, dried-out waterlogged wood, charcoal, animal bone and seeds (?dried-out waterlogged/ ?modern or sub-fossil) recovered. Seeds include LAMIACEAE, *Atriplex* sp., *Persicaria* sp. and *Urtica dioica* L. Charred rye (*Secale cereale* L.) rachis node also present.
598	2610	9 L	Snails from heavy residue (10-4 mm)	1	>25 items noted
598	2610	9 L	Egg shell from heavy residue	1	*c* 20 fragments in total noted
615	2517	10 L	CPR from heavy residue. 4-2 mm fraction retained for CPR. Cereal grain noted in sorting.	2	>10 ml - 1 frag hawthorn group (MALOIDEAE) charcoal. 10-4 mm heavy residue fraction: hawthorn group (MALOIDEAE) charcoal also present. Other fragments somewhat abraded - so not identified.

HAND-PICKED MATERIAL FROM SITE

SAMPLE	CTXT	MATERIAL	NO.	COMMENTS
-	2106	CPR hand collected on site	1	Alder/ hazel/ birch (*Alnus* sp./ *Corylus avellana* L./ *Betula* sp.) type charcoal and hawthorn group (MALOIDEAE) charcoal observed. Several fragments are roundwood.
-	2106	CPR hand collected on site	1	Large fragment of hawthorn group (MALOIDEAE) present. Several roundwood pieces also present. Most fragments are coated/ abraded and will need fresh breaks for identification.
-	2107	CPR hand collected on site	1	Large fragments of wood - some roundwood. All encrusted - so no identifications could be made at this stage - will require fresh breaks for identification.
-	2108	CPR hand collected on site	1	Large piece of hawthorn group (MALOIDEAE) charcoal. Other fragment (large piece of roundwood) is too encrusted for identification - will need a fresh break for identification.
-	3019	Waterlogged nut collected on site	1	One acorn (*Quercus* sp.) and some waterlogged wood collected.
-	3038	CPR hand collected on site	1	Strongly diffuse porous. ?slow-growing MALOIDEAE.
-	3053	CPR hand collected on site	1	Two fragments dried-out waterlogged wood. Will need fresh breaks for identification.
-	3152	CPR hand collected on site	1	3 fragments - all from one piece - MALOIDEAE (half of roundwood fragment).
-	3211	Waterlogged nut collected on site	1	A single half of a walnut (*Juglans regia* L.) shell (?dried-out waterlogged or sub-fossil) hand-picked on site.
-	3415	CPR hand collected on site	1	Unidentified charcoal - encrusted - will need fresh breaks for identification - but from what is visible this does not appear to be either oak or hawthorn group and seems to have a fine, diffuse structure.
-	3428	CPR hand collected on site	1	Dried-out waterlogged wood. Will need to have a fresh break for identification. Too large to examine under the microscope at present.
-	3456	CPR hand collected on site	1	One large frag - poss hawthorn group (MALOIDEAE). Requires a fresh break for secure identification.

C.4 Assessment of Land and Freshwater Snails

by E.C.Stafford with Daniel Miller

Introduction

C.4.1 Nine samples from Trench 22 were submitted for the assessment of molluscan remains. The samples derive from alluvial/fluvial channel deposits (the proto Trill Mill stream) dating from the Iron Age to medieval periods.

C.4.2 The purpose of the assessment was to ascertain if retrieval of molluscan assemblages could provide detailed information on the nature of the local environment. Specifically the assessment aimed to:

- Determine the presence/absence of molluscan remains
- Provide preliminary data on taxonomic content
- Provide recommendations for further work

Method

C.4.3 As only a single incremental sample series was taken from this trench, both waterlogged plant remains and molluscan remains have been assessed from the same wet flots and residues. One litre of sediment from each sample was processed for waterlogged plant remains, and the wet flots examined for the molluscan content. The flots were scanned under a lower power binocular microscope at magnifications of x10 and x20 and identifiable mollusc fragments noted. Residues also contained significant numbers of shells. These were rapidly scanned, and contents noted. The abundance of taxa was recorded on a sliding scale (+ 1-4, ++ 5-12, +++ 13-25, ++++ 25-50, ++++ +>50) and an estimate made of the total number of individuals in each sample. Nomenclature follows Kerney (1999) and summary habitat information has been indicated following Evans (1972), Boycott (1936) and Robinson (1988, 1979).

C.4.4 For the freshwater mollusca, groups defined by habitat preferences consist of

- Slum species are those able to live in water subject to stagnation, drying up and large temperature variations.
- Catholic or intermediate species tolerate a wide range of conditions except the worst slums.
- Ditch species require clean slowly moving water often with abundant aquatic plants.
- Flowing water species require a clean stream with a current.

C.4.5 For the terrestrial fauna, groups defined by habitat preferences consist of

- Obligate marsh species
- Terrestrial species that can tolerate wet conditions

Results

C.4.6 The results of the assessment are presented in Table C6. Given the reliatively small volumes of sediment processed for each sample, molluscan preservation was very good. Shell was present in all of the samples assessed. Abundance was greatest in the channel fills 2218 to 2215, reaching a maximum of 500 individuals per sample. In the

overlying alluvial deposits, contexts 2212 to 2214, preservation was poorer, with 20-40 individuals.

C.4.7 All of the samples were dominated by freshwater species. Occasional terrestrial species were present. These largely comprised obligate marsh and other species that can tolerate wet conditions, consistent with floodplain grassland and marginal channel environments with erect vegetation such as reeds and sedges.

C.4.8 The channel fills (contexts 2218 – 2215) produced assemblages of similar composition dominated by flowing water species, particularly Bithynia sp. and Valvata sp. Freshwater catholic and ditch species (eg. Hippeutis complanatus, Gyraulus albus, Gyraulus crista, Planorbis planorbis) were also present in lesser quantities in the basal fill 2218, though these appeared to increase in relative abundance and diversty up profile (fills 2216 and 2215). Additional species included Bathyomphalus contortus, Gyralus acronicus and Planobarius corneus. Overall the assemblage from the basal fill 2218, dominated by flowing water species, is consistent with an active channel with clean moderately flowing water. The overlying fills contained more mixed, diverse assemblages representing in-channel conditions but also incorporating shells from the vegetated river margins and pool environments This may represent reduced flow conditions as a result of channel silting. The overlying alluvial deposits produced a similar range of species though in much reduced numbers.

Recommendations

C.4.9 The shell assemblages from deposits infilling the proto Trill Mill Stream were well preserved, abundant and diverse. There is some indication from the assessment results of environmental change through the sequence. When combined with the results of other analysis of environmental remains and additional mollusc data from additional stages of investigation, further more detailed analysis has the potential to provide more information on the local environments of deposition.

C.4.10 Analysis should comprise full sorting and counts of identfiable shell fragments (whole shells, apertures or apical fragments) from both flots and residues, the production of a molluscan histogram and accompanying report.

Table C6: Molluscan assemblages

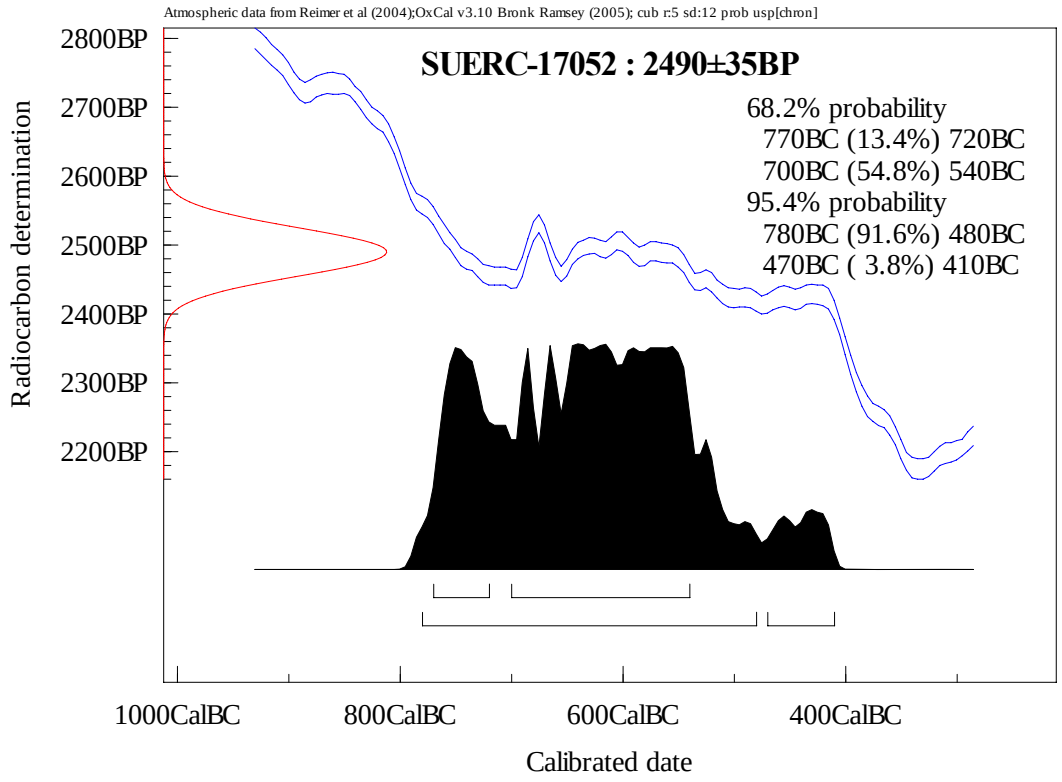
Sample	330	331	332	333	302	303	304	306	307
Context	2212	2213	2214	2215	2215	2216	2216	2217	2218
TAXA									
Flowing water species									
Physa fontinalis				+		+			
Bithynia sp	+	+++	++	+++++	+++++	+++++	+++++	++++	+++++
Acroloxus lacustris				+	++	+	+		+
Theodoxus fluviatilis		+			++				
Valvata piscinalis		+	+	++++	+++	++++	++++	++	+++++
Ancylus fluvialtilis					+				
Valvata cristata	+	+	+	+++	+++++	+++	+++	++	++
Planorbis carinatus						+	+		
Ditch species									
Gyralus acronicus	+				+				
Planorbis planorbis	+	++	+	+++	++	+	++	+	+
Anisus vortex					+	+			
Bathyomphalus contortus	+			+	++	+	+	+	
Catholic species									
Lymnaea peregra						+	+		
Hippeutis complanatus					++	+	+		+
Gyraulus crista	+			+	++	+	+		
Gyraulus albus	+		+	++	+++	++	+	+	+
Planobarius corneus	+				+	+			
Lymnaea palustris					+				
Lymnaea sp.				+		+	+	+	
Slum species									
Anisus leucostoma	+				+			+	+
Lymnaea truncatula	+		+	++	++	++	+		+
Terrestrial species									
Vallonia pulcella		+		+	+	+		+	
Carychium minimum					+				

Sample	330	331	332	333	302	303	304	306	307
Context	2212	2213	2214	2215	2215	2216	2216	2217	2218
Oxyloma/Succinea sp.				+	++			+	+
Zonitidae	+							+	
Bivalvia	+	+	+	+++++	>100	+++++	++	++++	+++++
Minimum number of indviduals	20	40	20	250	500	200	180	80	200

C.5 Radiocarbon Dating

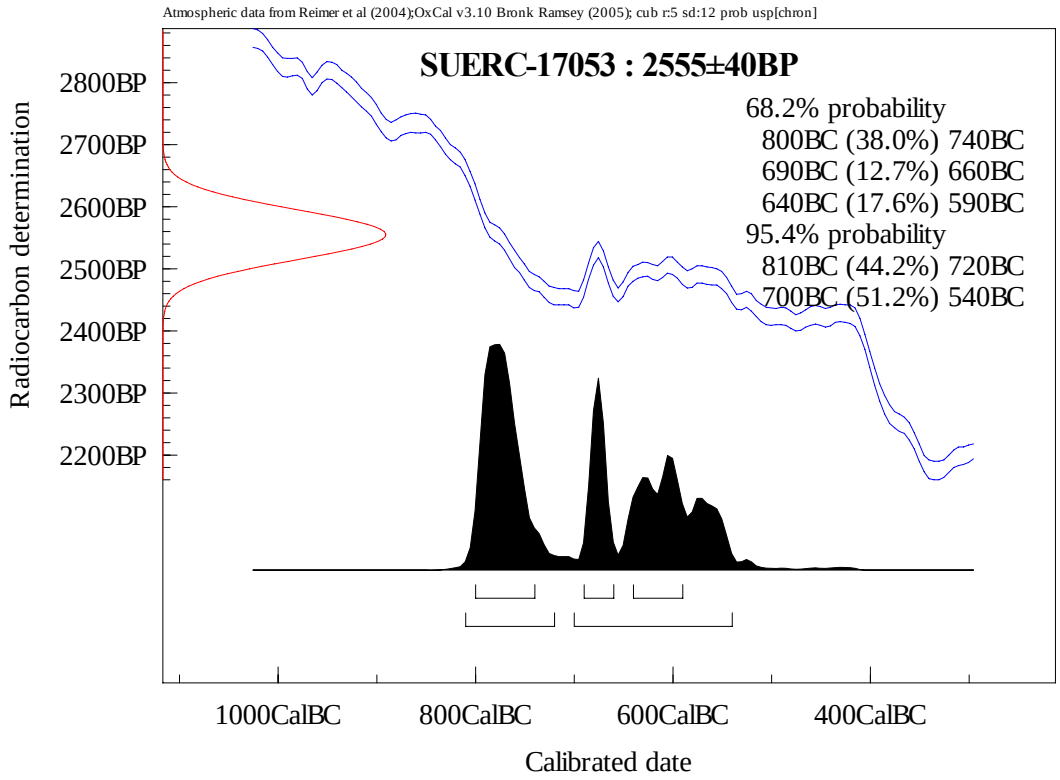
Context Reference	2820 (123-133 cm)
Sample Reference	<337>
Material	WPR (seed) : 5 x Carex spp (sedge)
$\delta^{13}C$ relative to VPDB	-25.2 ‰
Radiocarbon Age BP	2490 ± 35

Calibration Plot



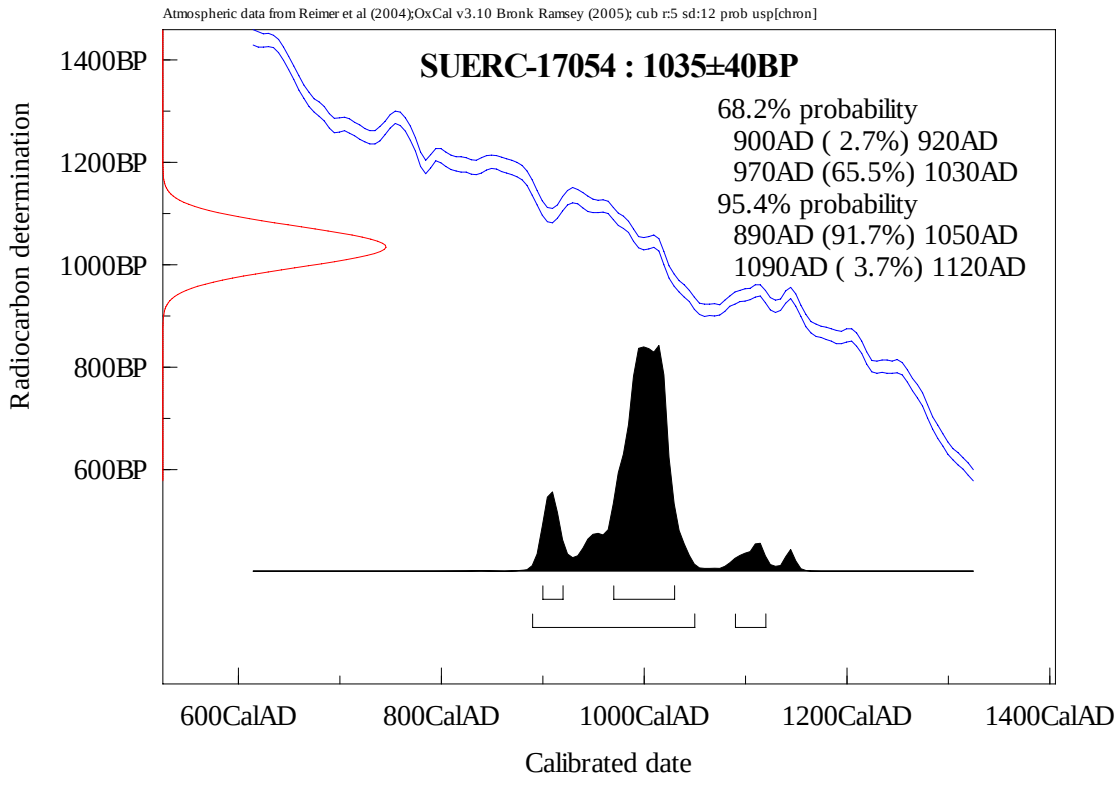
Context Reference	2820 (150-160 cm)
Sample Reference	<340>
Material	WPR (seed) : 4 x Carex spp. (sedge)
$\delta^{13}C$ relative to VPDB	-25.6 ‰
Radiocarbon Age BP	2555 ± 40

Calibration Plot



Context Reference	2215 (60-80 cm)
Sample Reference	<333>
Material	WPR (seed) : 4 x Chaerophyllum temulum L, (rough chervil)
$\delta^{13}C$ relative to VPDB	-27.0 ‰
Radiocarbon Age BP	1035 ± 40

Calibration Plot



Appendix D. Bibliography and References

Armitage, P, 1982 A system for ageing and sexing the horn cores of cattle from British post-medieval sites (with special reference to unimproved British longhorn cattle), in *Ageing and sexing animal bones from archaeological sites*, eds B Wilson, C Grigson and S Payne, BAR British Series **109**, Oxford, 37-54

Atkinson, R J C, 1942 Archaeological sites on Port Meadow, Oxford, *Oxoniensia* **7**, 24-35

Bates, M R, and Bates, C R, 2000 Multidisciplinary approaches to the geoarchaeological evaluation of deeply stratified sedimentary sequences: Examples from Pleistocene and Holocene deposits in southern England, United Kingdom, *Journal of Archaeological Science* **27**, 845-858

Biddle, M, 1990 *Object and Economy In Medieval Winchester*, Oxford Clarendon Press

Boessneck, J, Müller, H-H, and Teichert, M, 1964 *Osteologische Unterscheidungsmerkmale zwischen Schaf (Ovis aries Linné) und Ziege (Capra hircus Linné)*, Kühn-Archiv, Bd 78

Bond, J, and Hunter, J, 1987 flax-growing in Orkney from the Norse Period to the 18th Century, *Proceedings of the Society of the Antiquaries of Scotland* **117**, 175–81

Boycott, A E, 1936 The habits of freshwater mollusca in Britain, in *Journal of animal Ecology* **144**, 129-30

Brown, A, 1977 Plant remains, in Archaeological investigations in St. Aldate's, Oxford, Durham, B (ed.), *Oxoniensia* **42**, 169–172

von den Driesch, A, 1976 *A guide to the measurement of animal bones from archaeological sites*, Peabody Museum of Archaeology and Ethnology, Harvard University

Davies, R H C, 1973 The ford, the river and the city, *Oxoniensia* **38**, 258-67

Dodd, A (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology

Durham, B, 1984 The Thames crossing at Oxford: archaeological studies 1979–82, *Oxoniensia* **49**, 57–100

Egan, G and Pritchard, F 1991 *Medieval finds from Excavations in London: 3. Dress Accessories c.1150-c.1450,* London, HMSO

Emery, F, 1974 *The Oxfordshire Landscape* London, Hodder and Stoughton

English Heritage, 1991 Management of Archaeological Projects

English Heritage, 2007 Geoarchaeology: Using an Earth Science Approach to Understand Archaeology

English Heritage, 2002 Environmental archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation

Evans, J G, 1972 *Land Snails in Archaeology*, London, Seminar Press

Grant, A, 1982 The use of toothwear as a guide to the age of domestic ungulates, in *Ageing and sexing animal bones from archaeological sites*, eds B Wilson, C Grigson and S Payne BAR British Series **109**, Oxford. pp. 91-108.

Habermehl, K-H, 1975 *Die Altersbestimmung bei Haus- und Labortieren,* 2nd ed. *V*erlag Paul Parey, Berlin, Hamburg

Haberly, L, 1937 *Medieval English Paving*

Hassall, T G, Halpin, C E, and Mellor M 1989 Excavations in St Ebbe's, Oxford 1967-1976: Part 1: Late Saxon and Medieval Domestic Occupation and Tenements and the Medieval Greyfriars, *Oxoniesia* **LIV**, 71-278.

Hassall, T G, Halpin, C E, and Mellor, M 1984 Excavations in St. Ebbe's, Oxford, 1967-1976: Part II: Post-medieval domestic tenements and the Post-Dissolution site of the Greyfriars, *Oxoniensia* **49**, 71-277

Hey, G, and Lacey, M, 2001 Evaluation of Archaeological Decision-making Processes and Sampling Strategies

Hey, G in prep. Untitled (Prehistoric Activity at Yarnton), Oxford Archaeology.

Holgate, R, 1988 *Neolithic Settlement in the Thames Basin* Oxford BAR **194**

Hawkes, S C, 1986 The Early Saxon Period, in *The Archaeology of the Oxford Region*, Briggs, G, *et al* (eds), 64-108

Kerney, M P, 1999 *Atlas of the Land and Freshwater Molluscs of Britain and Ireland*, Harvey Books

Lambrick, G, and Mellor, M, 1985 The Tiles, in Lambrick, G, Further excavations on the Second Site of the Dominican Priory, Oxford, *Oxoniensia* **L**, 131-208

Lambrick, G, and Robinson, M, 1985 The archaeology and ecology of Port Meadow and Wolvercote Common, Oxford, in *Archaeology and Nature Conservation* (ed G Lambrick), Oxford Uinversity Department for External Studies, 95-109.

Lambrick, G, and Robinson, M, 1979 Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire. London, BAR 32

Lambrick, G, and Robinson, M, 1988 The development of floodplain grassland in the Upper Thames valley, in *Archaeology and the Flora of the British Isles* (ed M Jones), 55-75, Oxford University Committee for Archaeology

Mellor, M, 1989 Tiles in T G Hassall, C E Halpin and M Mellor, Excavations in St Ebbes, Oxford, 1967-1976: Part 1 Late Saxon and Medieval Domestic Tenements and the Medieval Greyfriars. *Oxoniensia* **LIV**, 248-255

Mellor, M, 1984 A summary of the key assemblages. A study of pottery, clay pipes, glass and other finds from fourteen pits, dating from the 16th to the 19th century in TG Hassall, CE Halpin and M Mellor, Excavations at St Ebbe's, *Oxoniensia* **49**, 181-219

Mellor, M, 1994 Oxford Pottery: A Syntheis of middle and late Saxon, medieval and early post-medieval pottery in the Oxford Region, *Oxoniensia* **59**, 17-217

Miles, D, 1986 The Iron Age, in Briggs *et al*. 1986, 49-57

Mynard, D C, and Zeepvat, R J, 1992 Excavations at Great Linford, 1974-80. The Buckingham Archaeological Society Monograph Series **No.3**

Oswald, A, 1975 Clay Pipes for the Archaeologist, B.A.R. (Brit. Series) **14**

Oxford Archaeology, 1992 Fieldwork Manual, (Ed. D Wilkinson, first edition, August 1992)

Oxford Archaeology, 2000 OA Environmental Sampling Guidelines and Instruction Manual

Oxford Archaeology, 2007 Archaeological Evaluation of the Westgate Centre Car park, Oxford Unpublished client report

Pals, J P, and van Dierendonck, M C, 1988 Between flax and fabric: Cultivation and processing of flax in a Mediaeval peat reclamation settlement near Midwoud (Prov. Noord Holland). Journal of Archaeological Science **15** 237–51.

Prummel, W, and Frisch, H-J, 1986 A guide for the distinction of species, sex and body side in bones of sheep and goat, Journal of Archaeological Science, **Vol. 13**, 567-577

Rhodes, P P, 1949 New archaeological sites at Binsey and Port Meadow, Oxford, *Oxoniensia* **14**, 81-4

Robinson, M, 1988 Molluscan evidence for pasture and meadowland on the floodplain of the Upper Thames basin, in Murphy, P, and French, C (eds), *The Exploitation of Wetlands* , BAR **186**, 101-112

Robinson, M, 1979 The plants and invertebrates, in Lambrick, G, and Robinson, M, Iron Age and Roman riverside settlements at Farmoor, Oxfordshire, Oxford Archaeological Unit Report 2 (CBA Research Report **32**)

Robinson, M, 2001 Macroscopic plant and insect remains, in G Walker and R King (eds.) Early Medieval and later tenements at 113-119 High St Oxford: Excavations in 1993-5. *Oxoniensia* **65**, 381–440

Robinson, M, 2003a Environmental investigations at the British Telecom Tunnel, in A Dodd (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology, 378–83.

Robinson, M, 2003b, Biological Remains from the High Street surface water drain, 389–90, in A Dodd (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology, 389-90

Robinson, M, 2003c, Environmental investigations at the Thames Crossing: 56–60 St Aldate's, 24–26 St Aldate's (the Police Station) and 30–31 St Aldate's (Land adjoining the Police Station), in A Dodd (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology, 374-8

Robinson, M, 2003d, Environmental Investigations of the Trill Mill Stream, in A Dodd (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology, 365-73

Schmid, E, 1972 A*tlas of animal bones. For prehistorians, archaeologists and quatrenary geologists*, Elsevier publishing company, Amsterdam, London, New York

Stace, C, 1997, New Flora of the British Isles, Second edition, Cambridge, Cambridge University Press

Thomas, R, 1980 A Bronze Age Field System at Northfield Farm, *Oxoniensia* **13**, 14-35.

Vretemark, M, 1997 Från ben till boskap. Kosthåll och djurhållning med utgångspunkt i medeltida benmaterial från Skara, *Skrifter från Länsmuseet Skara*, **Nr 25**

Wilson, B, 1994 Mortality patterns, animal husbandry and marketing in and around Medieval and Post-medieval Oxford, in A R Hall and H K Kenward (eds) *Urban-rural connexions: perspectives from environmental archaeology* Oxbow Books, Oxford, 103-115.

Wilson, B, 2003 Animal bone reports, in A Dodd (ed.) *Oxford Before the University: The Late Saxon and Norman Archaeology of the Thames Crossing, the Defences and the Town* (Thames

Valley Landscapes Monograph **No. 17**), Oxford, Oxford University School of Archaeology, 347-65

Yates, T, 1997 Bronze Age Field Systems in Lowland Britain: The Thames Valley, Unpublished Thesis, Reading University

Zohary, D, and Hopf, M, 1994 *Domestication of plants in the Old World: The origin and spread of cultivated plants in West Asia, Europe and the Nile Valley,* Oxford, Clarendon Press

APPENDIX E. SUMMARY OF SITE DETAILS

Site name: Westgate Centre Phase 2 Evaluation

Site code: OXWEST'07

Grid reference: SP 5108 0594 (centered)

Type: Evaluation

Date and duration: September 2007 – February 2008

Area of site: 5.7 hectares

Summary of results: The current phase of evaluation (Phase 2) followed on from the Phase 1 evaluation carried out by OA in 2006 (OA, 2006).

The Phase 1 evaluation comprised 16 trenches, the majority of which were excavated on the floodplain and the deposits encountered reflected this, with the evidence from these trenches being predominantly palaeo-environmental in nature. Trenches to the north within the MSCP did, however, identify architectural and other remains associated with the medieval Greyfriars.

Phase 2 comprised a further 19 trenches, 7 within the multi-storey car park and 5 in the surface car parks, with a further 7 in areas adjacent to the car parks which will be affected by the proposed development. These formed part of the required archaeological mitigation but also provided further evaluation of the surviving archaeological resource, in particular the development of the Trill Mill Stream and the extent and character of the conventual buildings of the Greyfriars Priory.

The evaluation largely confirmed the results of the first phase, although the additional data recovered has allowed the site specific model for the hydrological and sedimentary development of the floodplain to be refined. This model still correlates broadly with the sequence postulated from previous excavations to the south of the medieval walled town, and elsewhere on the floodplain of the Upper Thames.

Evidence for an elevated area of gravel to the south east of the site suggested that this area is on the periphery of an 'island' of higher ground, although the nature and elevation of the deposits encountered implied that this was marginal land, and unlikely to be the focus of settlement similar to that previously excavated at Whitehouse Road.

The evaluation provided confirmation of the Trill Mill Stream crossing the centre of the site, and further evidence for the origin, development and orientation of the channel was recovered. In addition, the results from a number of trenches suggested a complex system of intercutting side channels (some timber lined) to the south of the stream. One of these comprised a set of substantial timber beams which were encountered in previous investigations, and have been interpreted as part of a mill race. Demolition material overlying these timbers was strongly suggestive of an adjacent mill associated with the Greyfriars priory to the north-east.

There was also some evidence for managed water courses between the Trill Mill Stream and the Thames, which may have been contemporary with the Greyfriars ownership of this area of the site, referred to in documentary sources as Boteham Island.

Additional evidence for 12th-13th century land reclamation extending southwards from the second terrace was also revealed. Further robbed and partially robbed walls associated with the Priory and its subsequent demolition were seen to cut this deposit(s), as was a possible western boundary to the Greyfriars complex, comprising a north-south aligned ditch, later

superseded by a limestone wall. This latter appears to correspond to the boundary between the Priory complex and the area known as Paradise to the west.

The remaining recorded deposits appeared to relate to the use of the area as gardens/pasture, and subsequently the construction of Victorian terraced housing and the demolition of same in the late 1960s.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Oxfordshire County Museum in due course, under the following accession number: TBC

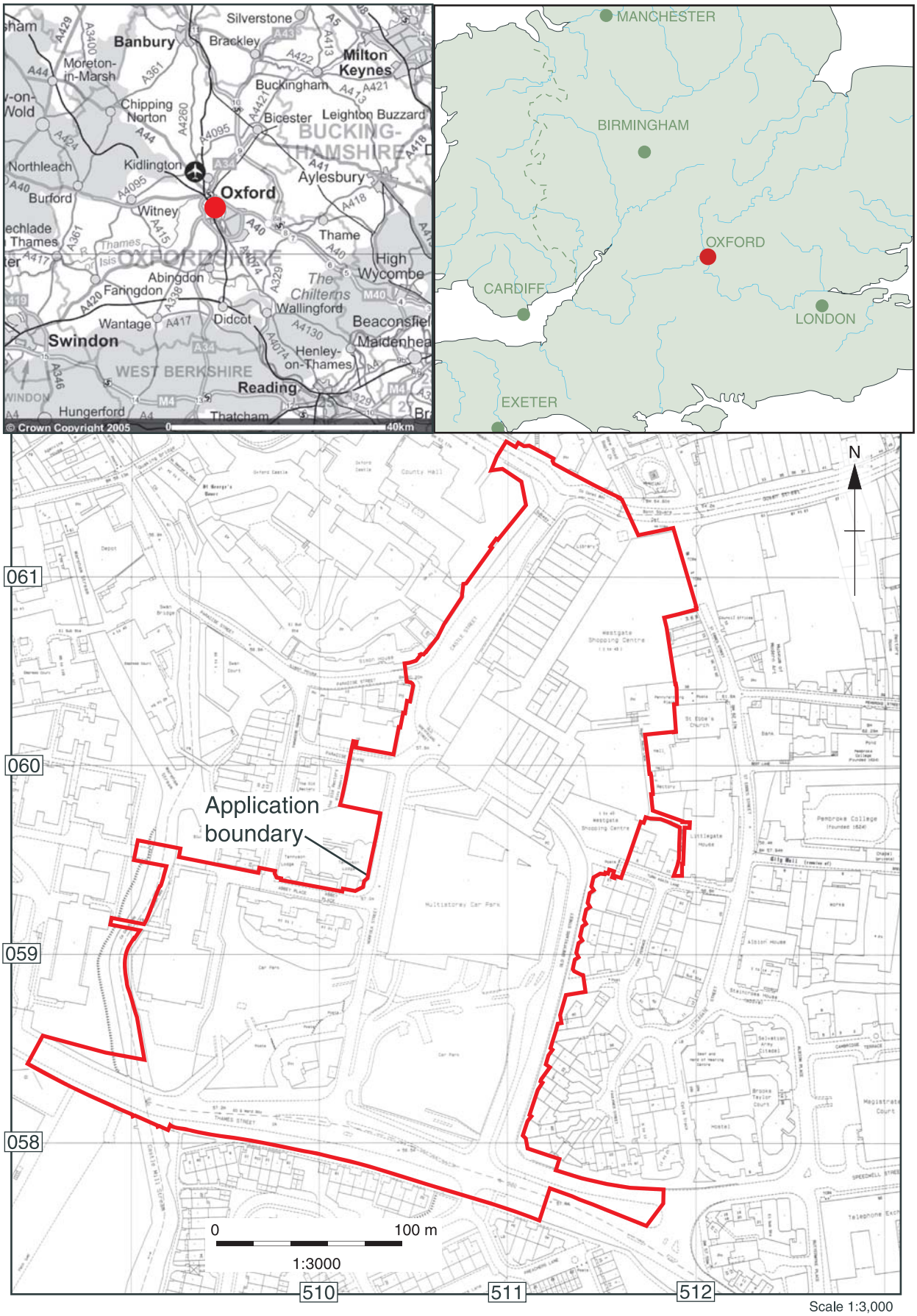


Figure 1: Site location

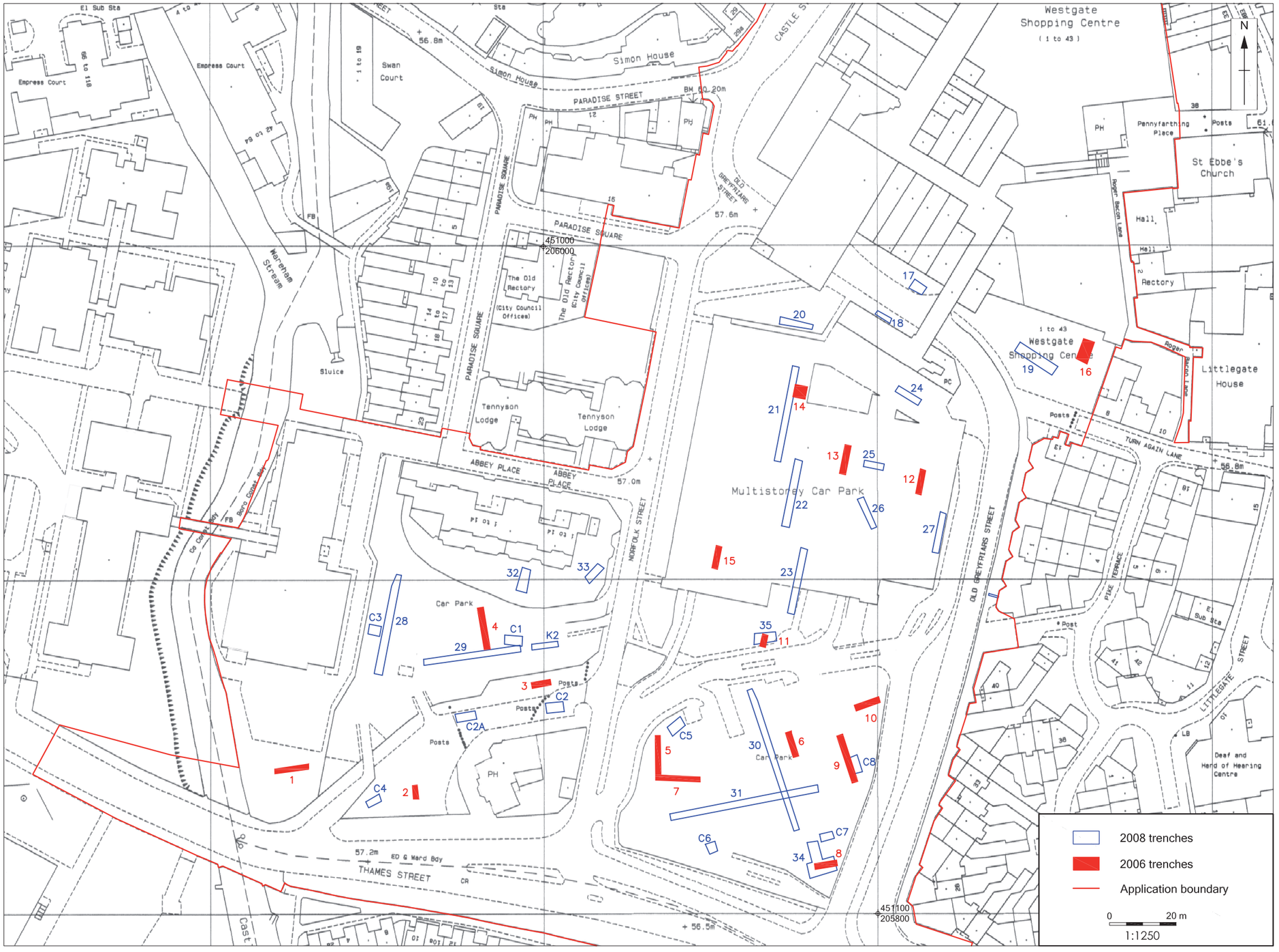


Figure 2: Trench location

MSCP

Surface CP

N

S

TR 20

TR 21

TR 22

TR 23

TR 35

TR 30

TR 34

TR 28

TR 6

Shopmobility

Reredorter

Culvert

19th century deposits

19th century deposits

19th century deposits

19th century deposits

Organic preservation within TMS

18th century Canalisation

1240 AD (dated timber from side channel)

Possible mill structure

Late 11th- 12th century quarrying

Post-medieval channel

970±80 cal AD

Trill Mill Stream

Proto Trill Mill Stream

Late Devensian channel

Trench 31 - alluvial sequence truncated by N-S channel Sequence extrapolated from Trenches 6, 9 and 28 with CTP 5 and 8

Top of Oxford Clay extrapolated from Borehole data and trenches 17 +19

metres OD

57
56
55
54
53
52
51
50

m OD

55.15
54.30
53.65
53.30

Floodplain sequence

19th century

Early Medieval alluviation

Saxon organics and clay alluviation

Iron Age reed swamp

0 20 m

Horizontal scale 1:500

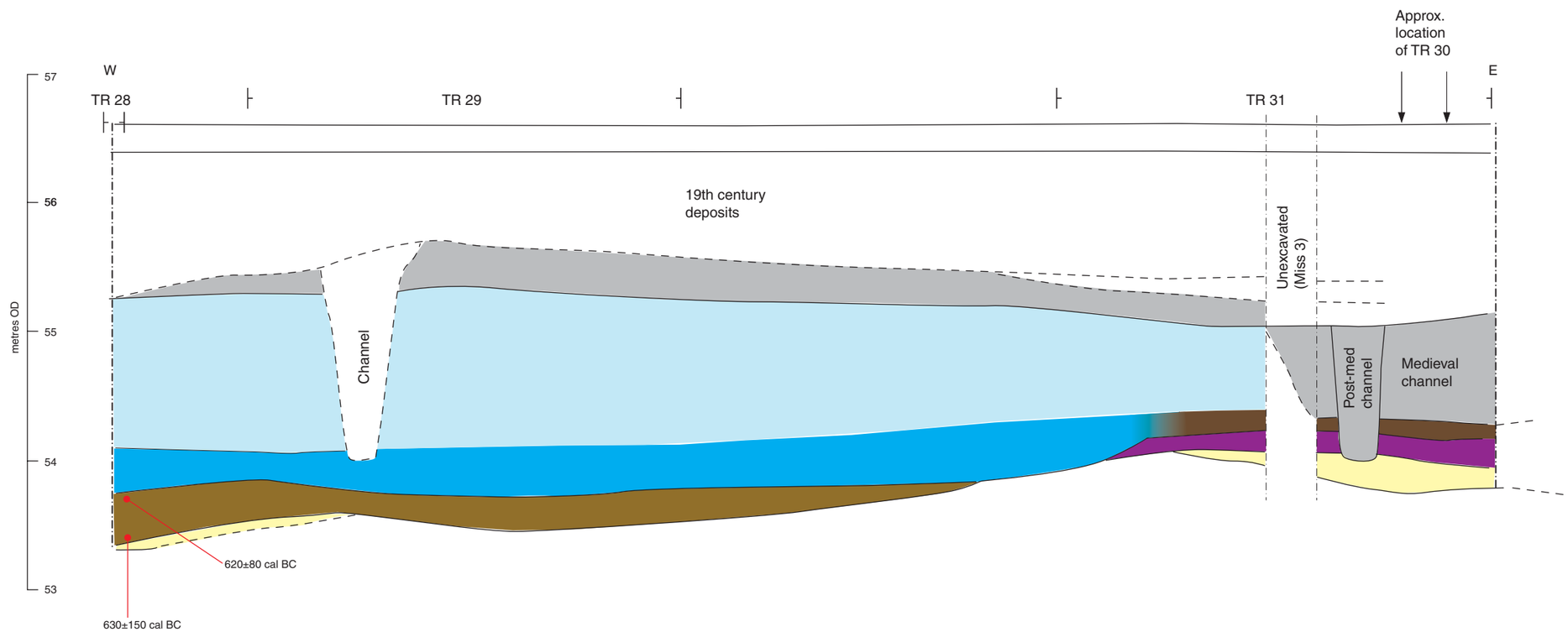
0 2 m

Vertical scale 1:40

KEY

- Fills of Late Devensian channel
- Iron Age organic
- Alluvium B
- Saxon ‘Reed Swamp Peat’
- Alluvium C
- Early medieval
- 12th-13th C land reclamation
- 12th-18th C formalisation of TMS
- 13th-15th C fills of TMS
- Post-medieval channels and soils

Figure 3: North-South Transect



KEY

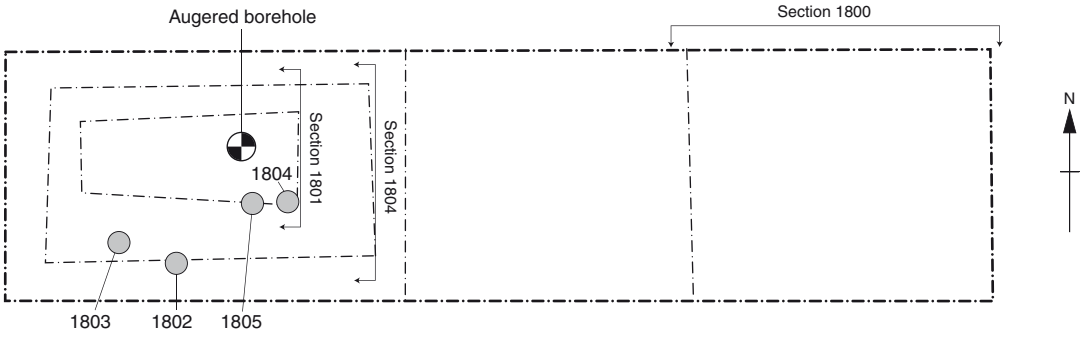
- Reworked gravels
- Possible buried ‘topsoil’
- Iron Age organic
- Alluvium B
- Saxon ‘Reed Swamp Peat’
- Alluvium C
- Early medieval

0 20 m
Horizontal scale 1:500

0 2 m
Vertical scale 1:40

Figure 4: West-East Transect

Plan 1800



Timber

0 2 m

1:50

Sections 1800, 1801 and 1804

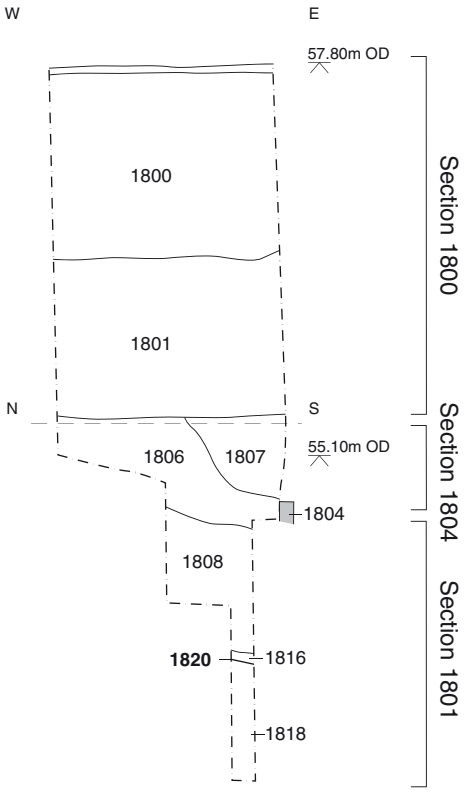
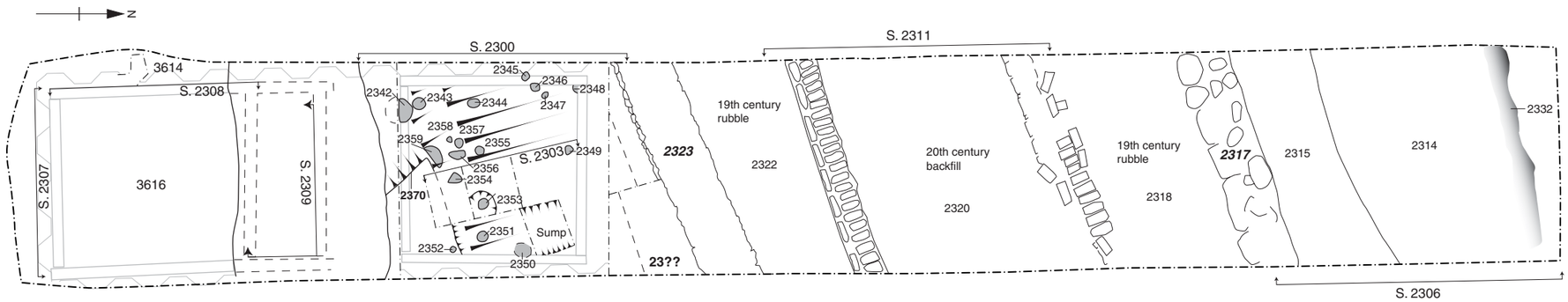


Figure 5: Trench 18, Plan and Sections

Trench 2302

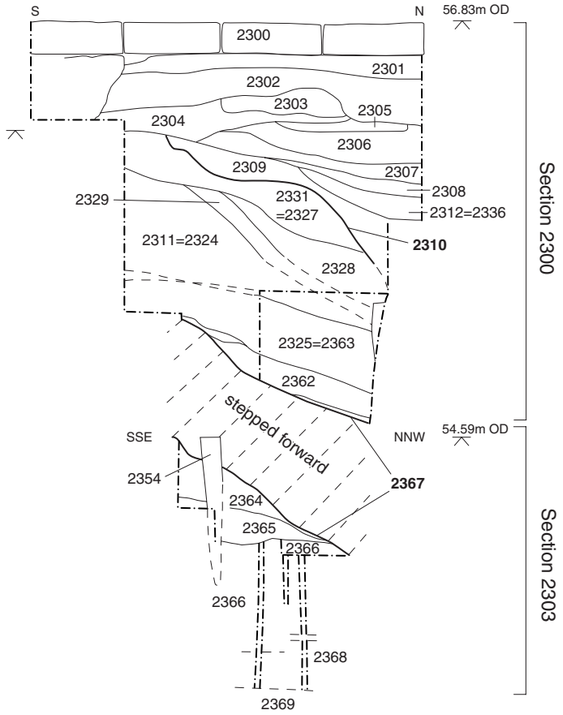


Timber

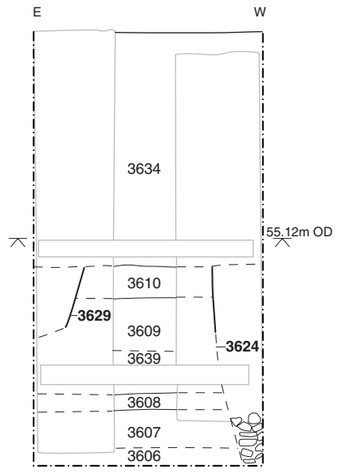
0 2 m

1:50

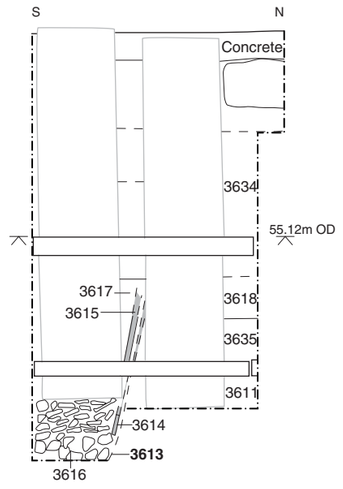
Section 2300 and 2303



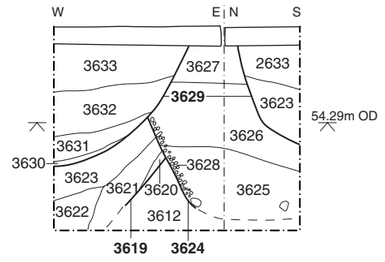
Section 2307



Section 2308



Section 2309



Section 2306

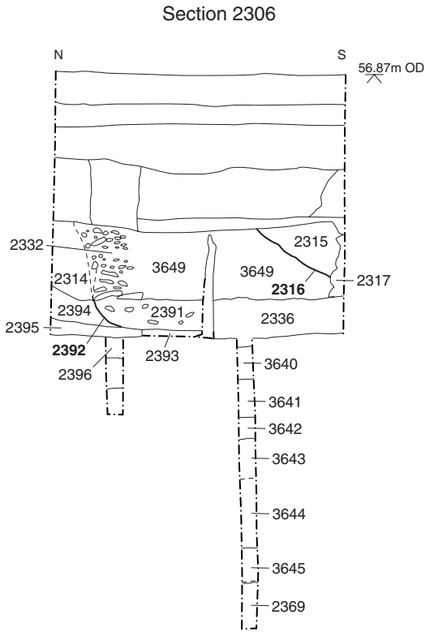
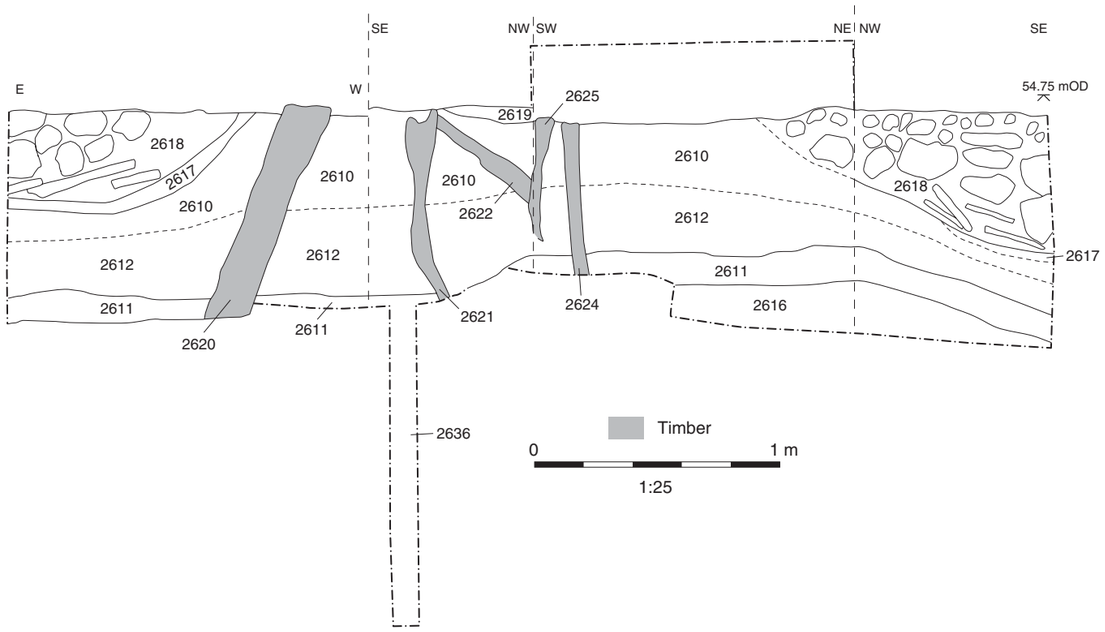
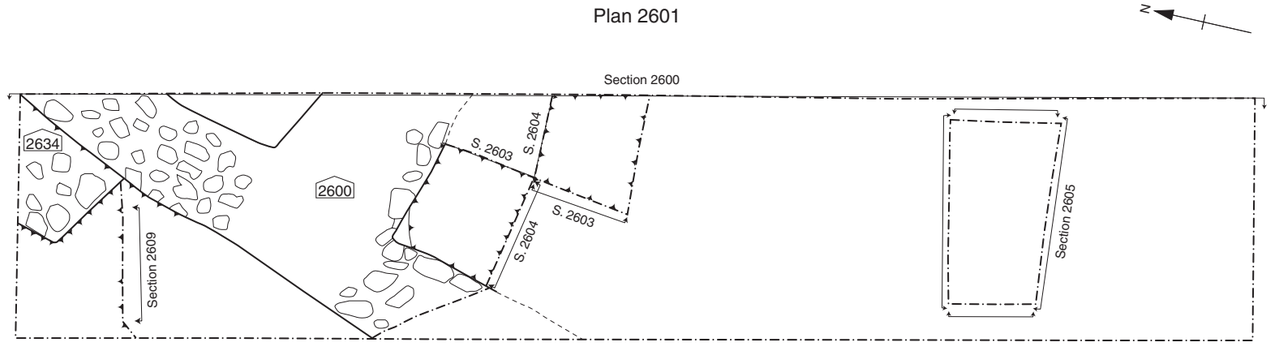


Fig 5a: Trench 23, Plan and Sections

Section 2605



Plan 2601



Section 2600

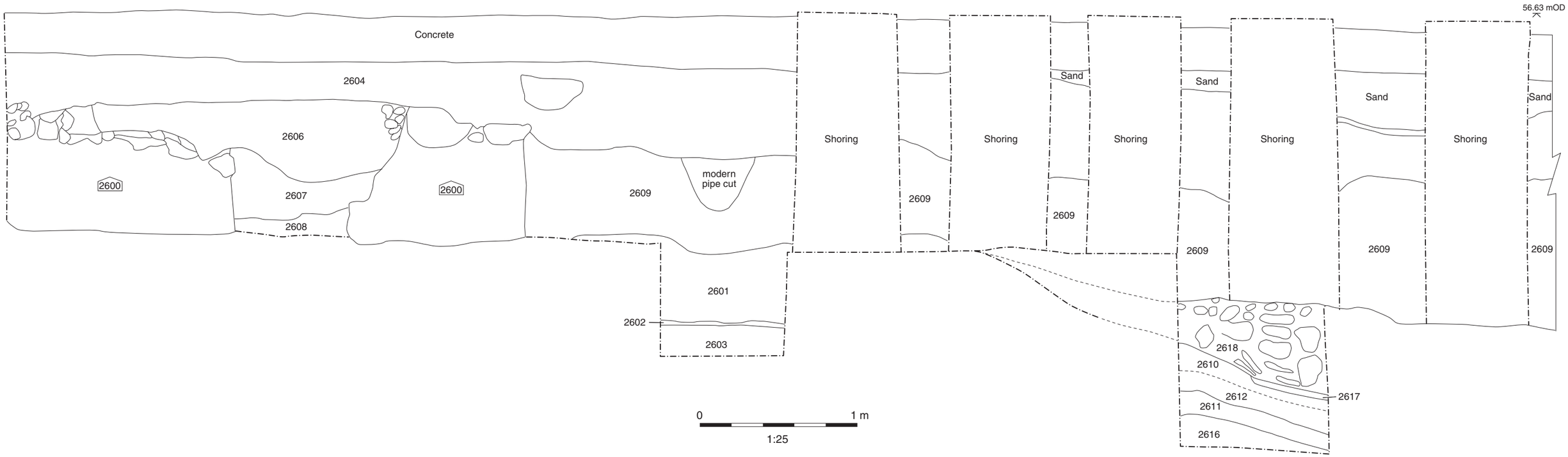
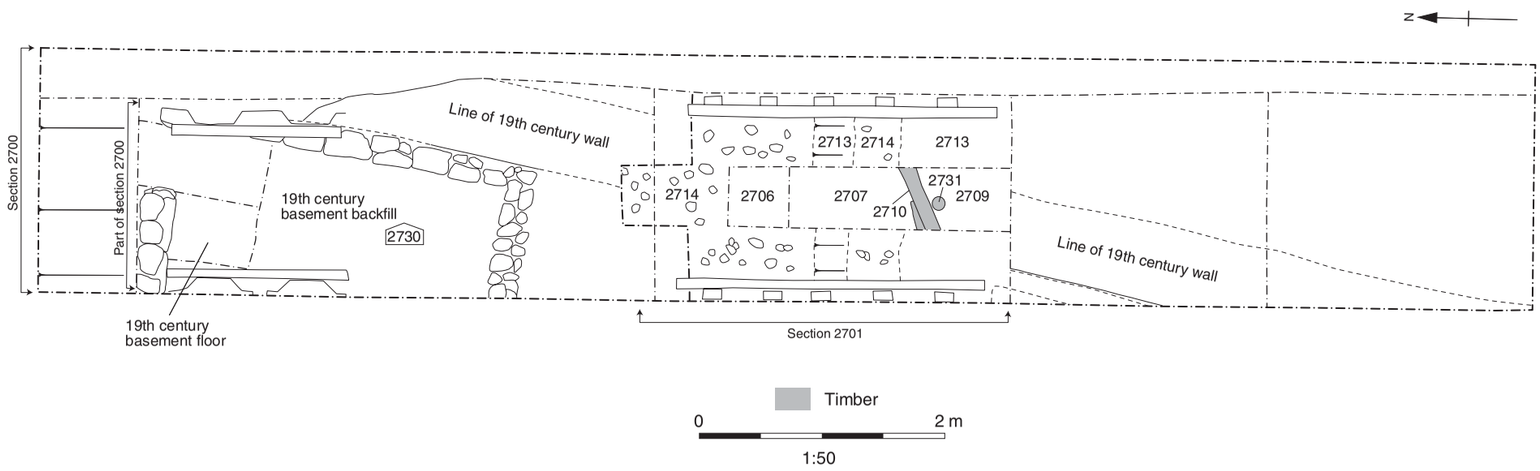
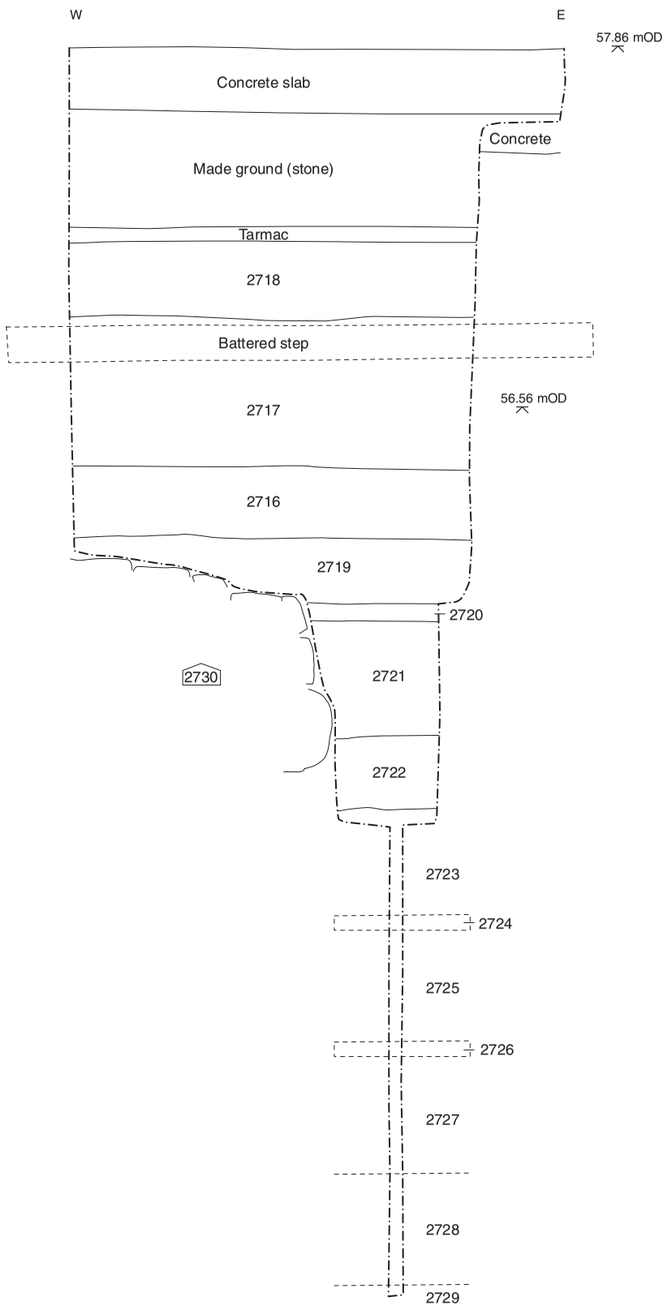


Figure 5b: Trench 26, Plan and Sections

Plan 2700



Section 2700



Section 2701

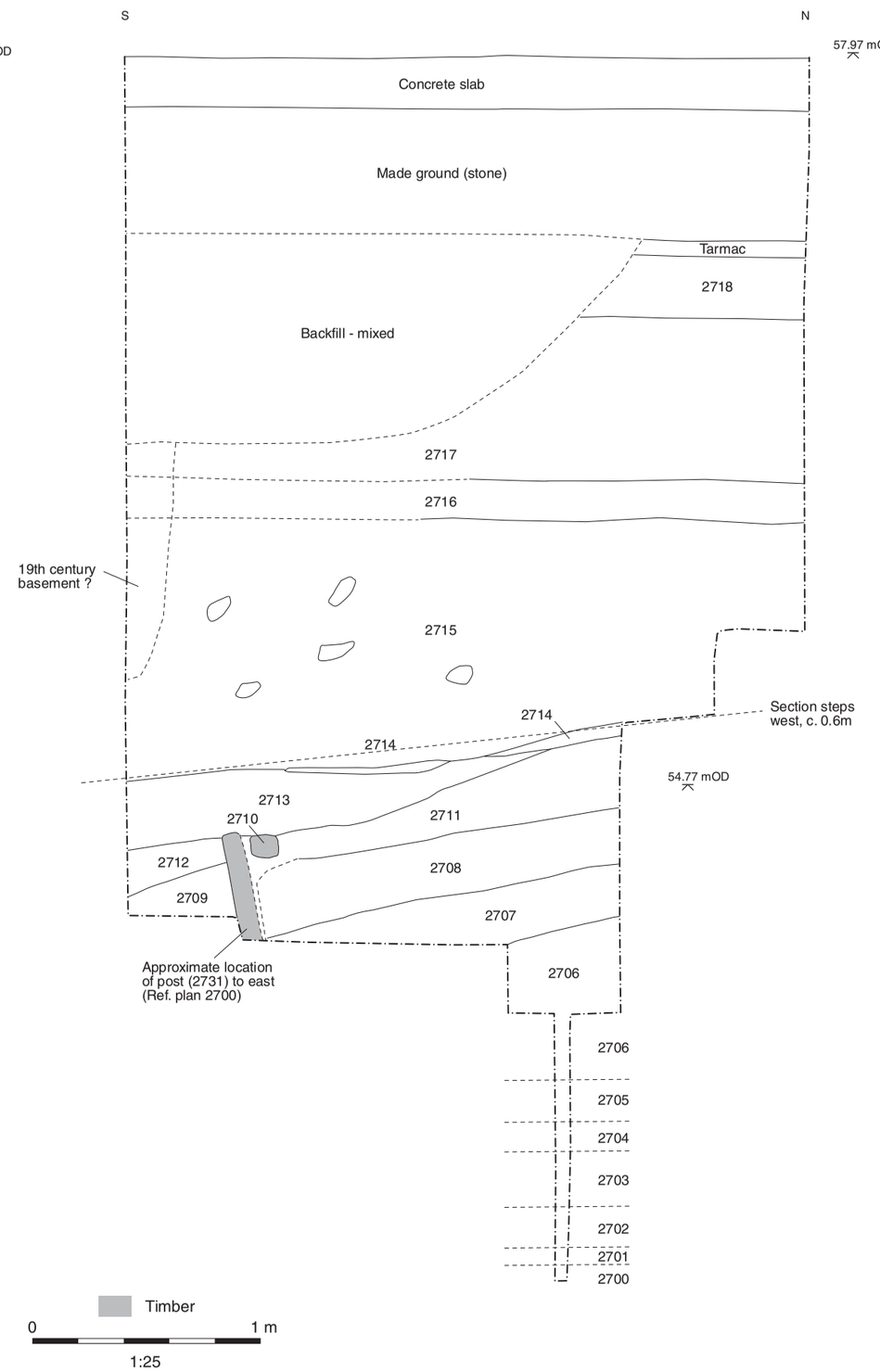


Figure 6a: Trench 27, Plan and Sections

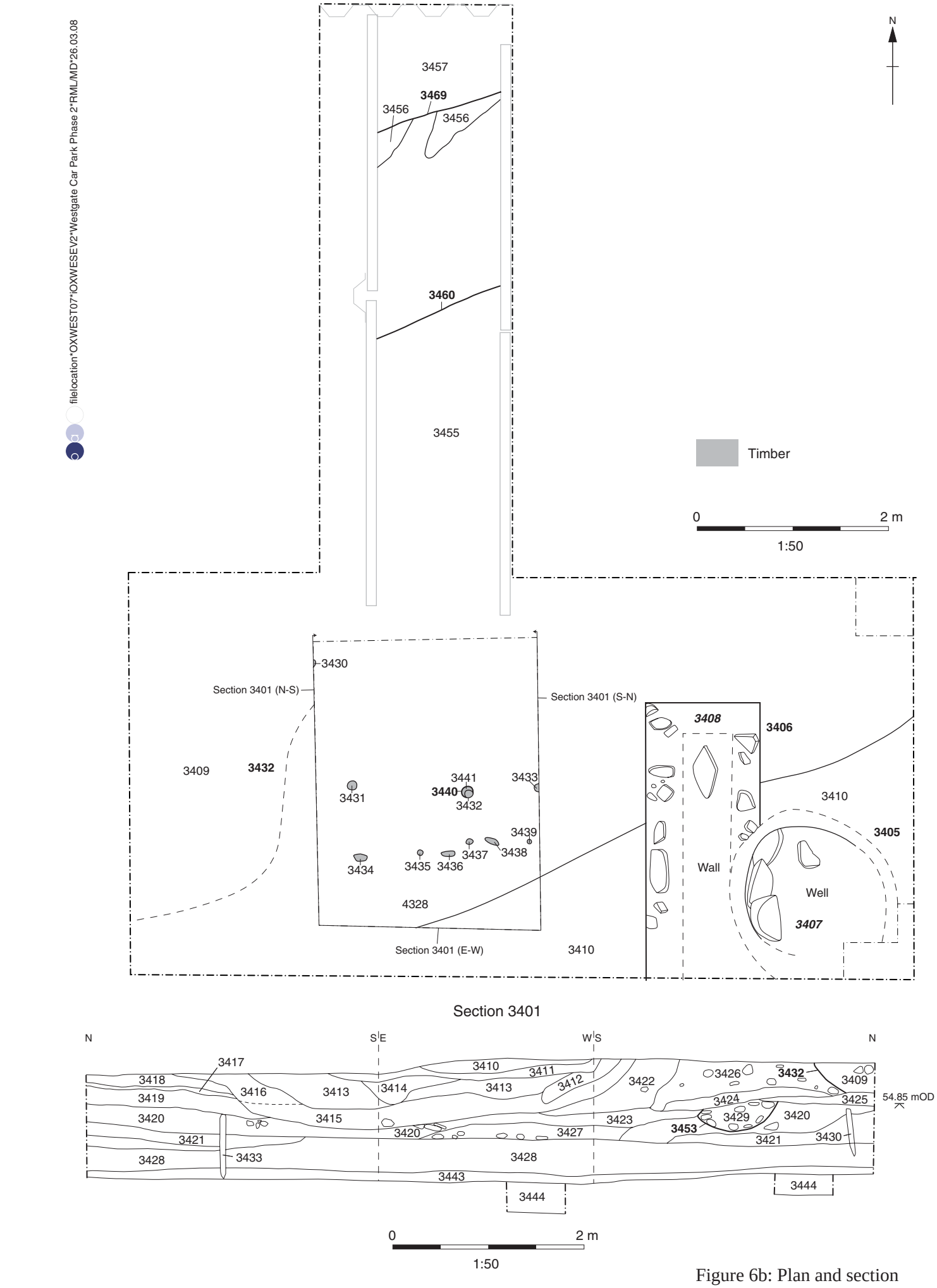


Figure 6b: Plan and section

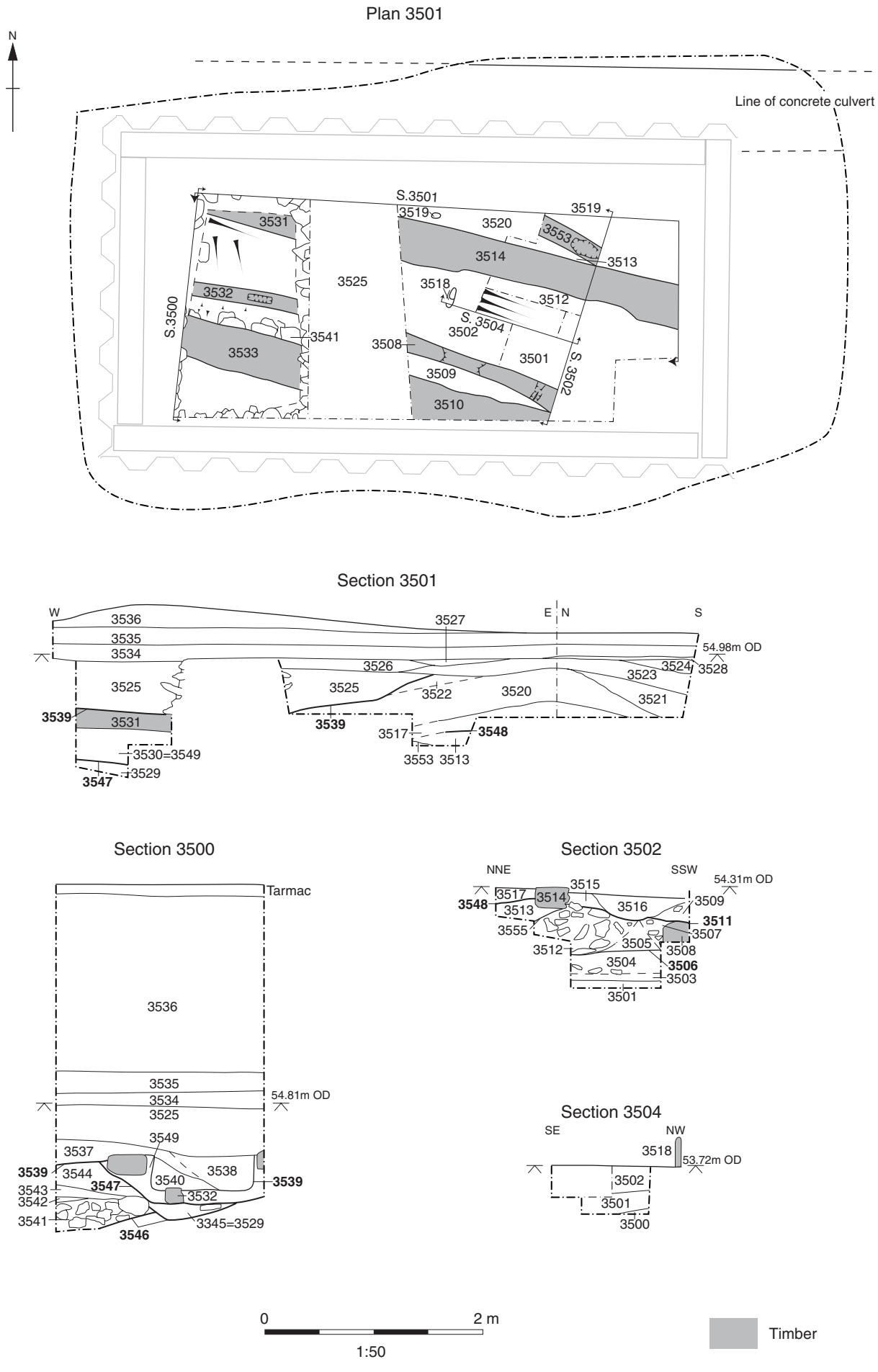


Figure 7: Plan and Sections

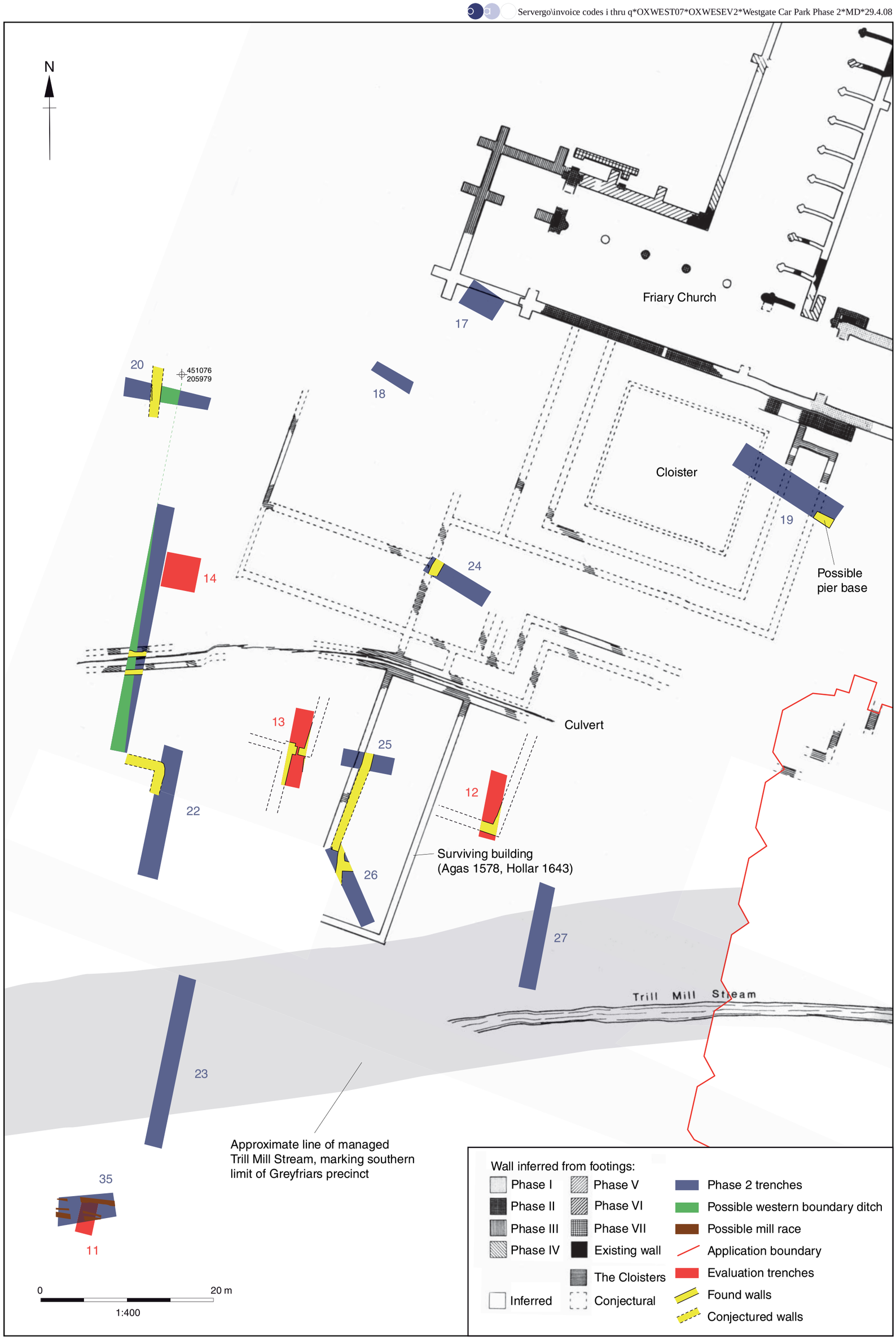


Figure 8: Greyfriars after Hassall 1989

Figure 9: Updated deposit model of gravel topography (Phase 1: Fig 16)

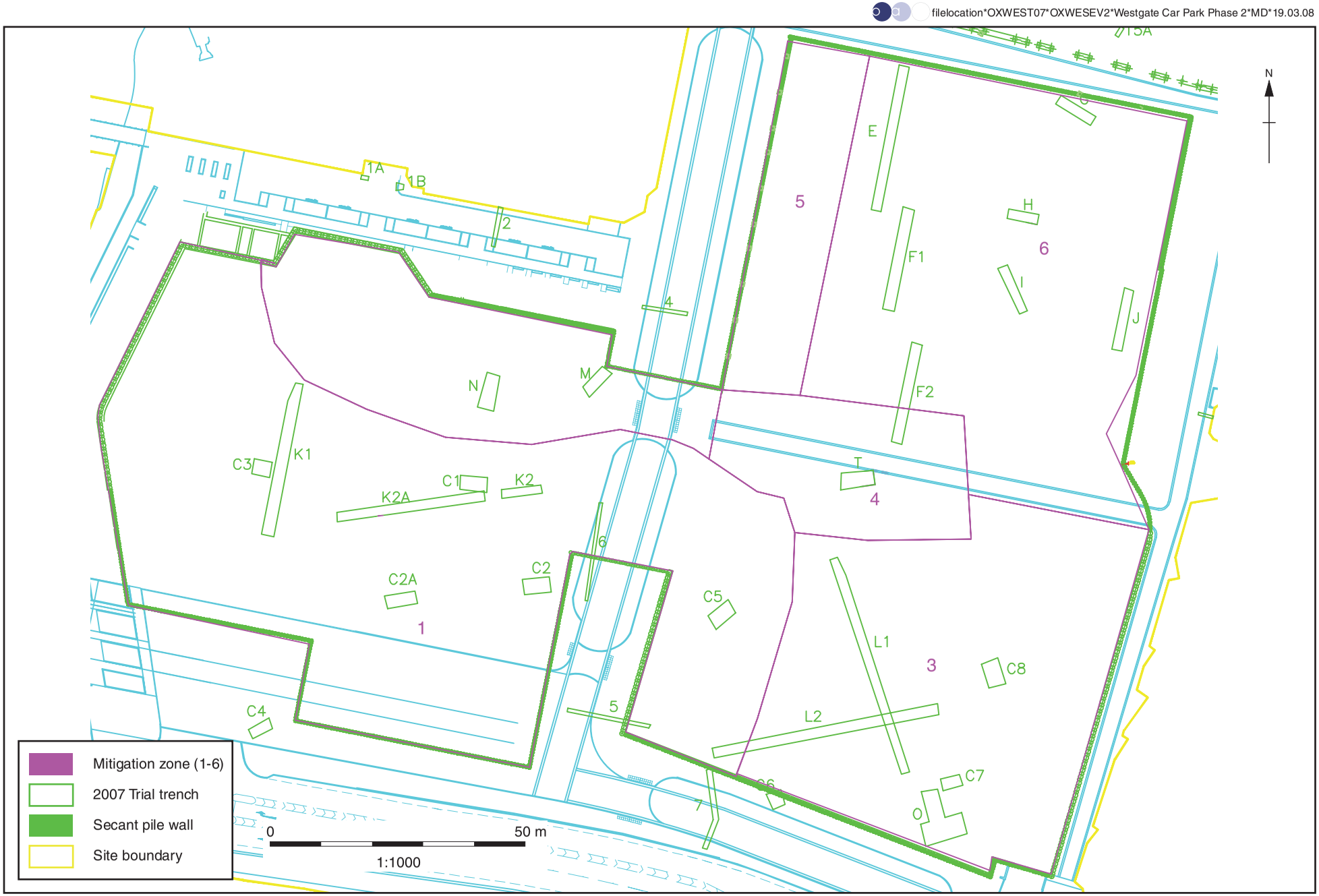


Figure 10: Mitigation zones 1-6; based on CGMS plan

Plate 1: Trench 23: 18thC canal walls and 19thC culvert, looking north

Plate 2: Trench 23: 19thC culvert, looking south west

Plate 3: ?1920's photograph of open section of culvert and ?canal walls

Plate 4: Trench 23: clay puddling and timber structure 2360, looking west

Plate 5: Trench 23: clay puddling and timber structure 2360, looking west

Plate 6: Trench 24: north-south aligned wall 2421, looking south

Plate 7: Trench 34: timbers, looking south west

Plate 8: Trench 35: timber structures 3550 and 3551, looking west

Plate 9: Trench 35: timber structure 3551 fully exposed, looking west

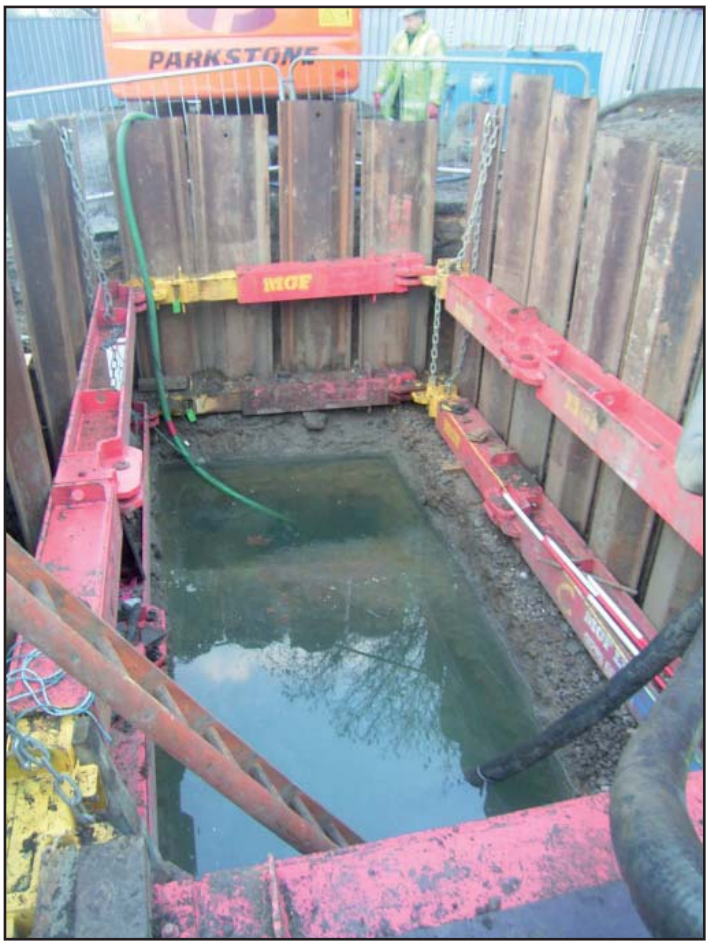


Plate 10: Trench 35: flooded

Head Office/Registered Office

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@thehumanjourney.net
w:http://thehumanjourney.net

OA North

Mill 3
Moor Lane
Lancaster LA1 1GF

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@thehumanjourney.net
w:http://thehumanjourney.net

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
f: +44 (0) 1223 850599
e: oaeast@thehumanjourney.net
w:http://thehumanjourney.net/oaeast

OA Méditerranée

115 Rue Merlot
ZAC La Louvade
34 130 Mauguio
France

t: +33 (0) 4.67.57.86.92
f: +33 (0) 4.67.42.65.93
e: oamed@oamed.fr
w: http://oamed.fr/

Director: David Jennings, BA MIFA FSA

Oxford Archaeological Unit is a Private Limited Company, N°: 1618597 and a Registered Charity, N°: 285627