Evaluation, building recording and watching brief at Warner Village Cinemas, 37-55 Friar Street, Worcester

Scheduled Ancient Monuments: Here and Worc 285f and 343d SMR references: HWCM 24905, WCM 100198 and WCM 100525

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Figure 1: Location of Site

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Part 1 Project summary

A programme of archaeological work was undertaken at the Warner Village Cinemas site, 37-55 Friar Street, Worcester (NGR SO 8518 5455) on behalf of Dawa (Worcester) Limited during the design and subsequent construction of a new cinema complex.

The development area included the multi-period site known as 'Sidbury' and the City Wall, both of which are scheduled ancient monuments. Evaluation was used to inform foundation design and largely ensure the *in situ* preservation of nationally important Roman, medieval and Civil War period deposits. Subsequently, during construction work, recording of an exposed section of the City Wall and excavation of selected pile bases were undertaken along with a watching brief covering all groundworks. The site had been the subject of a number of previous investigations undertaken in response to earlier development proposals and the results of these in conjunction with those from the current project have supported understanding of the development of this part of Worcester.

Although only limited areas were exposed, Roman deposits were consistent with those from previous investigations. The line of a major north-side ditch was confirmed and appears to have formed the western boundary of an area associated with timber structures and ironworking during the 1st and early 2nd century. The ditch was subsequently infilled and the area was subject to extensive dumping and levelling on several occasions. Through the 2nd and 3rd centuries a street ran diagonally across the south-western corner of the site, being replaced after each phase of dumping and levelling. To its north, pits and timber buildings were associated with several phases of yard surfacing. Dumped deposits, metalled surfaces and small structural features were recorded during the current project. However, the limited areas recorded and paucity of datable material precluded any refinement of the model of development for the area.

Two small timber buildings constructed on the street surface on the 'Sidbury' site indicated that it had fallen out of use, possibly by the late 3rd century to early 4th century. Subsequently a soil deposit developed across the site and this appears comparable to 'dark earth' deposits recorded elsewhere in Worcester. The recent work provided no further evidence of late Roman or sub-Roman activity, however, deposits interpreted as 'dark earth' were widely observed.

Late Saxon re-occupation was identified at 'Sidbury' indicating development along the street in the 10-11th century, in an area outside the burh defences. Further evidence of this development was recorded during the present project in the form of a cess pit and associated dump of worked stone. Further pits provided evidence of continued activity along the street during the 12-13th century, again supporting evidence from the 'Sidbury' site where boneworking and later bronzeworking were identified in three narrow tenements.

The most significant discovery was that of a significant, large early 14th century building set some distance back from the street frontage. This was evidently a property of some considerable importance, being stone-founded, with a tiled roof and most significantly a decorated tiled floor, a rare feature in domestic buildings of this period. It is suggested that this was a ground floor hall set within a broad tenement. This high status building in a broad

Part 2 Detailed report

1. Background

Reasons for the project

A programme of archaeological fieldwork was undertaken at the proposed site of the Warner Villages Cinema, 37 - 55 Friar Street, Worcester (Fig 1; NGR SO 8518 5455). The work was undertaken on behalf of the site developers, Dawa (Worcester) Ltd, and carried out intermittently between 1997 and 2000.

The work reported on here can be related to previous programmes of archaeological investigation in this area of the city, that began during the construction of City Walls Road and prior to earlier plans for redevelopment of the site (Fig 2: Darlington and Evans 1992, 8-10).

Trenches were excavated across the City Wall in 1959 (Shearer 1959) and in 1975 (Hirst 1980; Fig 2). In 1976-7 an open area excavation was undertaken in the southwest corner of the development site (Carver 1980; Darlington and Evans 1992). This excavation site, known as 'Sidbury', uncovered an important sequence of deposits dating between the Roman and post-medieval periods (Trenches A-E; Fig 2). The area of derelict land around the 'Sidbury' site was scheduled as an ancient monument in 1987 (Fig 2: Here and Worc 343d). From that date, proposals for redevelopment of the site have required scheduled monument consent.

A redevelopment scheme was proposed in 1988, and an evaluation was undertaken in order to examine the extent and depth of archaeological deposits beyond the excavated area: four trenches were excavated (Fig 2: Darlington 1988 Trenches 1-4; Darlington and Evans 1992). This evaluation showed that significant archaeological deposits extended across the area, and identified the depth of non-significant deposits. English Heritage advice from this date promoted construction methods that would ensure preservation of important archaeological deposits in situ.

The development proposed in the 1980s was not built, and in 1997 a new development proposal for a multiplex cinema was submitted, which included land to the north of the original development site. The new development site (Fig 2) comprised the whole of a scheduled ancient monument (Here and Worc 343d), a new area to the north, and a short stretch of the medieval city wall, also a scheduled ancient monument (Here and Worc 285f). The new development was designed with a construction method using extensive piling to ensure that significant archaeological deposits were largely preserved *in situ*.

To provide further information to facilitate the design process and proper treatment of archaeological deposits, a brief for further field evaluation was produced (Worcester City Council 1997). This required assessment of all the known archaeological information in the light of the new development proposals and investigation of the new area to the north of the scheduled ancient monument. To this effect five trenches were excavated in August 1997 (Fig 3: Trenches 1-5) and the resulting evaluation report demonstrated that Roman and medieval deposits extended across the entire development area (Napthan *et al* 1997).

A certain loss of archaeological deposits was deemed acceptable by English Heritage, and this advice framed the assessment of the impact of the piling (Napthan *et al* 1997, 17-22, fig 14). However two areas of particular concern were identified, where it seemed likely that piling would have an adverse affect on important archaeological deposits. In the light of these areas of concern, English Heritage requested a further stage of field evaluation to determine:

• the thickness of the masonry of the city wall and the medieval bank to its west

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 enable the impact of the proposed foundations on medieval structural remains to be fully assessed.

The aims of the 1999 fieldwork were to:

- record archaeological deposits and artefacts revealed during the drilling of boreholes as part of engineering survey work;
- undertake further investigative work in the area to the west of the surviving medieval masonry wall to inform the location of ramps;
- undertake further investigation work in the area to the rear of 37 Friar Street to inform the location of piles relating to a glass covered passage;
- carry out a photographic and drawn record of the masonry City Wall before and after enhancement work;
- record any archaeological deposits revealed during groundworks (ground-reduction works, pile construction, and excavation of new services).

2. Methods

2.1 Documentary search (Pat Hughes)

The primary sources used for this study come from two main deposits, first, the documents associated with Worcester Cathedral and second, the Worcester City Records. The Cathedral documents are spread between three locations; the earliest, medieval deeds, rent rolls and court rolls are lodged in the Cathedral Library. In the 19th century when the Ecclesiastical Commissioners took over much of the administration of the property, documents thought to be useful, mostly late 18th and 19th century records, were removed to the Commissioners' offices in London. Many of these were returned in the 1950s, leaving only the late 19th and 20th century records in London, but, instead of going back to the Cathedral, these returned records were deposited in the Worcestershire Record Office.

The Worcester City Archives are also now stored in Worcestershire Record Office. Apart from one or two exceptions, there is nothing relating to the years before 1540, but a large quantity of records, corporation minutes, rent rolls, deeds and account books cover the years from the 16th century to the present day. The records of the historic property belonging to the city have been augmented over time by the addition of documents relating to sites acquired for slum clearance or for road widening. Years of trawling through these records have provided the background against which this research is placed.

In addition to these primary sources, street directories have been studied to provide a list of later occupants and, wherever possible, maps have been used to provide a context for the documentation.

2.2 Fieldwork

2.2.1 Fieldwork strategy

Evaluation trenches (1997)

Five trenches were excavated across the development area. These were numbered Trenches 1-5. The methods used in this evaluation are described in Napthan *et al* 1997.

- Install temporary casing (5m long, 530mm diameter).
- Continue boring until required pile depth is reached.
- Install permanent casing (4m long, 450mm diameter).
- Fill casing with concrete to form pile.
- Withdraw temporary (outer) casing.

The watching brief on the piling operation was undertaken between 29 July and 3 September 1999. The augur bored pile holes in c 0.60m lengths, and the spoil from each length was spun off. The loose nature of the archaeological deposits meant that they became mixed on the auger screw.

The temporary cases were installed in each bored hole, but problems were encountered with removing the temporary casings once the pile was constructed, as there was adhesion between the outer temporary casing and the inner permanent casing. The contractors therefore proposed using 600mm diameter temporary cases, requiring a wider diameter bored hole and therefore greater impact on buried archaeological deposits. A compromise was reached following discussions with English Heritage: temporary sleeves 565mm diameter and 6m long were approved for use instead of the 530mm diameter casings previously approved.

A further problem was encountered with the stability of natural deposits, and the piling procedure was changed. The use of permanent sleeves was abandoned, which meant that the protection these afforded to archaeological deposits was lost.

Where possible, records were made of pile spoil as work proceeded (Appendix 5). The spoil spun off the auger was too mixed for useful information to be recorded on stratigraphy, although some information was collected on the character of the underlying geology. In addition some artefacts were recovered from the spoil.

Other groundworks

Two trenches were recorded within the development area during insertion of drainage runs (Fig 3: Trenches 14 and 15). Immediately beyond the development area, in Friar Street and City Walls Road, further groundworks included service trenches to connect to main services in City Walls Road and Friar Street. In Friar Street, two lengths of sewer trenches were recorded (Fig 3: Trench 17; and Trenches 18 and 19) while in City Walls Road, observation of a further sewer trench was undertaken (Fig 3: Trench 20).

Lastly, it became necessary to remove a substantial petrol storage tank during construction work in September 1999, which allowed limited recording (Fig 3: Trench 21). The pit for the storage tank had been cut through up to 2.5m of mid-brown silt loam (identified as archaeological deposits) overlying mid reddish-brown to grey-green silty clay. Within the circumstances (time and Health and Safety) of the project there was no scope to clean and record the stratigraphy in detail in this case.

2.2.2 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural, artefactual and ecofactual evidence, allied to the information derived from other sources. All site drawings were digitised.

The development site was divided into three 'areas', Areas 1, 2 and 3 to facilitate discussion (Fig 3). Area 1 covers the historic land plot which fronts onto what is now Friar Street (number 37) and runs along the whole of the northern side of the development area to its eastern limit on the City Wall. This incorporates Trenches 1, 2, 5, 11 and 14. A fifth trench

2.4.2 Processing and analysis

The samples were processed by flotation followed by wet-sieving using a Siraf tank. The flot was collected on a $300\mu m$ sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds.

The residues were fully sorted by eye and the abundance of each category of environmental remains estimated. The flots were fully sorted using a low power EMT stereo light microscope and remains identified using modern reference collections housed at the County Archaeological Service.

2.5 **Building recording**

Recording of the elevation of the City Wall conformed to the specification for a Level 3 Survey as defined by the Royal Commission on the Historic Monuments of England (RCHME 1996) and to the *Standard and Guidance for the recording of standing buildings or structures* (IFA 1999).

Separate stages of construction were identified as 'elements', utilising different materials and construction methods (Section 5.2). These were grouped into phases, largely in relation to historical research on the city defences. These have been tied into the overall site periods.

2.6 The methods in retrospect

Having undertaken the project the following comments may be made with regard to the methods adopted.

Evaluation trenches

The evaluation trench perpendicular to the City Wall (Fig 2: Trench 12) was designed to investigate the medieval bank behind the City Wall and determine the relationship between the wall and bank. This research goal was fulfilled. Trench 13 was placed at right angles across the eastern end of Trench 12 and parallel to the City Wall to investigate the area of a proposed ramp and ensure that significant deposits relating to the wall were not disturbed. This aim was fulfilled.

Trenches 11 and 14 were placed primarily to determine the extent of known or suspected buried structures, in order to ensure that such remains were preserved *in situ* beneath the new building. This aim was successfully achieved. However the precise location of buried structures was crucial, and as changes were made to the scheme in 1998-9 it was necessary to undertake further fieldwork to extend knowledge of the extent of significant deposits.

This approach has resulted in a rather piecemeal investigation of deposits in small and often adjacent trenches. This has inevitably restricted the effectiveness of stratigraphic recording due to the very limited areas observed at any one time. This in turn has reduced the potential for post-excavation analysis and in particular the opportunity to interpret the deposits excavated and disturbed by the development. Potentially this approach has led to inadvertent damage to deposits which might otherwise have been effectively preserved *in situ* or by record, whilst limiting the opportunity for developing a fuller understanding of the character and sequence of former activity in this part of the city.

Hindsight therefore indicates that it would have been preferable to obtain a more complete understanding of the extent of suspected important buried structures as early as possible. Consequently, it is observed that the excavation to the top of significant deposits across a wider area would have better served the recording and preservation of archaeological remains, as well as accommodating any subsequent and unforseen changes in foundation design or service runs. 19m AOD. This sequence of dumped deposits was a notable characteristic of the 'Sidbury' site, and occurred from the 2nd century onwards. This dumping was interpreted as a response to flooding from the Frog Brook through the Roman period (Darlington and Evans 1992, 94). No alluvial clays were identified which might have derived from flooding episodes, but these were presumably removed during episodes of site clearance. The identification of large quantities of dumped material does suggest that some caution needs to be applied to the site phasing, and to the interpretation of function of the site through time based on artefactual evidence. If most of the artefact assemblage is derived from dumps of material brought onto the site, then this material is not strictly relevant to interpreting the 'Sidbury' site itself.

There is good evidence for flooding in this general area of Worcester. The area to the east of the City Wall forms part of the floodplain of the River Severn, and up to the 19th century was subject to flooding from below when the Severn overtopped its banks (Morris 1974). The area was drained by a stream (the Frog Brook) in the historic period, although this was diverted into the city ditch from the medieval period. Borehole data from the valley of the Frog Brook showed that the valley contains alluvial clays up to 2m thick, although these are considerably thinner at the edges of the flood plain (Morris 1974).

Further evidence of flooding was deduced from deposits recorded in the trench excavated by Hirst in 1975 (Fig 2). A 0.30m thick layer of dark sandy loam with a high humus content was recorded, which contained Roman pottery as well as a small quantity of medieval pottery (Hirst 1980, 88-89, fig 27). The deposit was interpreted as the result of a build-up in marshy conditions over a long period, starting in the Roman period. The top of this horizon was at 17.80m AOD.

Further dumping of material (up to 0.50m thick) on top of the iron slag road was followed by construction of a new pebble and slag trackway with an associated fenced enclosure and a trench containing a waterpipe (Darlington and Evans 1992, fig 13: phase 6.2). Two other waterpipes in trenches were recorded on similar alignments (Darlington and Evans 1992, fig 14: phase 6.3). The evidence for a fairly elaborate water supply, including timber pipes with iron joining collars laid in trenches can be paralleled with a number of Roman towns. There is no reason to suppose that these waterpipes were laid in order to provide a water supply to buildings. Two small timber buildings at 'Sidbury' were constructed on top of the 3rd century road surface on a different alignment (Darlington and Evans 1992, fig 14, phase 6.3), which indicates that the road had gone out of use. The buildings were assigned to a phase 6.3 (dated to the late 3rd to early 4th century); although Carver suggested that the buildings were probably not post-Roman (Carver 1980, 165: period IX), the alignment could also be taken to indicate a Late Saxon date (Carver 1980, 175).

3.1.2 Late Roman/post Roman occupation

The evidence for late Roman and post-Roman occupation is problematic. The artefact assemblage from 'Sidbury' provided no evidence for occupation of the area after the early 4th century, although this is not the pattern for Worcester as a whole (Darlington and Evans 1992, 99).

A 0.30m-thick deposit of 'green loam' covered earlier deposits, and was dated to the late 3rd century (Darlington and Evans 1992, 30: phase 7). The date given to this deposit is its *terminus post quem* and it may be post-Roman in date. The layer was variously interpreted as either a flood deposit, a deliberate dump of material to raise the ground level (as in earlier phases), or a thick build-up of mud over earlier gravel surfaces analogous to a 'dark earth' deposit (Darlington and Evans 1992, 94). The site report favoured the latter interpretation, and it seems reasonable to hold to this interpretation until the opportunity arises to examine such soil horizons in detail.

There has been speculation about the line of the Anglo-Saxon burh defences for some time, but the current interpretation is that the development area lies outside the area enclosed by the

3.2 Historical development (Pat Hughes)

3.2.1 The street and its problems

The site under discussion is on the boundary of the old junction between Friar Street and Lich Street and perhaps the most formidable part of this project has been the location and identification of the various properties in the street. From the 13th century until 1969, Sidbury, the route out of Worcester to the south, had comprised the whole of the street that ran from the bottom of Lich Street as far as the Sidbury gate of the city. Beyond the gate, Sidbury 'extra muros' continued as far as the Tewkesbury road. This, in present day terms, covers the area first from the exit from the Lichgate car park as far as the canal, and then on to the Bath Road turning. Now the upper end of this street has been re-named as part of Friar Street and the only traces of the historic division are two areas of black paint on the houses opposite the car park, which once carried the names of the two streets.

More than most areas of the town, Sidbury has suffered at the hands of developers and improvers. In the 12th century the north-east end of the street ran alongside the cathedral churchyard. The plots backing on to the cemetery were laid out and developed for the benefit of the Priory officials, and, as the 14th century progressed, the backs of these plots were built up and extended to create the lane now called College Precincts, although then the houses were regarded as part of Sidbury. Other religious bodies also held land in the street and these included the Abbot of Pershore and particularly the Hospital of St. Wulstan, the Commandery, which had scattered houses inside the city in addition to its considerable lands outside the gate.

For centuries all the traffic for London had to travel down Lich Street and negotiate the sharp right turn at the bottom of the hill into Sidbury, before queuing up to pass under the city gate. By the middle of the 18th century this was unacceptable and Sidbury gate was removed, but this did not solve the traffic problem for long. At the end of the 18th century negotiations were started to build a new road from the corner of Edgar Street, taking out several houses on the west of Sidbury and driving diagonally across the back of College Precincts to the top of the High Street. Progress was slow, but the road appears to have been completed about 1802. The new road cut out Lich Street, which, with the upper part of Sidbury, then declined into a backwater, slipping down the social scale. The fact that the ancient inn, the Cardinal's Hat, opposite the end of Lich Street, was forced to close for some years about 1814, was a symptom of this decline.

If it is difficult to envisage the west side of Sidbury before College Street was cut through, it is even harder to recreate the Sidbury of the first part of the 20th century. The first problem is the house numbers. Traditionally, Sidbury was numbered consecutively from the Commandery, along the east side as far as Lich Street and back along the west side. In 1910, this was changed and, like many other streets in the City, it was numbered 'odds and evens' from the city end southward, creating considerable problems of correlating plots and occupants.

The problem is compounded by later developments. In the 1960s the building of the multistorey car park on the site of Lich Street meant that the north-west side of the Sidbury was remodelled and this was accompanied by drastic road widening which destroyed the historic houses between Edgar Street and St. Peter's Street. All this was just a prelude for the building of the City Walls Road, which cut a great swathe through the east side of the street and upset the numbering once again. The situation was rationalised by adding the north end of the street to Friar Street and re-numbering the properties as part of Friar Street. Numbers 15 to 29 Sidbury, which had somehow survived all the previous upheaval were then gradually pulled down. Small wonder that identification of property in the Friar Street/Sidbury area is complicated and time-consuming! dangerous to try to locate property from leases at this early date, and a great deal of information about the later records of the various properties is necessary before such an attempt can be made. In the case of the Priory property in Sidbury there are enough markers to justify the attempt and it is possible to identify and assemble the plots in an arrangement that fits the known facts and provides a plausible explanation of the way the properties were distributed (Fig 5).

The first factor is the large piece of open land or garden, which, for centuries, lay behind the street frontage along the city wall. This can be traced through plans and deeds as late as the nineteenth century and is identifiable as early as 1306, when it was transferred from Edith, widow of Simon Geoffrei, to Richard le Mercer. It was then described as 'a plot of land between the wall of the city of Worcester and the grange which belonged to Simon le Belyetere in the lane called Sougburi' (W Cath Lib Lease B 1555). This plot adjoined a property already belonging to Richard le Mercer, which reached from the street to the city wall, and lay between the grange, which Richard had purchased from the Belyetere family, and a property belonging to Philip de Wynte (W Cath Lib Leases B 1543, B 1551 and B 1571). Richard le Mercer also leased another plot on the other side of the road between Alice de and William Milssop, which according to a later lease was near the 'Knolle' on the northeast corner of Edgar Street (W Cath Lib Leases B 1544 and Register A 6 [II] f65v).

It is likely that Richard le Mercer's property corresponds with 33 to 37 Friar Street. It is known that these three adjacent plots were part of the holdings of the medieval Priory and were still in the hands of the Dean and Chapter in the nineteenth century. This would place Philip de Wynte at the Cardinal's Hat. Many times re-built, but still functioning to-day, the inn can be traced back to 1497 when it is mentioned in the City Ordinances as a location for fire buckets, but is probably considerably older.

The grange of Simon le Belyetere corresponds to the present 39 Friar Street – 21 Sidbury. In the early part of the 14^{th} century this whole patch seems to have been part of Richard le Mercer's holding, but it does not seem to have belonged to the Priory. Subsequently it, like the Almoner's property on the other side of the street, was redeveloped and divided into the plots visible on the 1880s OS map (Fig 6), and later records, available for certain of the houses on the site, imply that it was freehold land (eg WRO BA 2311, 2342; WRO Guildhall Archives Cab 15 [St Peters] Box 32).

At the south end of the grange and the garden behind were another three properties belonging to the Priory, at 36 - 34 Sidbury. Part of this property stretched back to the wall and part adjoined the garden (W Cath Lib Lease B 1571). Beyond this plot and defining the southern edge of this group of properties was a plot, the present 31 Sidbury, belonging to the Hospital of St. Wulstan, the Commandery. The Hospital owned a number of properties in Sidbury. This one can be identified since it passed to the Wylde family at the Reformation and features in the abuttals for 16^{th} and 17^{th} century deeds for number 33 (W Cath Lib Lease B 1536).

3.2.4 The evidence for 37 Friar Street (otherwise 3 or 43 Sidbury)

By the time of the Reformation, when the lands that had been the Priory property were transferred to the newly established cathedral chapter, Richard le Mercer's property at 33 –37, Friar Street had been divided into two houses, 33-35 and 37 (Note: In addition to the individual leases for the Cathedral properties, the Priory registers – which contain some cope leases – have also been searched for evidence for this part of Sidbury. No records have been found). According to a rent roll, made for the Dean and Chapter in 1555/6, the house nearest the Cardinal's Hat (nos 33-35) was in the hands of John Cowell who sublet it, while Edmund Packer, 'corser' or shoemaker, lived and worked in the other dwelling (no 37; WRO 899:81 BA 4893/7 – taken from a transcript of a document held in Canterbury Cathedral Library, thus spelling of all names cannot be wholly relied on).

The inventory of Packer's goods, taken for probate purposes in 1560, indicates that he had a hall, and a parlour on the ground floor, with a retail shop at the front where he made and sold

The greate chamber

Itm a table borde ii trestylls a forme a carpet	xviiid
Itm paynted clothes a closse stole	iiiid
Itm ij standynge bedds and a fether bedd	
ij bolsters and pyllows ij coveryngs	xs
Itm v shets iij meteclothes iij napkyns a towell	
A cradyll iij pyllows beares	iijs iiijd
The chamber ov[er] the shopp	
Itm ij standynge bedstydds	
Itm upon one of them a flock bedd a bolster	iijs iiijd
Blanket a paire of shetes & a cov[er]lette	
The lityll chamber	
Itm a bedstyde and thre curtens of buckeram	ijs
Itm vij fotte of glasse	ijs
The S[er]vands chamber	·
Itm iij bedstydes a flocke bed a mattres	
one bolster ij coveryngs iij shetes one cheste	iijs vid
one cofer	
His raymente	
Itm a gowne a coate a paire of hose	viijs
Itm one borde to make a presse	ijd
Itm a turkie henne and iij chyckyns	ijs iiijd
S[um]ma totalis	vli xiid

The house, by then in the tenancy of Thomas Lacon, was described in the Parliamentary Survey of 1649 as having:

a hall, kitchen, parlour wainscote, a workhowse for a loome, a celler, 2 lodging chambers with a closett and a wool chamber, 2 toplofts, a little yard by the side of the house'.

Apart from the cellar and toplofts – and the toplofts may equate with the servants chamber – this seems essentially the same house that Edmund Packer lived in.

The next tenant of number 37, about whom anything is known, was John Chetle, who inhabited the house when the Poll Tax was collected, in 1660. Like Edmund Packer, he left a probate inventory, listing a 'forestreete chamber', and a 'lower forestreete Rome' in place of the front shop, a hall with a large chamber over it, a kitchen with chamber over and a workshop, with loom, and a storage chamber, with beds, above. Two toplofts, one over the workshop and one over the middle chamber, and a cellar, complete the accommodation. In addition Chetle had a stable, a sow and five pigs and poultry in his yard.

The Chetle family, who ultimately worked as saddlers, retained the property until the 1750s, although they may have let to sub-tenants in the later period. During that time there is no indication that the premises were rebuilt or even re-fronted. It is therefore a reasonable supposition that the 16^{th} century house survived more or less intact until after that date.

One interesting feature which appears on the 1884 OS map (Fig 6) is the change in the line of the wall at the end of the garden. Richard Broad's map of 1768 (Fig 7) shows that a summer

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was 'late in the tenure of William Person, baker' (W Cath Lib B 1514). It seems likely that the Talbot, on a restricted site backing on to the cathedral cemetery, was in need of extra space. Such a thriving inn, on the main road from London and the south, would have required extensive stabling, and, in fact, we know that, at a later date, the whole of the back premises of the Talbot were taken up with stables. It seems, therefore, that Richard Folliott, in taking over the inn, decided to take over additional garden space.

Nowhere is it spelled out how the garden was used, but some informed guesses can be made. It is, of course, likely that it was used for growing foodstuffs, and the garlic and onions, stored in the upper chamber and recorded in Richard Folliot's probate inventory in 1593 (WRO Probate 1592/8 Roger Folliot), are confirmation of this, but it is also likely that the plot was used as a pleasure garden.

It is clear that *al fresco* eating was generally popular in the 16th century. Gardener's Labyrinth', by Thomas Hill published in 1577, contains an engraving of three men eating at a table in the garden (Fig 10). In Shakespeare's Henry IV, Judge Shallow calls to Falstaff and his friends:

'Nay, you shall see mine orchard, where, in an arbour, we will eat a dish of last year's pippins of my own grafting, with a dish of carraways, and so forth ...' (Henry IV part II, Act V scene III).

The importance of the arbour in 16^{th} and 17^{th} century gardens is underlined by an entry made in 1626, in the city account book for Worcester, which reads 'Paied for reparacons done at the Towne Hall and the garden there iii li viis id'. This is followed the next year by an entry for 'a bundell of Rodds for the Arber'. At a similar date a gardener was employed by the Corporation to keep the garden tidy (WRO Guildhall Archives A10 City Accounts 1623 – 1660 ff 41, 54 and ff 6v, $18v \ et \ passim$).

It is likely that an arbour type structure occupied the angle between the boundary with 37 Friar Street and the City Wall, where an irregular row of postholes in the corner of the garden site (Trench 12) have posed certain problems of interpretation. It is suggested that they were the holes for a sequential series of poles supporting a construction of the type depicted in Figures 10 and 11. Such posts would have had to be replaced periodically, with a shift of position each time, which would explain the apparently random placing of the holes. A timber framed wall, resting on a sill beam and aligned along the boundary wall with number 37, formed the back of the structure and would have carried the rafters forming the 'arbour' roof (see Section 5.3.3; Phase 2). It is unlikely that this wall was part of a more substantial building as there is no documentary or plan evidence for such a building on this site.

The garden alongside the wall continued to be let with the Talbot Inn throughout the 17th and 18th centuries, becoming generally known as the 'Talbot Garden', a designation which, in itself, is an indication of its public, rather than private, use (eg W Cath Lib B 3233). In 1649 the inn was a thriving concern with ten lodging chambers and stabling for 40 horses and it is hardly surprising that the garden next to the wall was a popular venue (Cave and Wilson 1924, 184). The area did not show to advantage in 1649, when fortifications disfigured the fields immediately outside the city, but in more peaceful times it must have been a pleasant spot to drink on a summer's day, with a view to Perry Wood and Fort Royal Hill.

In the late 1790s, plans were made to cut a new road from the Edgar Street/Sidbury corner to the south end of the High Street, allowing traffic to by-pass the inconvenient right-angled bend at the bottom of Lich Street. To achieve this scheme some of the properties on the west side of Sidbury had to be sacrificed and a number of properties were completely demolished. Only the back premises of the Talbot were at risk, but the Turnpike Commissioners bought up the entire lease, including the Talbot Garden, from the tenant, Thomas Williams, and, having taken the land they needed, re-sold the remaining parts of the lease (WRO Guildhall Archives Cab 15 [St Peter's] Box 32).

11: site code WCM 100198) and in 1999 (Trench 14: site code WCM 100525). All the trenches were excavated within the standing building and are all considered in the context of Area 1, with the exception of Trench 3 which is treated as part of Area 2 since it included deposits associated with the City Wall.

4.2

Analysis

The results of the structural analysis are presented in Appendix 1. The trenches and features recorded are shown in Figs 16-21. Context groups within this area have been allocated a unique number block (100-199).

Deposits relating to Periods 1, 2, 3, 4 and 5 of activity at the site were identified within Area 1.

Period 1: Roman activity (1st to 4th century) 4.2.1

Only limited evidence for activity dated to this period was recorded in Area 1. However, only small areas were investigated to sufficient depth to reveal surviving deposits which comprised well preserved metalled surfaces (contexts 213 and 506; CG 101 and CG 102; Fig 16), a soil associated with use of one area of metalling (context 212; CG 103) and dumped deposits (context 1175; CG 104) observed in the sides of a later pit (CG 105; Fig 17).

The two areas of metalled surface (CG 101 and CG 102) were observed in Trenches 2 and 5 respectively. In both cases the surface was well constructed with small pebbles compacted into a silty clay matrix. In Trench 2, a rut was observed running across the surface in a northeast to south-west alignment, however, no indication as to whether these surfaces were streets or yards could be ascertained from the narrow confines of the areas observed (Figs 16 and 32).

In Trench 2 a shallow layer of compacted, silty clay (CG 103) was recorded overlying the surface and infilling the rut. This probably represents a trampled accumulation associated with use of the surface.

Lastly, in Trench 11 a deep deposit (CG 104) was recorded and although only observed in section is believed on stratigraphic grounds to be Roman in date. This comprised horizontally banded deposits, which soil analysis (Appendix 3) indicated was anthropogenic in nature and appeared to comprise a buried soil with dumped deposits over it. Although these deposits lie at a depth below the other Roman deposits recorded, significant dumped deposits were recorded during the 'Sidbury' excavations and interpreted as a series of episodes of deposition designed to build up a wet area of land from the later 1st or early 2nd century onwards. These horizontally banded deposits are therefore interpreted as further evidence of this levelling activity sealing an earlier groundsurface.

Period 2: Post-Roman activity (5th to 11th century) 4.2.2

Only one feature can be assigned to this phase, a pit observed in a truncated state beneath the floor of a later cellar. This was a large, sub-circular feature with near vertical sides (CG 105; Fig 17). The primary function of this remains uncertain, although it may have been a cess pit. However, secondary deposits infilling the pit included a group of worked stone finds indicative of craft/industrial activity in the vicinity (Section 7.4). Ceramic evidence and the associated worked stone assemblage indicated an 11th century date for this feature.

Excavation of two small areas in advance of piling allowed examination in plan of two small area of the mortar and sand horizons, the better preserved of which lay to the south of the sewer trench. These mortar and sand horizons clearly butted against the pillar base whilst sealing its construction cut and fill (context 122). Consequently these had been presumed to represent a floor surface within the building constructed of mortar bedded onto sand. However, excavation revealed that the mortar surface preserved the imprints of a tiled floor. Numerous broken medieval floor tiles, some decorated, were recovered from demolition layers overlying the mortar surface as well as the sewer trench fills (see CG 141 and CG 147). Sandstone rubble and large quantities of roof tiles, some of which were glazed, were also present in the disturbed horizons overlying or truncating these deposits.

Taken together this evidence indicates that a large medieval building occupied the site. Although it is not possible to reconstruct the ground plan of this building, it is evident that its east-west dimension was at least 10m, whilst its north-south dimension was greater than 4m.

It is not possible to determine whether the whole building was constructed from stone or if it was simply stone-founded. However, this was clearly a building of some status featuring a glazed tiled floor with highly decorated elements and a tiled roof. The latter also included glazed ridge tiles perhaps suggestive of a decorative ridge. Dating evidence was limited but material from the previous phase (Period 3.1) and from the subsequent demolition horizons (Period 3.3) suggests that this was constructed sometime during the late 13th or more probably in the early 14th century and that it continued in use well into the 15th century.

The building was constructed on the Period 3.1 ground surface (CG 106, CG 107, CG 108 and CG 109), the upper levels of which were disturbed during its construction and parts of which, beyond the limits of the building, probably continued to form a ground surface during this period.

Only one further feature, a shallow pit can be assigned to this phase (CG 113). This had a complex sequence of banded fills including sand and mortar horizons. It is uncertain whether this represents a disturbed element of the building floor or the truncated remains of a feature such as a mortar mixing pit, associated with construction of the building.

Phase 3: Building demolition (15th century)

This phase of activity was characterised by deposits which were clearly associated with the demolition of the Phase 2 building. These were located across the whole of the area of the building and comprised a widespread demolition or levelling horizon and associated robber pits or trenches (contexts 115, 117, 1169-70, 1178-9, CG 114), along with a slightly later robber trench cut through it (contexts 1182-3; CG 115; Figs 16 and 21).

The demolition or levelling deposits comprised a mid yellow brown silty clay containing abundant quantities of roof tile along with sandstone rubble, mortar and floor tile. Both glazed roof tile and decorated floor tile were present (see Sections 7.2.1 and 7.2.2). The robber trenches/pits were associated with both removal of stone from the identified east wall of the building and the removal of tile from the building floor. As with the levelling/demolition deposit sandstone rubble, mortar and both roof and floor tile were associated with these features.

Phase 4: Late medieval activity (15th to 16th century)

Overlying the Phase 3 demolition deposits was a substantial soil horizon which had formed a ground surface and possibly also a garden soil (contexts 1166-8 and 1409, CG 116; Fig 21). This was cut by a cess pit (contexts 113-4, CG 117; Fig 16) and a small hollow apparently associated with ironworking (contexts 1159 and 1164-5, CG 118; Fig 21).

The soils forming the ground surface were generally about 0.20m thick but in one area over a hollow comprised up to 0.50m of deposit. This dark grey brown clay loam deposit was characterised by a range of inclusions including domestic waste and iron slag along with material such as tile fragments and mortar which had probably been disturbed from the earlier

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dumping. Again mortar and brick/tile fragments are indicative of construction activity. Some horizons within the overall deposit appear to have been trampled and compacted probably indicating periods of heavier use as a ground surface while those soilier, looser elements of the deposit indicate periods of reworking as a garden soil. A small north to south aligned gully (contexts 204-5, CG 126; Fig 16) ran on an alignment slightly to the west of the earlier gully (CG 122), but probably represents a re-cutting and realignment of that boundary and drainage feature.

Phase 3: Late post-medieval activity (18th century)

The lengthy period of soil accumulation and use of the site as garden areas which characterised the earlier phases of post-medieval activity ended with a major phase of construction during which a range of buildings (CG 131 and CG 132) bounded a small yard area (CG 129; Fig 19). A well and associated drain (CG 130) lay to the west of these.

To the east, in Trench 2 the Phase 2 soils (CG 125 and CG 127) and associated boundary (CG 126) continued in use. To the west, further construction occurred and was associated with the building fronting the street and its cellar (contexts 502-3 and 505, CG 133; Fig 16), both of which were extant at the time of this project. Two pits were associated with this phase activity (CG 134 and CG 135; Fig 19).

The building identified to the east (CG 131) comprised two lengths of abutting walling with sandstone base courses and brick upper courses. It was unclear whether these were of a single construction or whether the sandstone elements had formed the footings for an earlier building and were reused in a later predominantly brick-built one. A mortar surface to the north is interpreted as an internal surface while a mortared red-brick surface to the west may also have been associated and represent part of an external surface. Within the angle of the two walls, to the south-east, an area of compact, clay loam with tile fragments (CG 128) is felt to represent a trampled area outside the building.

To the west of this building, an area of cobbling was identified (CG 129). This had been truncated by later activity and also had been partly removed by machining for both the evaluation and excavation, however, clearly represents an outside yard.

Both cellars (CG 132 and CG 133) were of predominantly brick construction although sandstone blocks were also used, possibly having been robbed from earlier structures and reused here. A significant part of CG 132 survived, including the entrance steps in its northwest corner, much of the floor and three of its four sides, the north wall having been truncated by later building foundations (CG 146). This cellar continued in use into Phase 6.1, through to infilling when the building standing on this part of the site (at the time of excavation) was constructed (see CG 146 below). Access to it appears to have been from the west and it is likely that a building stood over it. The use and location of the adjacent well (CG 130) provides some problems of interpretation since it appears located within the area of access, however, timbers from within the infill may indicate that it had had a wooden cover.

Two areas of fill were recorded, one observed in section the other surviving as a remnant of material between later features (CG 134 and CG 135). These probably represent the remains of rubbish pits

4.2.5 **Period 5: Modern activity (19th and 20th centuries)**

Phase 1: 19th century buildings

The Period 4, Phase 3 building was demolished (CG 138), although both of the cellars and presumably buildings over them remained in use. The well was also infilled and capped (CG 139) and a new building was constructed which affected the south side of the investigated area (CG 144; Fig 20). A section of north wall of this was recorded along with a small brick-built annex structure (CG 137) which probably represented an external store, perhaps a coal bunker or similar.

5.2.1 Period 3: Medieval construction (12th to 16th century)

Phase 1 Medieval (early 13th century): comprises elements 1, 2 and 3

This phase consists of well-coursed sandstone ashlars with a gradual chamfer on the lower courses. The mortar, which is lime-mortar, is crumbly and of a pale brown-cream colour with white inclusions.

This section of the wall forms part of the medieval City Wall, dated to the 13th century. It is probable that the circuit had been completed by AD 1216 when Worcester was held by supporters of the French Dauphin and the English had to reclaim the town via the castle (Beardsmore 1980, 59). Its construction and upkeep can be followed through 'murage grants'. These were taxes that were collected to fund the building of the wall and upkeep the defences. The citizens of the Welsh marches were the first to ask the king for tolls on goods coming through their gates in order to maintain their defences (Beardsmore 1980). Worcester received the first grant for murage in AD 1224 and there were continuous grants from AD 1224 to 1239 (Beardsmore 1980). This first stage of grants shows that there was a period of major activity on the defences and it is possible that this stage and later stages of murage grant signify phases of maintenance, rebuilding and alterations.

Phase 2 - Late Medieval repairs: comprises element 4

This phase consists of a repair to the medieval fabric of the Wall. Again it is coursed in ashlared sandstone but with reused stones. The mortar, again lime-mortar, is light brown and has inclusions. The stones used in this repair are not coursed fully in line with those of the original construction (Period 3: Phase 1).

Repairs to the city wall were undertaken at various times, for example in 1459 (Beardsmore 1980, 60), however, no firm date can be assigned to the phase of repairs represented here. By the late 16^{th} century the City Wall was no longer of strategic importance (ibid, 63), and thus it is likely that these repairs date to the 15^{th} century or earlier.

5.2.2 Period 4: Post-medieval rebuilding and demolition (early 17th to late 18th century)

Phase 1 - Civil War (?circa 1646): comprises elements 5 and 6

This phase consists of two small areas of repair which are of poor quality in comparison to the surrounding masonry. They are of small pieces of sandstone fitted between the ashlar blocks of the surrounding medieval fabric.

The recorded section of the City Wall lay within the outer defences of the city during this period (Atkin 1995, 106). A six week siege of the City took place in 1646 when the eastern city defences, which include this section of the Wall, were severely bombarded (Atkin 1995, 109). These small patches possibly reflect repairs required as a result of cannon fire during the siege.

Phase 2 - Civil War (?c 1651-2): comprises elements 7, 8, 9 and 10

This phase consists of large-scale rebuilding of the City Wall in reused sandstone and narrow handmade bricks (2 inches thick). There is no obvious sign of coursing visible and the work is of a poor quality in comparison to the medieval fabric. This form of construction suggests that it must have been completed quickly, using ashlar blocks that had formed part of the medieval wall.

It is suggested that the elements identified here relate to documented events in 1651. In June 1651, Parliament ordered the defences of Worcester to be slighted (Atkin 1995, 129). In August of the same year, Scottish troops occupied the City Worcester with Charles II and immediately began refortifying the city, drawing labour from the surrounding land and parishes, ready to take stand against the Parliamentarian forces (Atkin 1995, 131-2). It is possible that base of elements 7 to 10 represent the demolition in June 1651, and that the poor quality rebuild (of elements 7 to 10) reflects the rapid refortification of the city by the Scots in late 1651.

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The deposits exhibited evidence of periodic *in-situ* waterlogging, leading to a reduced atmosphere. These conditions and their effects on the soil structure and formation are discussed further in Appendix 3.

5.3.2 Period 3: medieval activity (12th to 16th century)

Phase 1: Pre-1200 deposits

The earliest deposits observed in Trench 12 consisted of several undated layers, observed in the base of the trench following excavation and from auger data (Appendix 3).

A layer observed in the base of the trench at the east end (CG 202; context 1315) appeared to contain *in-situ* stratigraphy, exhibited by its soil structure. This layer may be a former ground surface overlain by the medieval bank and cut by the medieval city wall. Another layer was recorded in the base of Trench 3 (CG 271; context 306), similar stratigraphically to CG 202. This suggests it is also a buried surface pre-dating the construction of the medieval defences, dated by possible 12th century pottery.

Analysis of auger data from the west end of the trench identified a layer or fill up to 1.02m thick of dark clay loam (CG 202; context 1325; FS 98/8) containing some stones, charcoal flecking and ceramic fragments. The base of this was approximately 1.00m below the postulated level of the early medieval ground surface. It remains undated, but overlay natural deposits (context 1324), and may represent the fill or fills of a pit or ditch.

Phase 2: Medieval city defences

This phase comprises the construction of the City Wall and bank, identified in both Trenches 3 and 12. The deposits contained 12^{th} to 13^{th} century pottery and appeared securely dated within the stratigraphic sequence in each trench, although this was difficult to see in Trench 3 due to its restricted nature.

The medieval City Wall

A shallow and narrow north to south linear construction cut was observed at the east end of the trench (CG 203; context 1316; Fig 24), cutting the earlier ground surface (CG 202; context 1315) to a depth of 0.18m. This construction cut contained the city wall, constructed of dressed and mortared sandstone ashlar blocks (CG 203; context 1318). Five courses were recorded of its western, interior face. Building recording of the exterior face of this wall identifies it as the initial construction phase of the defensive city wall, documented as dating from the first part of the 13th century (Section 5.2.1; Beardsmore 1980, 59). The fill of the construction cut (context 1317) contained pottery the 13th century dating of which was consistent with the documentary evidence for the construction of the City Wall. Further interior portions of the wall were identified in Trench 13 (CG 269; contexts 21319, 21320, and 21330) and compared with the exterior face of the wall. Subsequent phases of rebuilding and alterations to this sequence of wall construction is discussed in Section 5.2 of the report.

The medieval bank

Following the construction of the City Wall, a bank of material was constructed butting the interior face of the wall. This was recorded as Context Group 204 (contexts 1314, 1326 and 1262; Fig 24) at the eastern end of Trench 12. The bank material was interpreted as being made up of natural clay soils re-deposited from a primary deposition context (Appendix 3), probably from the excavation of the city ditch.

Although in section the bank deposits appeared to comprise multiple layered stratigraphy, in plan only two discernible layers were recorded. Context 1314 was 0.45m of compact sandy clay containing some charcoal flecking and 13th century pottery. This was overlain by context 1262, a compact stony and sandy clay containing 11th to 12th century pottery. This material probably derived from occupation horizons in the vicinity, disturbed and redeposited during construction of the bank.

Phase 5: Medieval backplot occupation

Evidence for further use of this area as a backplot in the later medieval period survived to the west of the earlier medieval bank represented by the digging and use of two sub-circular pits (CG 216 and CG 217) cutting the earlier garden soil. The pits contained some cess in addition to some general clearance material deposited within their fills (contexts 1291 and 1293) and possibly dating to the 16th century. The form of the pits strongly suggests their primary use as cesspits or perhaps, given their small size, latrines.

Evidence for structures consisted of two postholes (CG 214 and 215), and several irregular stakeholes (CG 216 and CG 218) that probably represent a small post-built structure, possibly a garden feature. This phase of pits and post-built structure(s) dates to the late 15th to early 17th century.

5.3.3 Period 4: Post-medieval activity (early 17th to late 18th century)

Phase 1 Early post-medieval garden plot

Following the disuse of the cesspits and post-built structure at the end of Period 4, the accumulation or deliberate dumping of soil over this part of Trench 12 (CG 223, context 1285) and further post-built structures associated with a drainage or boundary gully suggests an increase in activity in this part of the backplot. In this phase, much of the earlier activity appears to have been truncated, especially over the central to eastern part of the medieval bank.

The layer of accumulated or dumped soil (CG 223; Fig 24) over the western part of Trench 12 may represent a levelling horizon at the tail end of the surviving medieval bank. This deposit consisted of compact clay loam and possibly derived from the upcast of features dug out of the top of the medieval bank to the east in the same phase. The presence of large quantities of crushed sandstone in this layer may represent demolition material from a stone structure, either part of the medieval city wall or a sandstone building on or near to the site.

Features cutting the medieval bank consisted of several postholes (CG 224, 225, 226, 227, and 229) some of which were dated by pottery to the 16^{th} and 17^{th} centuries. Two north to south aligned gullies (CG 228 and 230) were also identified, the fills of which contained mid 17^{th} century pottery (contexts 1299 and 1303).

No pattern to the postholes could be discerned from their layout, and their variation in form suggests they represent post-built structures of differing shapes and sizes. Given the other features within this phase, it is likely these structures were of a temporary nature within an area used as gardens in the early post-medieval period.

A gully within this phase (CG 230) had irregular sides with a flat base, and appears to be the latest feature, cutting the earlier postholes and gully. The function of the later gully is hard to determine from its fill or form. The linear nature of the feature, parallel to the wall and along the top of the bank, suggests it may have served as a boundary or drainage gully associated with the post-built structures to the west or may even represent a long shallow cultivation trench.

Phase 2: 17th century timber framed building and post structures (Fig 26)

Sometime later in the 17th century, a humic garden soil appears to have developed over the western part of Trench 12 (CG 219; context 1280). This in turn was cut by a north to south aligned beamslot with steep sides and a flat base (CG 220; context 1274). To the east of this, a thin layer of compact orange-red clay (CG 221; context 1245) extended for two metres, with remnants of what appears to be the same layer visible abutting the medieval city wall at the eastern end of the trench (CG 205; contexts 1328 and 1329).

The compact clay layer is interpreted as the internal floor of a building, the wall foundations of which are represented by the linear beamslot to the west indicating a timber-framed building founded on a horizontal timber cill-beam. In coming to this interpretation of a north for posts rotting *in situ* may suggest a short period of use and the removal of the posts immediately upon disuse. In addition, the postholes contained little in the way of packing material such as sandstone rubble and building material. Taken together, this evidence is suggestive of post-built structures created in a hurry with limited attention to their structural stability.

The features and layers in this phase are securely dated to the 17th century. The similarity in date to the previous phase may be suggestive of a rapid transition from rear garden plot containing a clay floored building to a plot containing many post-built structures associated with significant dumping activity along the line of the medieval bank. The phase contains a high level of activity in a short period of time, seemingly unrelated to previous and subsequent land use. Building recording of the City Wall revealed a phase of major rebuilding at about this time and although no firm evidence exists for matching the interior rebuilding, dumping and erection of postbuilt structures with those elements visible in the exterior elevation, it seems likely that all of the activity identified for this phase was contemporaneous.

Given the date assigned to this phase of activity, these events all potentially reflect reinforcement of the degraded medieval defences during the Civil War. In September 1642, it is documented that, as the Earl of Essex entered the city, the walls were 'much decayed' (Atkin 1995, 165) and that the defences were in need of rebuilding. This work mainly consisted of the building of earthen banks to protect the surviving fabric from cannon fire, and the construction of an elaborate system of earthworks to defend Sidbury and Fort Royal (Atkin 1995, 56-62). The seemingly rapidly constructed posthole structures and soil dumps associated with this phase of activity can therefore probably be associated with this work.

Phase 4 Posthole structure(s)

This phase included later post-built structure(s) of mid to late 18th century date which were identified in Trenches 12 and 13. Context Group 235 comprised a single sub-rounded posthole (contexts 1257 and 1256) of a shallow depth containing a very visible post-pipe (contexts 1233 and 1232) The fill of this feature contained many small fragments of animal bone. Three sub-rectangular postholes also associated with this phase have been grouped together as CG 236. These were of similar size and form and contained fills of a similar nature including sandstone chunks, building material and other occupation debris. A further group (CG 237) comprised a single sub-rounded posthole containing ceramic building material (context 1236). This has been assigned to this phase on the basis of stratigraphy and its similarity to other postholes in this phase.

Trench 13 also contained several similar postholes (CG 267) and some unexcavated cuts of a similar diameter and shape (CG 270), and these probably represent a continuation of the structures recorded in Trench 12. Again, no dating evidence was recovered from these contexts.

Phase 5: Garden soils and building construction

Following the disuse of the Phase 4 post-built structures, several layers of soil were dumped over the area or developed through cultivation. These layers (CG 239, 243 and 244) contained domestic refuse, building material, charcoal and some iron slag, and could be dated from the 18th and possibly early 19th century.

Cutting these deposits were two postholes (CG 241 and 245), while a humic soil layer (CG 246) appears to have been dumped above the garden soils. This layer contained pottery dated to the late 17th to 18th century.

Subsequent to this, at the end of Period 4, was a major phase of building which sealed all earlier deposits under make-up layers and internal floors (Fig 27). The earliest features of the building were two north to south aligned sandstone walls (CG 238 and 240) both set in construction trenches cutting the earlier layers of accumulated garden material. The walls were formed from some roughly dressed sandstone blocks, with traces of mortar from a previous use, large rubble, and smaller rubble used as packing. These formed a level

6.

At some time later, a layer of concrete was laid over part of the brick floor when the land was used as a garage forecourt. In addition, the remains of the City Wall were capped with a concrete foundation supporting a modern brick wall (CG 253 and 259). This wall follows the line of the City Wall to the north of Trench 12, but to the south, curves westwards, following the line of City Walls Road while the original wall line continues south under this modern road.

Area 3: 39 to 55 Friar Street (and recording in Friar Street and City Walls Road)

6.1 **Previous and new work**

The majority of archaeological fieldwork in 1997 - 1999 was focused on the north-east part of the development area (described in this report as Areas 1 and 2). The rest of the development had been fairly intensely investigated in part between 1975 and 1988 (see above, Section 1.1). Archaeological fieldwork in 1997 - 2000 consisted of a small evaluation trench (Trench 4; Napthan *et al* 1997) and the observations of contractor's trenches in 1999 - 2000 (Trenches 15, 16, 17, 18, 19, 20 and 21). In addition a watching brief was maintained over engineer's boreholes and piling during construction.

The results of the structural analysis are presented in Appendices 4 and 5. The trenches and features recorded are shown in Figures 3 and 4. A section of Trench 4 is also reproduced as Figure 28. Deposits relating to Periods 1, 3 and 4 of site activity were recorded.

6.2 **Period 1: Roman period** $(1^{st} to 4^{th} century)$

Previous fieldwork (Carver 1976-7; Hirst 1975 and Darlington 1988; Fig 2) had identified iron slag surfaces as a road and probable yards extending across much of the site, including Area 3. However, the evaluation and watching brief produced few deposits which could certainty be dated to this period. For the evaluation, this probably reflects the limited areas where trenching was to sufficient depth to encounter such remains whilst the limitations of section recording and borehole/piling observation during the watching brief precluded certain identification and dating of deposits in most cases.

The evidence for slag surfaces and Roman deposits identified during the current project within Area 3 is tabulated below and is subsequently briefly discussed.

Trench 4 deposits consisted of a number of small features and a possible dump layer (Fig 28; contexts 407, 409, 410 and 411). These were 0.40m thick (maximum) in this area. In the other two trenches (Trenches 17 and 18), where iron slag surfaces were recorded, little further observation can be made. However, the surface in Trench 18 (which lay in the modern roadline) appeared to have been cut along its western side by a large feature which might be a ditch, possibly that postulated by Baker (1992) running along the line of Friar Street. These deposits were observed only in section and dating is based upon stratigraphic evidence since no datable material was retrieved.

Iron slag was recovered in small quantities from several of the pile holes (Appendix 5), but not in sufficient quantities to demonstrate any strong pattern. It was recovered in small quantities from piles the centre of the site, an area that has seen little archaeological investigation apart from Trench 4 (where iron slag was found in the fill of features). Roman pottery was also recovered from pile spoil in small quantities (Appendix 5).

Trenches 4 and 16

In Trench 4 further cultivation soils and pits were recorded in section. These were similar to the later medieval deposits identified at this location and reflect the continued use of this area for gardens. In Trench 16 soil accumulations were also noted along with an animal burrow, perhaps that of a fox. These also suggest use as gardens.

Trenches 15 and 19

In Trench 15 (excavated by the contractors for insertion of a service), a sandstone wall was recorded (context 1501). This was constructed from large squared sandstone blocks, bonded with a light brownish-yellow, sandy mortar. Most of the observed section of walling (c 3.50m) was aligned at right angles to the street, although at the street end of the cutting, a short length of returning wall turned to run in a southerly direction parallel to the street frontage. Associated deposits included a layer of brick rubble overlaying a dark brownish-grey, silt loam with brick and tile fragments. These deposits were bounded by the walling while, a grey-green silt loam lay to the north (outside?) of the walled structure. In Trench 19 a sandstone wall (0.80m high) set on a slate foundation course and bedded onto natural sand and gravel was recorded. This was aligned north-south was encountered directly below the pavement, on the site boundary (context 1903).

These wall sections probably represent the remains of a cellar within a building fronting the street and occupying what was then number 17/19 Sidbury. Secure dating material was not recovered, however, the brick and tile rubble deposit, possibly representing infill of the cellar, was clearly of post-medieval date, while the layer beneath which may be contemporary with, or pre-date construction, also contained apparently late medieval or post-medieval brick and tile fragments. Although a number of bricks of later post-medieval date were present within their construction, these walls were predominantly of sandstone build and the bricks can probably be related to alterations or repairs of earlier structures. These remains were similar in nature to the remains of buildings recorded in Carver Area A (Fig 2), where cellars with sandstone walls were dated to the 17th century, and were approximately 2m deep (Carver 1980, 168-171, figs 47 and 49).

Trench 20

Some 0.45m below the modern road surface, and overlying the deposit tentatively identified as the medieval bank associated with the City Wall, a thick deposit (c 1.10m) of lightly charcoal flecked, compact, reddish brown marl (context 2003) was recorded. This deposit in many ways resembled the earlier bank, however, the presence of small brick fragments indicates that this is a later deposit. One possibility is that this is associated with the Civil War period (mid 17th century) refurbishment of the medieval defences, one element of which has been shown to have been the addition of earthen banks to strengthen the wall against cannon shot (see Section 5.3.3, Phase 3: mid 17th century activity).

Pile locations/boreholes

Although information from these was limited, evidence was recorded of deep deposits lying in a band about 10m to the west of the City Wall and the eastern boundary of the site (Borehole 3; Piles P60, 61, 62, 123A, 158, 172 and 190; Fig 4). Natural deposits were recorded at a depth of between 3.00m and 3.80m below current groundsurface, considerably deeper than observed elsewhere on the site. This may reflect a continuation of the large post-medieval (17-18th century) quarry identified by Carver during the 'Sidbury' excavations (Carver 1980, figs 39 and 50; trenches C and D; Fig 2). The absence of a similar depth of deposits recorded in Borehole 5 suggests an eastern limit to the extent of this quarrying, whilst pilehole depths in the area to the north .(eg 248A, 249, 251 and 252) and in Darlington's trench 4 (Fig 2) suggest northern limits to the extent of this activity.

The dominant vessel type was the jar, accounting for 55% of identifiable diagnostic forms within the assemblage. The next most common were tankards and bowls which accounted for 14% each. This high proportion of jars is significantly higher than that usually expected for an urban site, where tablewares and bowls or dishes usually the dominate (Evans, 1993). Other forms identified include three mortaria sherds, a single amphora sherd and a very small number of beakers, including a single rough-cast example in Oxfordshire colour-coated ware (fabric 29). Once more, the low number of specialised vessels in unusual for an urban site. However, due to the assemblage being only a small sample of the site and from highly mixed contexts, it is not possible to make any firm judgement on the function composition.

Of the three mortaria sherds within the assemblage, two were undiagnostic fragments of Hartshill-Mancetter fabric (fabric 32). The remaining sherd was of unknown fabric but of particular note due to it being a rim sherd stamped with the word 'CRISPIN' (Fig 29.1), possibly an abbreviation of the name Crispinus.

The single sherd of amphora was identified as of Dressel 20 type (fabric 42.1). This form of amphora dates to between the 1st and mid 3rd centuries and was the principal form in use in Britain between the late 1st and early 3rd centuries (Peacock and Williams 1986, 136). This type of amphora was principally used for the transportation of olive oil and preserved olives from Southern Spain.

A total of 30 sherds were too small and fragmentary to be identified by fabric. A further two sherds were identified as Roman in date but were of unknown fabric types. These have been grouped under fabric number 98, miscellaneous Roman wares.

Fabric number	Total	Weight (g)
12,	139	1622
12R	30	315
14	2	12
22	30	184
29	4	26
3	2	14
3.2	12	94
32	1	22
38.	1	12
42.1	1	352
43	14	76
98	8	136

Table 2: Quantification of Roman pottery by fabric

7.1.2 The medieval pottery

A total of 471 sherds of medieval pottery weighing 5539g were retrieved from the site, accounting for 38% of the pottery assemblage. All sherds were grouped and quantified according to fabric (Table 3). The general level of preservation was poor with the majority of sherds being small, abraded and undiagnostic. Those forms that could be identified, indicated a date range from the mid 11^{th} - early 16^{th} centuries, attesting to continuous occupation of the site throughout the medieval period. The largest proportion of the medieval assemblage, totalling 220 sherds was retrieved from contexts within Period 3 which dates from the 12^{th} - 16^{th} century. A further 156 medieval sherds were identified as residual within later periods (Periods 4 and 5).

The assemblage was of a standard domestic nature with a relatively narrow range of forms and fabrics identified. The vast majority of the assemblage consists of locally produced

thought to be in part due to the specialised function of these fineware vessels and possibly that they were more expensive to purchase (Morris 1980, 224). The majority of the sherds were small, undiagnostic fragments. However, those forms that could be identified included three sherds from a highly decorated jug (from context 1133; CG 107). A further four sherds displayed a combination of roller stamped or applied decoration and are therefore likely have come from either jugs or pitchers (contexts 1143, 1174 and 1310; CGs 107, 108 and 211). A single rim sherd could be identified as coming from a bowl (context 1310; CG 211). The sherd had a glazed interior and was heavily sooted on the exterior, suggesting that it may have been used as a basting dish.

Oxidised glazed Malvernian ware (fabric 69) accounted for 27% of the assemblage from this period, second only to cooking pot vessels of Worcester fabric. The general date range for vessels of this fabric runs from the later 13th century until sometime during the 17th century. Once more, only a narrow range of forms could be identified, consisting primarily of shallow bowls and jars, the bowls being generally earlier in date (Bryant pers comm). The shallow bowls are typically glazed on the interior surface and have evidence of sooting on the exterior, indicating them to have been used in a similar way to typical cooking pot forms. A number of handles, of both strap and rod form were also identified. Although it is not possible to relate them to individual vessel forms, one sherd (from context 1166; CG 116) does stand out as being from a particularly large vessel, possibly a cistern.

The remaining local ware was that of Cotswolds unglazed ware (fabric 57), which occurred only as a very small proportion of the assemblage at 1%. This is the most commonly identified pottery of mid $11^{th} - 12^{th}$ century date in Worcester, consisting primarily of cooking pot and pitcher forms, although a single shallow bowl sherd was identified within the assemblage from Deansway (Bryant forthcoming). The date range for vessels of fabric 57 appears to be between the mid 11^{th} and early 13^{th} centuries. The two sherds identified within the Period 3 deposits were both highly abraded, undiagnostic body fragments and almost certainly residual. The first was retrieved from part of the ground surfaces (context 1143; CG 106) which formed above post-Roman dark earths in Period 2. The second was identified from within a posthole fill which was clearly of early 16^{th} century date (context 1286; CG 214; Period 3, Phase 5).

In general it can be noted that there was an overall decrease in the numbers of cooking pots recovered from contexts within the later phases of this period. This is commonly seen with the gradual reduction of vessels within phases dating from the 14th century onwards (Period 3, Phases 3 to 5). For example Period 3.1 deposits contained 29 sherds of fabric 55, in contrast to just one within Period 3.5. It has been suggested (London Museum 1940, 202) that this decline in production of cooking pot vessels may have been due to the growing popularity of metal containers to perform the function, although it should be noted that this pattern may also represent residuality of material.

Non-regional wares

Non-local wares formed just 3% of the Period 3 assemblage, totalling five sherds. These consisted of four fabric types; Brill-Boarstall ware (fabric 63), glazed sandy wares (fabric 64.2) Green glazed white ware (fabric 64.3) and Southern white wares, more commonly known as Tudor Green (fabric 70).

A single pitcher sherd of Brill-Boarstall ware was retrieved from part of the Period 3.1 ground surface (context 1133; CG107). The sherd had a brownish green glaze and was decorated with applied vertical strips of a lustrous reddish brown colour, typical of biconical pitcher forms of this fabric. The sherd could be dated to the 13th century. This type of pottery was produced in Buckinghamshire and although principally produced for the Oxford market (McCarthy and Brookes 1988, 292-4), small numbers of vessels to appear to have reached Worcestershire with vessels previously identified in Droitwich (Hurst 1992), Evesham (Jones 2001) and the Deansway site in Worcester (Bryant forthcoming).

Two sherds of a jug of glazed sandy ware (fabric 64.2), with a patchy, green exterior glaze were also identified within the assemblage (from context 1133; CG 107). The form suggested

white ware (fabric 64.4) and Saintonge ware (fabric 120). Fabric 64.4 is the unglazed version of fabric 64.2 described above. A single cooking pot rim sherd was identified within the cut for a late $19^{th} - 20^{th}$ century sewer (context 1117, CG 141; Period 5.1). This context appears to have been very mixed, also containing a large amount of floor tile associated with the destruction deposits of a major building (CG12) and a large assemblage of material from all periods of the site. The rim can be identified as the double-facetted type typical of vessels of this fabric (Victoria Bryant pers comm) and dates to between the $13^{th} - 15^{th}$ centuries.

Fabric 120 is the only foreign imported ware identified within the medieval assemblage. Two small, adjoining fragments were identified within a possible garden soil (context 1217, CG243; Period 4.5) dating to the 18^{th} century which contains a large assemblage of both medieval and post-medieval pottery. Vessels of this fabric were produced within the Saintonge region of south-west France and were produced from the late 13^{th} century. The ware had a wide distribution in Britain during the medieval period with small amounts regularly found on sites in Worcester (Morris 1980; Bryant forthcoming). A sherd of 16^{th} - early 17^{th} century date was identified within an 18^{th} century deposit at Deansway and it is therefore possible that the sherds from this site are also of an early post-medieval date rather than medieval.

7.1.3 **Post-medieval pottery**

A total of 357 sherds of post-medieval pottery, weighing 5.507kg were retrieved from the site, accounting for 39% of the pottery assemblage. All sherds were grouped and quantified according to fabric (Table 4). The level of preservation was generally good with the majority of sherds displaying little abrasion and surviving as comparatively large sherds in contrast to the earlier pottery within the assemblage. A significant number of sherds were diagnostic and could be dated according to form, the remaining sherds could be largely allocated a date range according to fabric type. The post-medieval pottery assemblage dated from the later 16^{th} century through to the 20^{th} century.

The earliest occurring sherds could be identified within a soil layer (context 1133; CG107) from Period 3.1 and were clearly intrusive sherds of 18th century date within a medieval context, probably resulting from poor cleaning of the base of one of the post-medieval features which provided a 'window' onto the earlier deposits.

As with the medieval pottery, the post-medieval assemblage was of a standard domestic nature with a relatively narrow range of forms and fabrics identified. The vast majority of the assemblage (46%) was made up of sherds of post-medieval red sandy wares (fabric 78.1 and 78.3). The range of vessel forms identified within each fabric group are identified below within Table 5.

The most significant material from this assemblage was that associated with the Civil War deposits within Area 2, which included the possible Civil War bank (CG222), and two posthole groups (CG231 and CG232). Only a small amount of pottery was identified within these features, amounting to 13 sherds, five of which could be identified as residual, dating to the medieval period.

The possible Civil War bank (CG222) contained just four sherds of post-medieval date, three of which could be identified as post-medieval red sandy wares (fabric 78.1) and dated to the 17^{th} century. This fabric type is generally the most commonly identified on sites of 17^{th} century date and was used to produce a variety of forms including tig drinking vessels, jars and butterpots. The remaining sherd was identified as oxidised glazed Malvernian ware (fabric 69) and could be dated to $c \ 16^{th}$ century. The sherd is glazed on the internal surface indicating the vessel to have been an open form such as a basin or dish. Three sherds of medieval date including two sherds from a glazed Worcester-type (fabric 64.1) pitcher were also identified within this feature.

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A small stoneware rim sherd was identified within context 1117 and thought to be from a flask. This sherd was unusual due to being highly overfired and having a 'segmented wheel' type stamp on the exterior surface.

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Fabric no.	Form	Total	Weight (g)
69	Basin	1	<u>9</u> 6
69	Cup	1	22
75	СР	3	234
78.1	Tig	-8	38
78.1	Tig/Cup	1	82
78.1	Butter pot	3	32
78.1	Cup	4	16
78.1	Cup or tig	1	6
78.1	Dish	1	8
78.1	Jar	2	46
78.1	Large vessel	2	62
78.1	Pancheon or basin	1	130
78.1	Pancheon	14	794
78.1	Tig	5	140
78.1	Tig/Cup	1	4
81	Bellarmine	1	2
81	Flask	1	12
81	Jar	2	12
81.2	Bellarmine	1	4
81.3	Bleeding bowl	1	10
81.3	Footring	1	30
81.3	Jar	1	42
81.4	Jar	1	86
81.5	Jar	1	2
82	Jar	2	10
82	Plate	2	50
-83	Footring	1	8
83.1	Cup	1	8
84	Bowl	1	44
84	Jar	1	10
84	Plate/dish	1	26
85	Bottle	1	14
85	Bowl	1	10
85	Cup	3	18
85	Cup or bowl	1	1
- <u>85</u>	Jar	3	30
85	Large Jar	1	16
-85	Plate	8	48
85	Saucer	1	2
91 . – – – – – – – – – – – – – – – – – – –	Baking plate	2	8
91	Jar	1	6
91	Large dish	1	6
91	Large dish/baking plate	1	2
91	Large dish/baking sheet	4	124
91	Large jar	1	180
91	Plate/dish	2	16
91	Shallow dish	3	80

Table 5: Form types identified within the post-medieval pottery assemblage

Period 3. Medieval (12th – 16th century)

A total of 572 pieces of roof tile, weighing 30.772kg were recovered from 20 medieval contexts and a further, substantial amount of fragments were also identified as residual within later contexts of Period 4 date. The tile fell into five main fabric groups; 2a, 2b, 2c, 3 and 4.

The flat roof tile recovered from this period and was of a long-lived type produced between the $13^{th} - 18^{th}$ centuries. Therefore, much of the dating of this material has been dependent of association with other, more closely datable groups of artefacts. All were unglazed with the majority having sand on the base. A fairly large proportion of tiles were diagnostic, displaying either nibs or holes, or in the case of two fragments (contexts 1169 and 1321; CGs 114 and 210), a combination of the two. Nibbed tiles and nib and peg tiles are thought to have been the earliest form of flat roof tile, being produced from the 13^{th} century onwards. These appear to have been superseded by pegged forms by the 14^{th} century in some areas of England, becoming virtually universal by the end of the 15^{th} century (Fagan 1992, 13; Drury 1981, 131).

A total of 68 tiles could be identified as of fabric 2a and included nibbed, pegged and nibbed and pegged forms although only round, pierced peg holes were present. Tile thickness varied between 13-19mm, with the majority of tiles falling within the 16-17mm range. This fabric is present throughout Period 3, with 79% of the total present within Period 3.3.

Fabric 2b dominated the assemblage from this period totalling 462 fragments and accounting for 81% of tile from excavated contexts within this phase. A similar pattern was identified within the assemblage from Deansway (Fagan 1992, 21). The tiles were of a distinctive, highly sandy fabric, the majority buff or brown in colour at the surfaces with a dark grey, reduced core. The large proportion of tiles of this fabric within the assemblages suggest a local supply from the well documented, tile industry within the city (Hurst 1990). Tiles of this fabric are absent from the preceding phase (Period 3.2). However, as with fabric 2a above, the majority of tiles (91%) of this fabric present within the medieval period, occur during Period 3.3.

A wide variety of diagnostic forms were identified within this group, covering all the main categories of nibbed, nibbed and pegged and peg tiles. Peg holes of round and square, pierced and unpierced forms were noted. Due to the small size of the majority of fragments, it has not been possible to ascertain, how many of the nibbed pieces may also have originally displayed peg holes and vice versa. Therefore it is possible the number of pegged and nibbed examples was higher than the figures shown below. The tiles varied in width between 11-20mm, although the majority fell between 12-17mm.

Fabric 2c is represented by just 38 tiles within Period 3; all are undiagnostic flat tile (type 19). Thickness of tile varies from 14-10mm with majority being 17mm thick. The proportion of tiles of this fabric rises towards the end of this period, with Period 3.5 accounting for 55% of the fabric group.

Just three pieces of ridge tile were recovered from contexts of this period, all from debris associated with demolition of the major medieval building recorded in Area 1 (context 1169; CG 114). All were of fabric 3 with a characteristic green glaze on the upper surface.

A single, undiagnostic fragment of tile identified as fabric 4 was retrieved from a Period 3.3 context. The only other examples of this fabric type so far identified were within the assemblage from Worcester Road, Droitwich (Bretherton *et al* forthcoming).

The peak in tile recovered during Period 3.3 is primarily down to a single context group, CG 114, consisting of layers 1169 and 1170, both associated with the demolition of a large building (CG12) which also yielded a substantial amount of decorated and plain floor tile dating to the 14th century. The tiles retrieved from both of these contexts were predominantly flat roof tile with only a single fragment of Malvernian ridge tile identified. All flat roof tile was of sandy fabric, with 2b being the dominant. Pieces of all fabrics displayed a variety of

Period 5. Modern (19th and 20th centuries)

A total of 44 fragments of tile were recovered from contexts within this period. Of these, 43 pieces were identified as residual fragments of fabric 2a, 2b, 3 and 4. The remaining piece was identified as high fired modern type (fabric 1) which can be dated from the 19th century onwards. All tiles identified within contexts of this period were retrieved from highly mixed contexts primarily associated with demolition and construction of various structures in Area 1.

7.2.2 The medieval floor tiles

A substantial assemblage of 136 floor tiles was retrieved. These consisted of both decorated and plain types and could be dated to the medieval period on basis of fabric and general appearance. A total of 21 individual designs could be identified from the 72 decorated tiles (Table 7), whilst the 64 plain tiles could be broadly divided into 11 varying shades of yellow, green, brown and black (Table 8). The fabric of the tiles was largely sandy and reminiscent of that of roof tiles produced in Worcester during the medieval period. The body of the majority was well made in the mould and bevelled slightly towards the base to allow the tiles to be set edge to edge without gaps or mortar showing from above. None of the tiles displayed keying on the underside, although the majority were sanded.

A full fabric description of floor tiles produced in Worcester has recently been published (Lewis 1999, 44; Group 20) and the tiles from this site clearly fall into the same fabric group. The discovery of a number of floor tile wasters in Silver Street, Worcester and considerable documentary evidence (White 1990) points towards this having been a production site for the tiles of this fabric and designs in the case of decorated examples.

Design number	Total	Weight
		(g)
Keen 1	1	164
Keen 2	1	262
Keen 4	3	186
Keen 5	1	284
Keen 6	1	370
Keen 7	2	280
Keen 9	1	246
Keen 10	2	330
Keen 11	1	138
Keen 15	1	208
Keen 16	11	2186
Keen 17	4	562
Keen 18	6	1150
Keen 21	2	298
Keen 30	5	634
Keen 35	2	-438
-Keen 37	6	1480
Keen 43	2	604
Eames 1571	1	0
Eames 2752	3	578
Eames 2762	1	0
Unidentified	15	1476

Table 7: Decorated tiles

The largest single assemblage of these floor tiles came from a demolition layer (context 1170; CG 114; Period 3.3), lying over the slump of a building floor remnant (part of CG 112), which could be dated to between the 14th and 15th centuries. Further fragments were also retrieved

Glaze colour	Total	Weight
관계가 1272년 AN		. (g)
Black	1	242
Brown/black	1	178
Dark brown	1	240
Dark green	13	1954
Dark	6	878
green/black		
Dark	2	310
green/brown		
Green	25	5198
Greenish brown	2	168
Greenish yellow:	2	268
Yellow	5	990

Table 8: The undecorated tiles

Provenance

Within Worcester, such tile pavements when found *in situ*, have been identified within buildings of a religious nature, the cathedral having the largest collection, but also in smaller buildings such as churches, chapels and religious houses. However, there is no documentary evidence that would suggest that the building with the tiled floor was a religious building and the likelihood is that it was a domestic house. A domestic dwelling with a floor such as this would have been fairly unusual within the region, despite being widespread during the 14th century in other areas of the country, such as Seal House, London (Egan 1998, 38). The most well-known example outside of London, is that of Canynges Pavement in Bristol. This group of tiles appears to consist of 'seconds', originally produced for pavements elsewhere. If this was the case of the floor at Friar Street, the tiles may have been originally intended for use in one of the city's many religious buildings. However, Friar Street itself was on diocesan land during this period and it is possible that the building was originally occupied by a person with close connections with the cathedral.

7.2.3 Brick

A total of 43 pieces of brick were identified within the assemblage, the earliest dating from the mid 16th century. The assemblage was quantified according to phase and where possible, date ranges were allocated on the basis of diagnostic characteristics.

The assemblage displays very little residuality with the majority of pieces identified from contexts within Periods 4 and 5. The fragment within the dark earths of Period 2.1 (context 1140; CG 105), is certainly intrusive.

Three fragments stand out from the rest of the assemblage as being of particular interest. The first is a large, highly fired, almost vitrified piece from pit context 1140 (CG 105). The context has a terminus post quem of mid-11th century on the basis of pottery, although it also contained large amounts of Roman material. Perhaps most interestingly, a group of worked stone objects were also retrieved from this pit and appear to indicate an industrial use. A further vitrified fragment was identified within unstratified context 1100.

The final notable brick was from context 1114 (CG 132) and could be identified as hop drying brick dating from the 18th century onwards. Such bricks are commonly found in and around Worcester due to the extensive hop agriculture and associated brewing industries which once existed in the area.

7.3.2 Plaster

A total of 24 fragments of plaster weighing 52g were retrieved from two contexts (1217 and 1150). All were post-medieval or later in date.

Period/phase	Context	Total	Weight (g)
4.5	1217	12	26
5.1	1150	12	26

Table 11: Quantification of plaster by period/phase

7.4 Worked stone (by Fiona Roe)

7.4.1 Introduction

There are a dozen stone objects from Friar Street, together with 35 fragments of building stone (Appendix 6). All the objects were retrieved from Area 1. There was a group of six finds from a large pit (context 1140; CG 105), which has been dated to the mid 11^{th} century. These half dozen pieces consist of fragments from a rotary quern (Fig 31.5, 6), a grindstone (Fig 31.3), a whetstone (Fig 31.2), two point sharpeners (Fig 31.4, 7) and a Lias working surface (31.1).

Another 6 objects were either only loosely dated or were unstratified, and amount to 3 more quern fragments, together with a complete grindstone, a further whetstone and a Lias fragment with a worked surface.

7.4.2 Materials

Both local and imported stone was utilised for the objects. Old Red Sandstone and Lias were available near to Worcester; Coal Measures sandstone was less local, with various potential sources, while the Eidsborg schist came from Norway. A coarse-grained and pebbly or sometimes conglomeratic variety of the Lower Old Red Sandstone was used for the rotary querns, and this was obtained from around Withington or Lugwardine in Herefordshire (Brandon 1989, 14, 45), some 30.5 km (19 miles) from Worcester. The local Lias is unsuitable for grinding purposes, but was nevertheless used for 2 point sharpeners, maybe for shaping pieces of wood or other relatively soft materials, and it was also used for 2 working surfaces.

Coal Measures sandstone was an important grinding material that was used both for whetstones and grindstones. Stone from the Pennines may have been used for the two grindstones, though a nearer source of grindstone material would have been the Upper Coal Measures sandstone at Alveley, Shropshire, some 32 km (20 miles) up the Severn (Whitehead and Pocock 1947, 88). One whetstone was made from Coal Measures sandstone obtained either from the Pennines or from the Upper Coal Measures of the Forest of Dean/Bristol Coalfield area, while the second whetstone was made from Norwegian Rag.

7.4.3 Discussion

There were no finds of worked stone from Roman contexts at Friar Street, although Roman activity has been recorded in the vicinity (Darlington and Evans 1992). A rotary quern fragment recovered from an early medieval, 'dark earth' deposit (context 504; CG 106) resembles the Roman disc type, with a handle slot cut into the upper surface. The conglomerate from which this quern is made is the Lower Old Red Sandstone Withington stone, which is known from Roman sites elsewhere in Worcestershire, as for instance Deansway, Worcester (Roe forthcoming).

The fill of the large pit (context 1140; CG 105), which produced a group of six stone objects, contained Roman as well as late Saxon pottery. However, two of the stone finds are

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horseshoe fragment from a medieval demolition horizon (context 1169; CG 114) and a large unstratified key (context 1100) of unknown date.

Two pieces of lead were retrieved from a gully, possibly a drain or boundary (context 1299; CG 230). These are identified as window cames. This context could be allocated a 17th century *terminus post quem* by associated artefacts. However, the fill also contained residual medieval pottery and it is therefore possible that these cames are also of an earlier date.

Period/	Cxt	Material type	Object type	Total	Weight (g)	Comments
phase						
0	1200	IRON		4	108	1 tube, 1 rim, 1?blade
2.1	1140	CUAL	PIN	1	1	
2.1	1140	IRON	NAIL	3	154	
3.1.5	1174	IRON	NAIL	3	24	Bent
3255	1171	IRON	NAIL	1	10	
3.2	1319	IRON	NAIL.	1	2	Nail
3.2	1169	IRON	111112	7	-	1 horseshoe and
	1102	mon		'	1500	nails – bent
33	1310	IRON		1.	16	
34	1166	IRON	NAIL	1	8	
	1281	IRON	10,112	1	12	
15	1286	IRON	NAIL.	1	2	
25	1200	IRON	NAII	1	4	
4.1	1238	CUAL	PIN	1	1	
	1220	CUAL		2	2	· · · · · · · · · · · · · · · · · · ·
11	1238	IRON	NAU	1	12	1 hent
	1200	IRON	NAIL	2	10	1 DOIN
4.1 A 1 5 4 5 5 5 5	1299	IRON	NAIL	1	10	
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4.1	1299	IDON	NAU	1 .	4	
4.4	1240		NAIL	NAIL I IZ		
4.4	1275		DIN	1	1	1
4.2	1204	IDON		1	1	
4.2	1124	IRON	IVAIL		12	2 Maila
4.0	1120	IRON		4	102	2 Ivalis
4.2	1136	IRON	NTA II	1	10	1 Ilali Dent
4.0	1244	IRON		- <u>1</u>	12	Dent
4.3	1250	IRON	NAIL		10	Dent
4.3	1252	IRON	NAIL		16	Bent
4.3	1204	IRON	NAIL .		10	
4.3	1269	IRON	NAIL	0	20	
14.3法法法法	1271	IRON	NAIL		26	
4.4	1224	IRON	NAIL		8	Bent
44 A MAR 4	1256	IRON	NAIL		12	Bent
4.5	1217	IRON	NAIL	7	54	
4.5	1226	IRON	NAIL	4	26	1 bent
4.5	1277	IRON	NAIL	2	4	
4.5	2131	IRON		4	14	Unidentified
	6					object
5	1100	IRON		4	76	1 key, 2 nails
5 (in the second	1401	IRON		1	4	
5.1	1117	CUAL	RING	1	2	Ring
5.1	1119	IRON	NAIL	2	12	Nails
5,1	1150	IRON		6	482	3 nails, 2 sheet
5.2	1105	IRON		7	208	5 nails
5.2	1106	IRON		9	80	3 nails

Table 12: Quantification of metalwork by period/phase

Just six copper alloy objects were identified, including three pins of Roman or medieval date, those from contexts 1238 (CG227) and 1254 (CG231), most likely being residual within Periods 4.1 and 4.3. The ring from context 1117 (CG141) is of unknown function.

7.6 Iron slag (by Derek Hurst)

The discussion of the slag is mainly restricted to the material from the excavation (contexts 1100s-1300s), and the material from the evaluation has been excluded on the grounds that there was insufficient time available to produce a combined account, and that the latter had already been commented on in the evaluation report (Napthan *et al* 1997). The slag from the watching brief was also excluded from this report as it was unlikely to add anything significant owing to its method of retrieval and its small quantity.

7.6.1 Area 1

The total assemblage of ironworking slag from this area weighed 18.2kg. It was mainly (77%) associated with Period 2 deposits, and the remainder (8%) was from Period 3 to 5 deposits. The largest deposit was from a Period 2 pit (CG 105), and it is likely that this concentration arose from backfilling the pit with disturbed Roman material, perhaps derived from digging the pit itself. Most of this material was tap slag, which had probably been redeposited from the disturbance of Roman levels (see also below). An unusual item was a very small hearth bottom weighing only 0.4kg, which was from a modern context (CG 147).

7.6.2 Area 2

The total assemblage of ironworking slag from this area weighed 8.45kg. It was mainly (92%) associated with Period 4 and 5 deposits, and the remainder (8%) was from Period 3 deposits. Though associated with these medieval and post-medieval deposits, the likelihood was that it was Roman slag that had been redeposited in the course of later redevelopment in this part of Worcester. This hypothesis was based on the much of the slag being from smelting, and having the typical solidified runnels which characterise the tap slag of the Roman period, as commonly found elsewhere in Worcester (cf material from Deansway; McDonnell forthcoming).

Comparison with the Roman pottery demonstrated that the incidence of the slag over time followed the same pattern, and so even though the amount of slag increased in Period 4, compared with Period 3, it can still be regarded as residual. The only exception was that the largest single amount of tap slag from a feature was from a Period 4 pit (CG 270), which was interpreted as a likely posthole forming part of a building. It is possible that in this case the slag had been deliberately recycled for use as packing in a posthole, probably because of its usefulness for construction due to its extreme hardness.

There were also occasional pieces of slag that were less evidently from smelting, which were rather amorphous, and these (eg contexts 1256 and 1303) are generally regarded here as undiagnostic of any particular stage of ironworking. A hearth bottom (context 1110, CG 147, Period 5) is indicative of iron smithing, and other such fragments were noted in medieval deposits during the evaluation (Napthan *et al* 1997, 13). Soil samples from Period 2 and 3 contexts generally produced hammerscale in small quantities, which is likely to be residual from Roman contexts. More abundant hammerscale was associated with only one deposit (context 1167, CG116, Period 3), and it is possible that this represents later medieval iron working in the immediate vicinity.

7.7 Clay pipe

A total of 278 fragments of clay pipe weighing 757g were retrieved, of which 244 were stem fragments and 34 from bowls. All were quantified and diagnostic fragments dated (Table 13).

The single diagnostic fragment within the assemblage was that of the base of an onion bottle from a postpipe fill (context 1232; CG 235). This is a 17^{th} century form and was clearly residual within a 19^{th} century context.

8. Environment

8.1 Hand-collected animal bone

The priority for analysis of animal bone was the retrieval of evidence of industrial, craft or specialised activity (such as tanning, hornworking or bone-working etc). Relatively large assemblages of general domestic or butchery waste have been analysed from Roman deposits at 'Sidbury', Worcester (Scott 1992), and from Roman, medieval and to some extent, post-medieval assemblages from previous excavations at Deansway, Worcester (Nicholson and Scott forthcoming). As waste from specialised activities was not evident, no further analysis was undertaken, although basic information on quantities retrieved from individual contexts is available in archive and is summarised on Table 16.

Context	Type	large	small	fish	frog/	molluse	charred	waterlogged	comment
<u>- 19 19 19 19 19 19 19 19 19 19 19 19 19 </u>		mammal	mammal	bone	toad		<u>plant</u>	plant	1.55 m 1.5 m 1.5 m 1.5 m
AN ALTERN									
1140	pit	000			000		mod		
1141	pit	000	000	000	000		occ	occ-mod	
1167	linear	_000	000	000*			occ		+ scale
1169	dump/	tnod	oce	000*		000		000	+ scale &
1	spread								oystershell
1174	soil/	abund	000	000*		000	000	000	+ scale
	dump	1					}]

Table 16: Summary of environmental remains

8.1.1 Area 1

A small quantity (239 fragments) of animal bone was hand-collected from securely dated contexts, the majority from medieval and post-medieval deposits. The assemblages were very small, with the exception of one medieval context (Period 3.3; CG 114; context 1169), where fragments were particularly large and well preserved. However, in general, the character of the animal bone appears to be domestic, being dominated by cattle or large ungulate (horse, cattle or red deer size) bone, a small quantity of sheep or goat, and occasional pig or bird bone). Many of the bones were butchered (particularly vertebrae chopped lengthways) or demarrowed. There was no evidence of bone waste from specialised activities such as tanning, hornworking or bone-working.

8.1.2 Area 2

A total of 825 fragments of animal bone were hand-collected from mostly 17th and 18th century deposits, with a small quantity from medieval and Roman deposits. The post-medieval bone was generally little fragmented and well preserved. The character of the animal bone was similar to that recovered from Area 1 (that is probably domestic or butchery waste, dominated by cattle bone with smaller quantities of sheep or goat, then occasional pig and bird bone). However, it was noticeable that the bone from medieval contexts was more fragmented. There was also no evidence for waste from specialised activities.

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8.2 Wet-sieved samples: plant macrofossils and animal bone

8.2.1 Area 1: 11th century pit (Period 2; Context Group 105; Contexts 1140 and 1141)

A small assemblage of charred plant remains was recovered from context 1140 (Table 17). The identifiable cereal grains were mostly a free-threshing wheat (*Triticum* sp free-threshing), probably including bread wheat (Triticum aestivum), although without any chaff fragments this could not be confirmed. A small number of short, compact grains of club wheat type (Triticum aestivo-compactum), and occasional barley (Hordeum vulgare) grains were also identified. Charred plant remains were much less numerous in context 1141 (Table 17), although these also included one possible free-threshing wheat grain. The charred remains, in both samples found in association with occasional fragments of large domestic animal bone, and fish bone (in context 1141), are likely to represent low level background domestic waste. Small mammal and frog or toad bones are probably the remains of animals which have fallen into the pit and become trapped, called a "pit fall" assemblage. Uncharred seeds of blackberry/bramble (Rubus fruticosus agg), henbane (Hyoscyamus niger) elderberry (Sambucus nigra) and sedge (Carex sp; in context 1141) are considered as contemporary, having survived under anoxic (oxygen reduced) conditions that would have prevailed in a well sealed and deeply buried deposit. These plants would have been growing in neglected overgrown areas, or in the case of sedge, in a ditch, or brought onto site with hay or other crops. Uncharred seeds were also common in samples from deeply stratified deposits exposed during excavations at Deansway, Worcester (Moffett forthcoming) and 'Sidbury' (Colledge and Osborne 1980). Here, they were demonstrated to be contemporary with the deposits rather than modern intrusions, although it is the more robust seeds that are likely to have survived.

8.2.2 Area 1: Period 3 soils (Contexts 1167, 1169 and 1174; CG's 116, 114 and 108)

These deposits contained low levels of charred cereal crop debris (including club wheat and unidentified cereal grains), fish bone, fish scale and small mammal bone (Table 17).

The earliest of these deposits, an accumulation or dumped soil horizon, possibly a cultivation soil (CG 108, context 1174), was particularly rich in highly fragmented large mammal bone. Occasional fragments of oyster shell were also found in one of the later contexts (CG 114, context 1169). Occasional uncharred seeds are likely to be contemporary with the deposits, originating from weeds growing in the near vicinity.

8.3 Discussion

The charred free-threshing wheat grains (possible bread wheat and club wheat) present in the pit samples (CG 105; contexts 1140 and 1141) support a post-Roman date for this feature. Although grains of this type of wheat are occasionally found in deposits of Roman or earlier date, they are rarely the dominant crop represented. Possible bread wheat grains were also found in a pit (F181) assigned to the Roman period from the 'Sidbury' excavations (Colledge 1980).

The quantity of these remains is too small to determine whether one particular stage of crop processing is indicated; indeed in the contexts sampled (pits, linear features etc) charred crop remains are likely to represent a mixture of waste from different sources. A lack of cereal chaff is common on medieval sites where crops are free-threshing. This may partly result from a bias in preservation, as the chaff of free-threshing cereals survives burning poorly and is therefore is likely to be under-represented. Also, unlike glume wheats, free-threshing wheats and barley do not need parching to make the chaff brittle before processing. This means they are less likely to be exposed to fire in the early stages of processing.

The scarcity of charred cereal crop debris is not unusual in medieval urban deposits, particularly in Worcester. Excavations at 'Sidbury' produced little of this debris (Colledge

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- Area 2 The remains identified here included important evidence of both the medieval defences and the post-medieval refurbishment of them. Although truncation had affected the upper parts of both the wall and its associated earthen defences, the good survival of the base of the wall and its associated bank have enabled new light to be thrown on the construction sequence for the defences. Although deposits pre-dating these were not investigated except in one small area, indications are that well preserved early medieval deposits (ground surfaces and features) survive beneath the wall and bank and have been largely protected by the defences from later activity. Roman deposits are also likely to be similarly well preserved beneath the medieval and later defensive circuit.
- Area 3 Only very limited areas were observed within this part of the site, however, well preserved and deeply stratified deposits were recorded in Trench 4, while the identification of a Roman metalled surface in Trench 17 indicates that this area also includes well preserved deposits of this date. Observation of the latter trench suggests that, as in Area 1, medieval and early post-medieval deposits have been severely truncated by cellarage along the street frontage. Lastly in this area, evidence from piling and boreholes suggests that the substantial post-medieval quarrying identified by Carver (1980) to the south extends northwards between the City Wall and the rear of the Friar Street properties.
- Friar Street roadway Trenches (18 and 19) within the roadway and pavement indicated that later post-medieval activity had also affected medieval and earlier deposits at this location but that Roman metalled surfaces and deep cut features had survived.
- City Walls Road Observation of a contractor's trench in City Walls Road (Fig 3: Trench 20), recorded a sequence of marl rich deposits which may relate to the post-medieval and medieval defensive banks behind the City Wall.

9.2 Artefact assemblage

The artefact assemblage from the 'Sidbury' excavation was very extensive. Pottery from Roman contexts totalled over 22,550 sherds (Darlington and Evans 1992, 33), and a wide range of artefact types were recovered. However, a significant proportion of this material came from dump deposits, comprising material brought onto the site from elsewhere in the Roman settlement. Consideration of the artefact assemblage must take into account the origin of this material, which should not be interpreted as directly relevant to past land-use of this area of the Roman settlement. The medieval assemblage from the 'Sidbury' site also formed an important assemblage (Morris 1980).

The recent work has produced only a limited quantity of poorly preserved and abraded Roman material which is liable to be a reflection of the highly residual nature of the assemblage. In common with many urban assemblages, the medieval and post-medieval artefact assemblages were highly abraded and fragmentary, probably reflecting repeated disturbance as was also indicated by high levels of residuality in the ceramic assemblage.

Despite this, useful information on dating and artefact use was recovered and potentially important assemblages may survive in selected features as highlighted by the worked stone assemblage recorded in the mid 11th century pit recorded in Area 1.

9.3 Environmental evidence

Palaeoenvironmental work at the 'Sidbury' excavation indicated poor preservation of organic deposits in Roman deposits (de Rouffignac 1992). A limited programme of sampling medieval and post-medieval pits indicated the preservation of plant remains and insects (Colledge and Osbourne 1980).
Thus the present project has confirmed the presence of Roman occupation across previously investigated areas and extended evidence of activity into the newly investigated area to the north (Area 1). All areas produced Romano-British pottery ranging in date from 1^{st} to 4^{th} century. The design and construction of the new cinema complex have largely ensured the preservation *in situ* of these deposits across the whole site, through use of piling which has only affected limited areas of the site.

10.2 **Period 2: Post-Roman occupation (5th to 11th century)**

The 'Sidbury' excavation produced no evidence of occupation between the early 4th century and the 10-11th century (Carver 1980), although the current model for the town's development suggests that the route followed by Sidbury may have originated during the late 9-10th century or earlier. This area lay outside the Anglo-Saxon defences (Baker *et al* 1992).

Carver's 'Sidbury' excavations (1980), produced evidence of 10-11th century activity in the form of eight pits which produced the first certain late Saxon pottery to have been recorded within the City. His excavations covering a much larger area than those described in this report, allowed for the siting of timber-framed buildings to be inferred within areas devoid of pits. Carver also suggested that the position and orientation of the pits anticipated that of the later tenement boundaries, indicating that elements of the later property divisions may date from the late Saxon period.

The present project has also produced limited evidence of activity of this date in the form of a cess pit in Area 1 (Trench 11). This was of note as it contained a dump of stone debris including a whetstone, a grindstone and a point sharpener which suggest that the property might have been the focus of craft or industrial activity, some of the earliest such evidence from Worcester. This feature suggests that the early plot development and activity identified by Carver to the south extends along the street at least to 37 Friar Street.

10.3 **Period 3: Medieval activity (11th to 16th century)**

10.3.1 Early medieval occupation and plot development

The 'Sidbury' excavations on the properties to the south (23 - 29 Sidbury) produced evidence of continuing occupation of the tenements identified as having been established in the 10-11th century (Carver 1980). These seem to have been associated with typical medieval backplot industries between the 12th and 14th centuries, with at least two of the properties (23 and 29) fronted by timber-framed houses and an initial association of the area with boneworking. Evidence suggested that towards the end of the 13th century bronze working emerged alongside boneworking as a small-scale industry within the area and, that by the end of the 14th century bronzesmiths occupied at least two and possibly all three of the properties. These three tenement plots therefore appear to have been either residential or associated with small scale industry.

Within the recent development area, earlier medieval activity was restricted to the northern side of the site (Area 1), some 60m north of Carver's trenches. Only limited areas were observed, the evidence comprising two pits and an associated soil dated to the $12^{th}/13^{th}$ century (Area 1; Period 3.1). The character of the activity represented was uncertain, however, one of the pits appeared to have been a cess pit suggesting further domestic occupation adjacent to the street. No evidence of craft or small-scale industrial activity was present.

10.3.2 The medieval defences

Documentary and archaeological evidence suggest that the medieval defensive circuit around Worcester was largely completed during the early 13th century, perhaps by 1216 (Beardsmore

considerable number of plots at this end of Friar Street and it is evident that he was a man of some considerable wealth, his name suggesting that he was probably a merchant. His property included three adjacent plots encompassing 33 to 37 Friar Street which he leased from the Priory and which extended from the street to the City Wall. It is also known that he had purchased land on Friar Street to the south of these three plots (corresponding with 39, Friar Street – 21 Sidbury) and that he added a further block of land used as gardens and extending to the rear of this plot back to the City Wall. In addition he is known to have held land across the street on the north-east corner of Edgar Street. He seems to be the most likely candidate to have constructed this high status stone-founded building having not only the status to support it but also the large property within which such a building could have stood.

This high status building in its large plot stood in sharp contrast to the tenement plots associated with small-scale industry lying to its south and identified on the 'Sidbury' site (Carver 1980). An interpretative summary of late 13th to early 14th century plot holdings and development is presented in Figure 33.

10.3.4 Later medieval activity, properties and gardens

Historically and archaeologically, the later medieval period can be demonstrated as a period of change for the former holding of Richard le Mercer (Area 1; Period 3.3-3.5). The stone-founded building was demolished sometime during the 15th century (Period 3.3), while by the time of the Reformation the property had been divided up; 33-37 Friar Street into two separate holdings (33-35 and 37), and the land to the rear of 37 into two gardens. The area once occupied by the building was therefore now divided into typical, narrow, medieval tenement plots in contrast to the earlier broad amalgamated plot.

Rather than a large hall set back from the street, the plots were now occupied by buildings fronting onto the street. These buildings probably each had a retail shop at the front and residential rooms to the rear of and above the shop, as described for 37 Friar Street in Edmund Packer's probate inventory of 1560. To the rear, the backplots would have been occupied by gardens and probably small-scale industrial activity. An area of internal floor surface (Phase 5; CG 119) identified in Trench 11 was indicative of a small outbuilding in the backplot of 37 Friar Street and this may equate with Edmund Packer's 'backe workynge howse'.

A further garden area, to the rear of 39 was investigated (Area 2) and had also been divided into plots (eight of them) of varying sizes. The latter were reached from the 16^{th} century onwards by Garden Alley, running between number 37 and the first house in Sidbury. One of the 8 plots, a long garden running alongside the wall, falls within the area investigated in Trenches 12 and 13, and was leased to the Talbot Inn in Sidbury which held it for a further two and a half centuries. Later medieval deposits in this area, especially within the long garden to the rear of the wall, reflected this use. Period 3.3 deposits included a path running behind the medieval City Wall, garden soil accumulations and a cess pit infilled with building demolition debris including decorated floor tile. The latter can probably be related to the demolition of the high status building to the west and was overlain by a garden soil (CG 211) of $14/15^{th}$ century date. Subsequent medieval activity included evidence for several timberframed structures, possibly representing sheds or workshop, along with several small cess pits.

10.4 Period 4: Post-medieval land-use (early 17th to late 18th century)

10.4.1 **Properties and gardens**

In Area 1, corresponding with 37 Friar Street, documentary evidence indicates that there was little change from the latest medieval phases. Building focussed on the street frontage with only minor changes indicated between the mid 16th century building owned by Edmund Packer and the mid-17th and early 18th century house owned by the Chetle family.

pile locations and borehole data suggest the presence of deep areas of fill which may be consistent with the extension of the quarries across much of the area to the rear of the Friar Street properties and inside the Wall. Carver (1980) suggested that they might be associated with a phase of quarrying of Roman iron slag for resmelting.

10.5 Period 5: 19th and 20th century land-use

Archaeological evidence of 19th and 20th century activity reflects the changes traceable in documentary and cartographic evidence which show the increasing development of the tenements and commercial and light industrial premises in this area of the town. In Area 2, Lilly's buildings were extended during this period and then demolished in the first half of the 20th century to make way for a warehouse. The malthouse at 37 Friar Street (Area 1) remained in use throughout the 19th century, although it was apparently extended. The early 20th century saw a change in use, to a boot factory, which by 1928 had been demolished to be replaced by a modern factory was constructed which retained the frontage building but redeveloped the rear.

In the mid-1970's along with the creation of City Walls Road the area saw changes which led to much of the development area being cleared and used as a car park. From 1987 when much of the area was scheduled as an ancient monument, English Heritage and local archaeologists have endeavoured in conjunction with the City Planning Department to achieve a solution to redeveloping the site that allowed preservation of remaining archaeological deposits *in situ*, the Warner Villages Cinemas development being the end product of this long process.

Publication

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. The Service intends to edit this report to form a publication text. Publication is intended in the Transactions of the Worcestershire Archaeological Society.

12. The archive

The project archive will be placed at Worcester City Museum and Art Gallery, Foregate Street, Worcester, WR1 1DT. A security copy of the paper archive will be retained by the Service.

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Figure 2: Previous work and location of SAMs.

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Figure 4: Borehole locations.

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Figure 5



Figure 6: 1st Edition Ordnance Survey (1885).

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Figure 7: Section from Richard Broad's map (1768)

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Figure 8: Section from George Young's Plan of Worcester 1779



Figure 9: Aerial photograph (1947) – showing factory build on the site c 1928



Figure 10: The Garden of an Inn by Jan Steen taken from Christopher Brown, 'Scenes of Everyday Life – Dutch Genre Paintings of the 17th Century', (Faber and Faber)



Figure 11: The garden of an inn by Jan Steen

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Figure 12: The first row of cottages built by Joseph Lilly. The latter buildings were put up to the north of this row (1824 Worcester City Map Book)



Figure 13: The gardens in Sidbury as shown on a survey made in 1863 for the Ecclesiastical Commissioners (Church of England Record Office, Worcester Capitular Estates FF2)



Figure 16: Area 1: Trenches 1,2 and 5, sections.



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Figure 17: Area 1, early pits and soils (Period 2/Period 3.1).



Figure 18: Area I, medieval building (Period 3.2).





Figure 20: Area 1, 19th century building (Period 5.1).



Figure 21: Area 1, Trench 11 sections (see Fig 18 for locations).

EAST-FACING ELEVATION



Figure 22: City Wall elevation.



Figure23:North part of City Wall elevation, showing original medieval build, late medieval rebuild, Civil War rebuild and 19th century drain.



Figure 24: Trench 12 section.











Figure 26: Trench 12, Period 4.2.



Figure 27: Trench 12, Period 4.5



Figure 28: Trench 4, section.



Figure 29: The pottery: 29.1, rim of cooking pot (fabric 64.4, context 1117); 29.2, rim of cooking pot (fabric 55, context 1288); 29.3, rim of mortarium displaying maker's stamp (context 1113); 29.4, detail of maker's stamp.







Figure 31: Worked stone: 31.1, fragment of a thick lias slab, originally circular; 31.2, fragment of Norwegian Rag whetstone; 31.3, fragment of a grindstone (grey micaceous sandstone); 31.4, lias slab used as a point sharpener.

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Figure 31 (continued): 31.5, fragment of burnt sandstone rotary quern; 31.6, fragment of red sandstone rotary quern; 31.7, slab of limestone used as a point sharpener.



Figure 32: Summary of Roman deposits

- 1: 1st/2nd century pebble surface (Trench 5)
- 2: ?early Roman groundsurface overlain by dumped deposits (Trench 11)
- 3: 1st/2nd century pebble surface with ruts (Trench 2)
- 4: 1st/2nd century features ?occupation/structures (Trench 4)
- 5: Roman iron slag surfaces (Darlington 1988 and Borehole 6)
- 6: 1st/2nd century occupation pebble surfaces, timber structure/s, ?ironworking furnace (Hirst 1975)
- 7: 1st/2nd century occupation timber structure/s (Shearer 1959)
- 8: Truncated area post-medieval quarrying (Carver 1976-77)
- 2nd/3rd century activity ruts and pits cut into earlier dumped deposit and overlaid by iron slag surface/s (Darlington 1988)
- 10: 1st L3rd/E4th century activity sequence of road surfaces with associated timber structures. Both industrial and domestic activities (Carver 1976-77)
- 11: Substantial 1st century ditch (Carver 1976-77)
- 12: Roman iron slag surface (Trench 17)
- 13: Substantial cut feature ?edge of ditch (Trench 18)
- 14: Projected alignment of Roman defensive ditch (Barker 1969 ditch "b")



Figure 33: Summary of evidence for early 14th century activity

Appendix 1: Area 1 structural data

Context	Туре	Description	TPQ	Cxt Group	Group type	Interpretation	Por	Phase	Comments
213	positive	compact pebble surface in silty clay matrix bedded onto natural	n/a	101	surface - metalled	yard/street	1	1	similar construction to most LIA and RBR pebble surfaces in area
215	fitt	grey slity clay fill of rut	n/a	101	surface - metalleo	yard/street	1	1	
216	cut	nut crossing metalled surface 213 on a NE to SW alignment	n/a	101	surface - metalled	rut fill (in yard/street)	1	1	
506	positive	compact pebble surface in silty clay matrix - slight slope to S	n/a	102	surface - metalled	rut (in yard/street)	1	1	construction uncertain but possibly bedded onto natural as CG1
212	layer	yellow brown, silty clay skim over surface	1st	103	layer - accumulation	trample	11	1	similar skims seen elsewhere over this type of surface
1175	fiil/layer	horizontally banded fills seen only in sides of pit 1142	?	104	layers - dumped	indeterminate	1	1	dumped deposits overlying a buried soil. Probably equate with 1st/2nd century dumped deposits recorded on 'Sidbury' site
1140	fili (of 1142)	upper fill, 0.40m in depth. A dark grey brown slity loam with much limestone rubble, some sandstone rubble, pebbles, charcoal fleck and pot	11th	105	pit with primary and secondary fills	plt - Indeterminate primary function with secondary use as rubbish pit	2	1	stone in upper fill suggets craft/industrial activity - see F Roe's report
1141	fill (of 1142)	lower fill, 0.45m thick. Similar to upper but less stone and rather gritty	11th	105	pit with primary and secondary fills	pit - Indeterminate primary function with secondary use as rubbish pit	2	1	
1142	cut	sub-circular pit with near vertical sides and a gently concave base. Approx 1.9m in diameter and 1.25m deep	11th	105	pit with primary and secondary fills	pit - indeterminate primary function with secondary use as rubbish pit	2	1	pit - may have primamry function of indeterminate character. Infill suggests craft or industrial activity
504	tayer	deep slity clay soil, 0.70m thick with charcoal flocking	1st	106	layer - accumulation	ground surface/garden soll	3	1	although RBR date from TPQ this is liable to be long lived accumulation of dark earth/later garden soil type
1133	layer	dark grey, silty clay deposit, 0.15m thick with ooc charcoal fleck, and rare flecks of mortar and frags of brick/tile	13/14th	107	layer - accumulation/spread	ground surface/garden soil	3	1	part of substantial soil accumulation (see also 1143 & 1144), at least 0.60m deep in total. Probably contemporary with CG 8 and 9. Probably formed over a long period of time - potentially from the Roman period onwards. Similar to deep, complex accumulations observed across much of Worcester, originating as late Roman/early post-Roman 'dark earth' type deposits and used and reworked into the medieval period. Pit upcast and other material probably contributes to their later development
1143	layer	dark grey brown, silty clay. 0,45m thick with charcoal fleck and bigger frags	13th	107	layer - accumulation	ground surface/garden soil	3	1	see 1133
1144	layer	mid grey-brown silty loarn with occasional small decayed sandstone fragments, mortar and charcoal flecks - only observed in plan	n/a	107	layer - accumulation/dump	ground surface/garden soil	3	1	see 1133
1174	layer	0.18m thick, mid grey-brown, sandy loam with mortar fleck and sandstone fragments	14th	108	layer - accumulation/dump	ground surface/garden soll	3	1	probably contemporary with CG7 and CG9. This element of it was sealed by a later building (CG12), the other two parts continued in use. Overall the deposit probably represents material accumulated and dumped (pit upcast?) over a long period of time (possibly from the Roman period onwards) prior to construction of CG12. At least 0.53m deep in total
1180	layer	0.10-0.15m thick deposit of heavily charcoal flecked dark grey-brown sandy learn. Only recorded in plan and section - none excavated	n/a	108	layer - accumulation/dump	ground surface/garden soll	3	1	pre-building ground surface - see also 1174
1181	layer	0.20m+ deposit which was only recorded in section - none excavated	n/a	108	layer - accumulation/dump	ground surface/garden soil	3	1	soll layer beneath 1180 but probably of similar character - see 1174
1419	layer	mid brown clay silt with occ stone and charcoal flock	in/a	108	layer - accumulation/dump	ground surface/garden soil	3	1	probably contemporary with CG 7 and CG 9 - forming pre-building (CG 11) ground surface. This element of it was sealed by the building, the other two parts continued in use. Also see 1174
1424	layer	0.23+ deposit of charcoal flecked, mid grey, clay slit. Only observed in plan.	n/a	108	layer - accumulation/dump	ground surface/garden soil	3	1	probably contemporary with CG 7 and CG 9 - forming pre-building (CG 11) ground surface. This element lay to the west of the building and continued in use like CG 7 and CG 9. Also see 1174
210	layer	0.35m thick, dark grey-brown, silty clay loam with gravel content	14th	109	layer - accumulation/dump	ground surface/garden soil	3	1	0.52m+ deep, accumulation with gravely upper part somewhat arbitrarity separated from overlying deposit CG20. Dating suggests this and the later soit CG20 represent an accumulation of soits formed over a long period of time. Initial deposit (211) probably pre- dates construction of building CG 11, while 210 may be contemporary.
211	layer	0.17m thick, greenish, dark grey-brown, silty clay	13th	109	layer - accumulation/dump	ground surface/garden soil	3	1	see 210

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Appendix 1: Area 1 structural data

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Context	Туре	Description	TPQ	Cxt Group	Group type	Interpretation	Per	Phase	Comments
1169	layer	yellow-brown silty clay with abundant roof tile. Occ mortar, sandstone frag & floor tile	14th	114	llayer - dump/spread	demolítion debris	3	3	see 117
1170	layer	similar deposit to 1169, occupying a slight hollow over slump of floor remnant of building CG 112. Contained similar inclusions but much more floor tile	15th	114	layer - dump/spread	demolition debris	3	3	see 117
1178	fill (of 1179)	mortar rich fill of pit 1179. Observed only in section	л/а	114	robber pit	pit robbing elements of building CG 112	3	3	robber pit fill
1179	cut	pit containing mortar rich fill 1178. Observed only in section	n/a	114	robbor pit	pit robbing elements of building CG 112	3	3	robber pit fill
1182	fill (of 1183)	fill with upper part containing abundant sandstone rubble and mortar. Lower part soily but including tile	n/a	115	robber pit	pit robbing elements of building CG 112	3	3	see 1183
1183	cut	cut feature only observed in section of later sewer trench. Cuts through building demolition debris of CG 114	ກ/a	115	robber pit	pit robbing elements of building CG 112	3	3	pit possibly associated with robbing as represented by CG14 but apparently slightly later and thus potentially representing a second phase of robbing of building CG12
1166	layer	0.20m thick, very dark grey brown, clay loam with range of inclusions including tile, mortar, charcoal, bone, pottery and iron slag	15th	116	layer - dump/accumulation	ground surface	3	4	accumulation or dump of material including building debris and domestic waste. Probably formed a ground surface or garden soil which developed over a period of time between demotition of building CG12 and later construction (see 1158)
1167	fill/layer	0.30m thick deposit. Similar to 1166	15th	116	layer - dump/accumulation (in 1168)	ground surface	3	4	part of 1166 within stump 1168
1168	cut?	distinct depression appearing in plan to represent a cut feature but in section shown to probably represent a slump over an earlier pit	n/a	116	slump	ground surface	3	4	arbitrary cut number allocated to hollow formed by slumping over earlier pit. This infilled with 1167 and effectively formed part of same ground surface as 1166
1409	layer	mid dark brown, silty loam with tile and peoble inclusions	n/a	116	layer - dump/accumulation	ground surface	3	4	see 1166
113	fill (of 114)	dark grey green deposit with charcoal and mortar flecking	15/16th	117	pit with primary fill	cess pit	3	4	cess pit fill
114	cut	feature truncated by later sewer trench. Apparently sub-square in plan, at least 1.40m across and 1.20m deep with single fill	15/16th	117	pit with primary fill	cess pit	3	4	cess pit - no physical relationship to a contemporary soit was established but probably associated with period of activity on CG16
1159	layer	0.10m thick, pale buff, charcoal flecked and rather powdery sitty deposit in shallow hollow. Cut by but probably associated with 1165	n/a	118	layor/fill - Industrial	Industrial activity - ?ironworking	3	4	possibly highly fired or burnt soil/slit clay within a shallow depression which may result from slumping over an underlying pit (see also CG16). This was cut by or associated with a small cut feature (1164/1165)
1164	ល ា	fill comprising iron slag fragments (small, medium and large pieces) underlying a deposi of ash, charcoal and small stones	n/a t	118	pit with primary fill	industrial activity - ?ironworking	3	4	ironworking waste (?smithing debris)
1165	cut	slightly irregular cut feature filled by 1164 and poonly defined against 1159 within a broader shallow depression	n/a	118	pit with primary fill	industrial activity - ?ironworking	3	4	smail hearth or furnace associated with Iron working (?smithing)
106	positive	yellowish white, crushed lime mortar	13th	119	surface - mortar floor	floor	3	5	probably an internal surface or bedding for a surface. Different colours of its three elements 106, 112 and 1158 probably result from differential staining from deposits below and above since texture was very similar (granular)
112	positive	greenish grey deposit, granular in texture and sealing cess pit CG 115	n/a	119	surface - mortar floor	floor	3	5	see 106
1158	positive	0.08m thick, orange brown, granular sandy mortar - much decayed	n/a	119	surface - mortar floor	floor .	3	5	see 106
1160	layer	0.05m thick skim of grey brown clay loam with high ash content, mortar and charcoal fleck and some sandstone fragments. Spread across top of mortar surface 1158	n/a	119	surface - mortar floor	floor	3	5	occupation debris (?desertion) across top of mortar floor - see 106

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Context	Туре	Description	TPQ	Cxt Group	Group type	Interpretation	Per	Phase	Comments
205	cut	shallow linear with U-shaped profile. N-S aligned	n/a	126	gulíy	boundary	4	2	small gully or ditch probably forming a drainage/boundary. Located within sequence of built up soils comprising CG25 and CG27
201	layer/fill	0.90m thick, very dark grey brown, silty clay loarn with wide range of inclusions	mid 18th	127	layer - accumutation/dump	ground surface/garden soil	4	2	deposit accumualted over a period of time. Lower part (202) appears to have been trampled. Upper part interpreted as a garden soil
202	layer/fill	0.14m thick, dark grey brown, slity clay loam	17th	127	layer - spread/trample	ground surface/garden soll	4	2	see 201
206	cut?	shallow depression, investigated as a feature but probably a variation within 202	n/a	127	layer - accumulation (within depression)	ground surface/garden soll	4	2	see 201
507	fill/cut	area of soft, wet, very dark grey brown, silty clay fill with charcoal and tile. Observed below cellar (CG 133) and truncated by it. Cellar wall reinforced/underpinned over this	n/a	136	pit with primary fill	coss pit	4	2	?cess pit
1138	layer/Oll	compact, dark-brown, clay loam with tile fragments and charcoal flecking. Restricted to area bounded by CG 131	18th	128	layer - spread/trample	Indeterminate surface	4	3	recording suggests this was earlier than elements of structure CG31 but this was not excavated and it is more likely that it was bounded by CG31 and formed an internal or external trampled surface
1112	positíve	well constructed cobbled surface of medium to large pebbles	n/a	129	surface - external	yard	4	3	
1147	cut	construction cut for well	n/a	130	well	well	4	3	well with associated drain
1148	词 (of 1149)	construction fill for well	n/a	130	well	well	4	3	well with associated drain
1149	positive	well wall	E18th	130	well	well	4	3	well with associated drain
1153	Cut	construction cut for drain into well	n/a	130	drain	Idrain	4	3	well with associated drain
1154	fill (of 1153)	drain to well and associated fill	n/a	130	drain	drain	14	3	well with associated drain
1120	positive	mortared sandstone wall on N-S alignment. Abutts 1135	n/a	131	building	building - check documentary	4	3	remanant of a building with possibly more than one phase of construction. Remains comprise sandstone walls 1120 and 1134, brick upper coursing 1134, (?internal) mortar
		- -							surface 1139, (?external) brick surface 1145 and construction cuts 1121, 1136 and 1137. CG28 may be associated
1121	cut	construction cut for 1120	n/a	131	building	building - check documentary	4	3	see 1120
1122	fill	construction fill for 1120	17th	131	building	building - check documentary	4	3	see 1120
1134	positive	well mortar/cement bonded brick wall over sandstone wall 1135. May be later addition or original build	n/a	131	building	building - check documentary	4	3	see 1120
1135	positive	sandstone wall abutted by 1120 and used as base course for brick wall 1134. May pre-date 1134 and the latter be a rebuild or could be all original build	n/a	131	building	building - check documentary	/ 4	3	see 1120
1136	cut	construction cut associated with 1134 and 1135	18th	131	building	building - check documentary	4	3	see 1120
1137	cut	construction cut associated with 1134 and 1135	n/a	131	building	building - check documentary	4	3	see 1120
1139	.positive	compact mortar surface with some tile and charcoal. Butts 1135	n/a	131	building	building - check documentary	4	3	sec 1120
1145	positive	mortared red brick floor/yard surface	n/ə	131	building	building - check documentary	4	3	see 1120
1107	cut	construction cut for cellar	n/a	132	ceilar	cellar - check documentary	4	3	cellar probably constructed in several phases but basically comprising floor (1108), wails and steps (1109 and 1425), and construction related deposits (1113, 1114, 1115 and 1426)
1108	positive	cellar floor comprising mortared red quarry tiles. These were laid onto a mortar layer over sand bodding over a further mortar layor suggesting perhaps several phases of flooring	n/a	132	cellar	ceilar - check documentary	4	3	5ee 1107

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Context	Туро	Description	TPQ	Cxt Group	Group type	Interpretation	Per	Phase	Comments
1117	fill (of 1118)	dark grey brown sandy loam with many inclusions and finds including disturbed debris	L18th	141	sewer	sewer	5	1	sewer inserted between extant buildings - probably Victorian
		from 13/14th century building (decorated floor tiles, roof tiles, sandstone rubble, mortar). Fills around ceramic sewor pipe				- -			
1118	cut	near vertical sided sewer trench on east to west alignment curving to avoid contemporary structures CG 144 and CG 132	n/a	141	sewer	sewər	5	1	see 1117
1410	layer	layer - originally identified as a fill within cut 1411	n/a	142	layer - indeterminate	indeterminate	5	1	
1102	positive	red brick surface abutting blue brick surface 1116	n/a	143	surface - external	yard/alleyway	5	1	
1116	positive	blue brick surface abutting red brick 1102	n/a	143	surface - external	yard/alleyway	5	1	
1123	positive	blue brick surface	L18/19th	144	building	building	5	1	floor surface over vault. Part of a building with a number of east-west aligned vaults under the floor. One vault survived extant, the other two had been collapsed and infilled. Only some elements formally described - the remainder were planned
1126	layer	mid brown sandy soil with heavy mortar flecking deposited (as levelling material) over mortar 1127 and roof of vault 1128.	18th	144	building	building	5	1	see 1123 - part of levelling layers forming bedding for floor 1123 over vault 1128
1127	layer	compact mortar and brick fragment horizon	n/a	144	building	building	5	1	see 1123 - part of lovelling layers forming bedding for floor 1123 over vault 1128
1128	positive	mortared brick vault roof spanning void between walls 1129 and 1130. Possibly added onto these rather than part of original build (bricks differed)	n/a	144	building	building	5	1	see 1123 - vault below building. Runs east to west. Possibly constructed to vent a boiler or run drive belts along below factory floor
1129	positive	mortared brick - south wall of vault	n/a	144	building	building	5	1	see 1123 - vault wall
1130	positive	mortared brick - north wall of vault	n/a	144	building	building	5	1	see 1123 - vault wall
1131	layer	mortar and ash spread on earth floor of vault	n/a	144	building	building	5	1	see 1123 - debris accumulated on floor of vault
1132	cut	construction cut for vault	n/a	144	building	building	5	1	see 1123
1146	positive	wall of mortared brick. Forms north wall of building. Broadiy east-west aligned but stepped	n/a	144	building	building	5	1	see 1123 - north walt of building
1101	layer	loose, grey brown, sandy loam deposit with much mortar, tile/brick fragments and charcoal	20th	145	layer - Ievelling/dump	demolition debris	5	2	demolition of carlier building
1106	layer	loose, grey brown, sandy loam deposit with much mortar, tile/brick fragments and charcoal	19ih	145	layer - levelling/dump	demolition debris	5	2	demolition of earlier building
1124	ทีม (of 1125)	loose, reddish brown sandy deposit with much brick rubble and mortar	18/19th	145	robber trench	robber trench	5	2	demolition of earlier building
1125	cut	linear cut into vault (part of CG 144) below	n/a	145	robber trench	robber trench	5	2	demolition of earlier building
1103	cut	construction cut for wall of building	n/a	146	building	building - former print works	5	2	element of building occupying site at time of project (since demolished)
1104	positive	north wall of building on site at time of excavation (now demolished)	n/a	146	building	building - former print works	5	2	element of building occupying site at time of project (since demolished)
1105	fili (of 1103)	loose rubbly construction fill	19/20th	146	building	building - former print works	5	2	element of building occupying site at time of project (since demolished)
108	cut	E-W aligned drain cut	n/a	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
109	(iiii (of 108)	fill and drain pipe	n/a	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1110	🖽 (of 1111)	fill and drain pipe	19th	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1111	Cut	E-W aligned drain cut	n/a	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1402	fill (of 1406)	fill over drain pipe	L19/20th	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1403	fill (of 1406)	fill over drain pipe	14/15th	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1404	fill (of 1406)	drain pipe	n/a	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)
1406	lout	E-W alloned drain cut	n/a	147	sewer/drain	sewer/drain	5	2	storm drain of building occupying site at time of project (since demolished)

Context	Туре	Description	TPQ	Cxt group	Group type	Interpretation	Per	Phase	Comment
1200	arbitrary	unstratified finds from 1201	20th	254	arbitrary	unstratified finds from machining of trench	n/a	n/a	u's finds
1201	arbitrary	1998 machine cut for archaeological intervention	20th	254	arbitrary	trench machining	n/a	n/a	machine cut; filled by 1200
1324	layer	light blue-grey, sandy clay with weathered stone	ก/อ	201	natural	natural (see D Jordan)	0	0	FS98/9 - natural
1315	layor	layer of moist sandy clay containing in-situ stratigraphy, possibly representing former ground surface cut by medieval wall construction	n/a	202	layer - indeterminate	ground surface - pre dates medieval defences	3	1	layer= FS98/15
306	layer	compact very dark grey brown silty clay containing occasional small pebbles and charcoal flecks	?12th	271	layer - indeterminate	Ground surface pre- dates medieval defences	3	1	
1325	layer	mid red-brown clay loarn	n/a	257	layer - indeterminate	layer - indeterminate (see D Jordan)	3	1	FS98/8 - layer/fill of ?quarry ditch
1326	layer	dark, moderately organic coarse sandy laom	n/a	257	layer - indeterminate	layer - indeterminate (see D Jordan)	3	1	FS98/7 - layer
1316	cut	shallow linear construction cut. 0.12m wide x 0.18m deep	n/a	203	wall - sandstone	medieval City Wall	3	2	construction cut for 1317; filled by 1318
1317	fill (of 1316)	friable mid orangey-brown clay loam construction fill containing moderate amounts of mortar and small sandstone chunks, occasional pebbles and charcoal flecking	n/a	203	wall - sandstone	medieval City Wall	3	2	medieval city wall
1318	positive	five courses of dressed and mortared sandstone ashlar blocks forming a north to south aligned wall. Some additional rubble, mortar/course visible above this	13th	203	wall - sandstone	medieval City Wall	3	2	fill of 1316
21330	positive	length of wall - same as 21320	n/a	269	construction	City Wall	3	2	
21319	positive	wall comprising large squared sandstone blocks bonded with light reddish brown mortar. 2 rogular courses seen in section. <0.70m high	n/a	269	construction	City Wall	3	2	truncated by service trench 21307. W face butted by re- facing 21318 Continues as 21320 to S of this truncation and as 21330 to S of baulk
21320	positive	wall comprising large squared sandstone blocks bonded with light reddish brown mortar. 4 regular courses seen in section, <0.84m high, upper 2 courses roughly squared and lower 2 courses ashlar	n/a	269	construction	City Wall	3	2	truncated by service trench 21307. Continues as 13019 to N of this truncation and as 21330 to S of baulk
1262	layer	compact mixed orange to red-brown stony and sand clay, containing pebbles, sandstone chunks and some charcoal flecking	12-13th	204	layer - dump	bank of medieval defences	3	2	layer - FS98/11 & /13
1314	layer	compact grey to orangey brown sandy clay, containing pebbles, some small sandstone chunks and occasional charcoal flecks	13th	204	layer - dump	bank of medieval defences	3	2	layer - FS98/12 & /14

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Context	Туре	Description	TPQ	Cxt group	Group type	Interpretation	Per	Phase	Comment
1281	fill (of 1282)	loose mid grey-brown silty loam, containing small sandstone chunks and small stones, occasional small fragments of slag, bone, pot,	17th	215	indeterminate timber structure	part of post-built structure	3	5	fill of 1282
4000		peoples and charcoal flecking	- 1-	our.	ta data wata ata Atar 5	uport of a pot huilt	<u> </u>	5	- asthala sub filed by d29d
1282	Cut	sub-rounded posthole cut	n/a	215	structure	structure	3	2	positione cut; miled by 1281
1293	fiil (of 1294)	friable mid grey silty loam soil, containing occasional fragments of bone, tile and pot	?16th	216	pit with primary fill	cess pit	3	5	fill of 1294
1294	cut	sub-rounded steep-sided pit	n/a	216	pit with primary fill	cess pit	3	5	?cesspit cut; filled by 1293
1291	fill (of 1292)	friable mid brown loam, containing cess waste	n/a	217	pit with primary fili	cess pit	3	5	fill of 1292
1292	cut	sub-rounded steep-sided pit	17th	217	pit with primary fill	cess pit	3	5	pit cut; filled by 1291
1297	fill (of 1298)	compact dark brown clay loam	n/a	218	indeterminate timber structure	part of post-built structure	3	5	fill of 1298
1298	cut	irregular shaped shallow posthole cut, possibly containing one or more stakeholes	n/a	218	indeterminate timber structure	part of post-built structure	3	5	posthole cut; filled by 1297
1285	layer	compact mid orangey-brown clay loam, containing frequent crushed sandstone fragments, occasional lias and bone and moderate charcoal flecking	17th	223	layer - dump	ground surface - ?derived from upcast from pit/feature digging	4	1	layer
1307	fill (of 1308)	friable mid brown clay loam, containing charcoal and some stones	n/a	224	indeterminate timber structure	part of post-built structure	4	1	fill of 1308
1308	cut	Irregular-shaped posthole	nia	224	indeterminate timber structure	part of post-built structure	4	1	posthole cut, filled by 1307
1283	fill (of 1284)	friable mid brown-grey silty loam, containing occasional sandstone, pebbles and charcoal	17th	225	indeterminate timber structure	part of post-built structure	4	1	fill of 1284
1284	cut	circular steep-sided pit or large posthole. Only partially excavated. c. 1.00m diameter x 0.46m deep	n/a	225	indeterminate timbor structure	part of post-built structure	4	1	large posthole or pit cut; filled by 1283
1295	fill (of 1296)	friable mid orangey brown clay loam, containing some tile, charcoal and pebbles	RBR	225	indeterminate timber structure	part of post-built structure	4	1	fill of 1296
1296	cut	sub-rectangular flat based posthole	n/a	225	indeterminate timber structure	part of post-built structure	4	1	posthole cut; filled by 1295
1305	fill (of 1306)	friable dark grey-brown clay loam, containing occasional charcoal, tile, lead slag, sandstone, bone, pot pebbles and an iron object	17th	226	indeterminate timber structure	part of post-built structure	4	1	fill of 1306
1306	cut	sub-square posthole	n/a	226	indeterminate timber structure	part of post-built structure	4	1	posthole cut; filled by 1305
1238	fill (of 1239)	slightly pebbly mid grey-brown silty loam	17th	227	indeterminate timber structure	part of post-built structure	4	1	fill of 1239
1239	cut	sub-circular postpipe within CG 226	n/a	227	indeterminate timber structure	part of post-built structure	4	1	postpipe cut; filled by 1238
1303	fill (of 1304)	friable dark grey brown clay loam, containing moderate amounts of tile, animal bone and coal fragments, and occasional charcoal, ash, sandstone, brick and mortar	17th	228	gully	drain or possibly boundary	4	1	fill of 1304
1304		sided linear gully	n/a	226	- Sanà	boundary	1		

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Context	Туре	Description	TPQ	Cxt group	Group type	Interpretation	Per	Phase	Comment
1267	fill (of 1268)	mid grey-brown silty loarn containing pebbles, building material, bone, slag, clay pipe and pottery fragments	17th	234	indeterminate timber structure	part of post-built structure	4	2	fill of 1268
1268	cut	sub-rounded steep-sided posthole	n/a	234	indeterminate timber structure	part of post-built structure	4	2	posthole cut; filled by 1267
1244	layer	friable mid brown clayey loam 0.25m thick, in E part of trench. Contained animal bone, charcoal, pebbles and roof tile, occasional coal, mortar, and clay pipe stems	17th	222	layer - dump	?Civil war period bank	4	3	layer
303	layer	compact mid brown sandy loam containing rare charcoal flecks, rare small stones and occasional large patches of clay.	n/a	273	layer - dump	?Civil War period bank	4	3	
304	FN	moderate grey brown silt loam containing occasional charcoal flecks, small pebbles, small fragments of brick and tile, and small stones, rare pot fragments and small mortar lumps	n/a	274	cut - indeterminate	Prepair of City Wall	4	3	
305	Fill	loose dark grey brown silty loam containing abundant brick and tile fragments, abundant mortar chunks and occasional small to medium stones	ก/ล	274	cut - indeterminate	Prepair of City Wall	4	3	
308	Cut	steep-sided cut running N-S parallel with wall	n/a	274	cut - indeterminate	?repair of City Wall	4	3	
21318	positive	masonry structure comprising large roughly squared sandstone blocks bonded with hard light brownish white mortar. 2 irregular courses exposed in section <0.90m long x <0.60m wide x <0.40m high	n/a	265	Construction	?consolidation of City Wall	4	3	Truncated by service trench 21307
1230	layer	mixed soil horizon containing frequent sandstone fragments, occasional brick and tile rubble, bone and charcoal	17th	258	layer - dump/spread	?demolition horizon	4	3	layer overlying fills of postholes 1250/1252/1254
1250	fill (of 1251)	mid grey-brown silty loam	17th	231	indeterminate timber structure	part of post-built structure	4	3	fill of 1251
1251	cut	small sub-circular posthole	n/a	231	indeterminate timber structure	part of post-built structure	4	3	posthole cut; filled by 1250
1252	fill (of 1253)	mid-grey brown silty loam	13-18th	231	indeterminate timber - structure	part of post-built structure	4	3	fill of 1253
1253	cut	sub-square posthole	n/a	231	indeterminate timber structure	part of post-built structure	4	3	posthole cut; filled by 1252
1254	fill (of 1255)	mid-grey brown silty loarn	17th	231	indeterminate timber structure	part of post-built structure	4	3	fill of 1255
1255	cut	shallow, sub-circular posthole	ກ/a	231	indeterminate timber structure	part of post-built structure	4	3	posthole cut; filled by 1254
1258	fill (of 1259)	mid grey-brown silty loam	n/a	232	indeterminate timber structure	part of post-built structure	4	3	fill of 1259
1259	cut	small, shallow circular posthole	n/a	232	indeterminate timber structure	part of post-built structure	4	3	posthole cut; filled by 1258
1260	fill (of 1261)	mid grey-brown silty loam	n/a	232	indeterminate timber structure	part of post-built structure	4	3	fill of 1261

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Context	Туре	Description	TPQ	Cxt group	Group type	Interpretation	Per	Phase	Comment
1289	fill (of 1290)	loose mid grey-brown silty loam, containing	LMED	236	indeterminate timber	part of post-built	4	4	fill of 1290
		some pebbles, bone and pot fragments			structure	structure		1	
1290	cut	sub-circular posthole	n/a	236	indeterminate timber	part of post-built	4	4	posthole cut, filled by 1289
					structure	structure			
1236	fill (of 1237)	loose mid grey-brown silty loam, containing	л/а	237	indeterminate timber	part of post-built	4	4	fill of 1237
1		moderate charcoal chunks and bone, and some			structure	structure			
-		brick and tile							
1237	cut	sub-circular posthole	n/a	237	indeterminate timber	part of post-built	4	4	posthole cut; filled by 1236
	<u> </u>				structure	structure			
301	Layer	moderate very dark grey brown silty loam	n/a	275	layer - dump	levelling	4	4	
		containing occasional flecks of charcoal, small						[
		to medium fragments of brick and tile, small	i				1		
•	-l	peoples and stones				1	<u> </u>		
302	Layer	moderate dark grey brown silty loam containing	C13th-C16th	275	layer - dump	levelling	4	4	
		charcoal lumps and necks, monar magments,		ĺ					
		occasional brick and ble and stones							
04000			a /a	007	indeferminete timber	least of post built	1.	4	Eill of postbolo out 24202
21322	1111 (OF 15025)	small charcoal flacks	rva	201	structure	structure	4	4	Fill of positiole cut 27525
21323	Jourt .	sub-circular cut 0.14 0.20m diamator	n/2	267	indotorminate timbor	part of post built	1	1	Filled by 21322
21525		Sub-circular cut 0.14 - 0.2011 diameter	TIV2	201	structure	structure	1	ľ	1 MOO UY 21022
21324	fill (of 13025)	firm midbrown silt loam containing rare small	n/a	267	indeterminate timber	part of post-built	4	4	Fill of posthole cut 21325
		charcoal flecks			structure	structure	1		
21325	cut	sub-circular cut 0.20m diameter	n/a	267	indeterminate timber	part of post-built	4	4	Filled by 21324
					structure	structure			
21326	fill (of 13027)	compact mid brown silty sand containing rare	n/a	270	cut - indeterminate	1	4	4	Fill of 21327
		small stones, brick fragments and mortar flecks		1					
21327	cut	linear N-S aligned unexcavated cut <1.05m	n/a	270	cut - indeterminate		4	4	Filled by 21326
		long and <0.30m wide							
21328	fill (of 13029)	firm mid brown silty sand containing rare small	n/a	270	cut - indeterminate		4	4	Fill of 21329
		pebbles						1	
21329	cut	unexcavated sub-circular cut 0.30m long x	n/a	270	cut - indeterminate		4	4	Filled by 21328
		<0.30m wide						·	
1216	layer	friable mid grey-brown clay loam, containing	L18/19th	239	layer -	ground	4	5	layer
		moderate amounts of bone, charcoal, pebbles			dump/accumulation	surface/garden soil			
		and sandstone, with some building material							
4047			404			1	+	r	
11217	layer	made mid grey-brown clay loam, containing	1800	243	layer -	ground	4	5	layer
1.		charcoal bore, not evister shell and clav pipe			uumpiaceumulauum	Sunace/garden sol			
1		Indicoust, cone, por, syster shell and clay pipe	l					ļ	
1215	laver	friable dark grey-brown silty loam containing	18th	244	laver +	around	4	5	laver
1210	hayer	frequent charcoal flecks, occasional building	1001	244	dumn/accumutation	sufface/garden soil	17	1	layor
		Imaterial and iron slag			·	Sounded galacit Sou			
1206	-	N S pleased public wall formed of game	5/2	1020	Ibuilding) oback documentory	1	5	sandstone wall @W and
1200	posiave	dressed sandstone blocks (av. 0.32m x 0.20m)	144	230	ստասուց	where occurrencery	ſ	ľ	Sandorono well Way ond
		and packing, all with traces of mortar within					1		· ·
	i.	construction cut 1207	1						
1	11		+				1		

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Context	Туре	Description	TPQ	Cxt group	Group type	Interpretation	Per	Phase	Comment
21313	cut	linear parallel sided N-S aligned cut.	n/a	263	construction	?consolidation of city wall	4	5	W edge cuts 21308, E edge cuts ?rebuild 21312
21312	positive	single course of large roughly squared	n/a	263	construction	?consolidation of city	4	5	Stone size variable from 200x200x250mm to
		sandstone blocks bonded with hard light yelllow/grey white mortar				wall			500x200x250mm. Largest stone chamfered, flush with E- face of City Wall
21317	positive	unexcavated ceramic pipe in construction trench	n/a	262	sewer/drain	sewer/drain	4	5	Sewer drain pipe
21305	fill (of 13007)	firm mid-brown silty sand containing frequent small and medium brick fragments and some ceramic pipe fragments	C18th	262	sewer/drain	sewer/drain	4	5	Fill of construction cut for drain 13017
21307	cut	E-W aligned linear cut <1.54m long by 0.60m wide and upto 1.07m deep.	n/a	262	sewer/drain	sewer/drain	4	5	Construction cut for drain 13017
1221	positive	building corner formed by sections of N-S and E-W brick wall. This and associated floor (1337) butted the walls of CG 242	n/a	251	building	building	4	5	brick walls
1337	positive	red brick floor - one course thick	n/a	251	building	building	4	5	brick floor within 1221
21308	layer	firm dark brownish grey sandy silt upto 0.05m deep	n/a	264	layer	indeterminate	4	5	
21309	layer	firm dark brownish grey sandy silt containing moderate small charcoal flecks	n/a	264	layer - dump	leveiling	4	5	Layer underlying 21308 and over 21310
21310	layer	firm dark brownish grey sandy silt containing frequent small mortar fragments and occasiona small brick fragments	n/a	264	layer - dump	levelling	4	5	
21316	layer	firm mid brown sand silt containing rare small stones, rare small mortar fragments, and rare small to medium cyster shell	C14th/15th	264	layer - dump	levelling	4	5	
21331	layer	firm dark greyish brown sandy silt containing occasional small pebbles, rare small brick and mortar fragments upto 1.00m deep, machine and hand excavated	n/a	264	Layer - dump	levelling	4	5	Cut by concrete foundation for modern boundary wall on City Wall
1213	fill (of 1214)	fill comprising abundant sm-med chunks sandstone and mortar and rare brick	n/a	250	pit with primary fill	rubbish pit - for disposal of construction debris	4	5	fill of 1214
1214	cut	1.04m long and <0.50m wide pit	n/a	250	pit with primary fill	rubbish pit - for disposal of construction debris	4	5	?foundation cut; filled by 1213
1338	layer	machine-excavated layers of very mixed dark grey soils containing moderate amounts of charcoal, coal ash spreads, mortar, brick and tile, sandstone chunks and pebbles	n/a	256	layer - dump	levelling	5	1	levelling layer above 1205
1335	positive	1.20m length of tiled yard/floor surface seen in section, up to 0.08m thick, partially robbed and extending E of 1204 (CG 242)	n/a	255	surface	yard or floor associated with building CG 242	5	1	tiled yard surface in section
1336	positive	0.70m length of mortar floor surface seen in section, up to 0.06m thick, partially robbed, but extending to W of 1204 (CG 242)	n/a	255	surface	yard or floor associated with building CG 242	5	1	mortar floor surface in section

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Excavations at Friar Street, Worcester - Soils

17 September 1998

Summary

Soils and soil parent materials were examined on site at the Friar Street excavation and in the laboratory. All the soils had the same original parent materials derived from the underlying Keuper marl and glacial sand and gravel. The soils within the two archaeological structures examined in detail were described and their origin explored.

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Introduction

The site lies among buildings fronting onto Friar Street, in the centre of Worcester on a terrace above the river Severn at a height of about 19m above OD.

The study

Relevant geological maps were examined before the site was visited on 18 August 1998, during excavations in advance of development. Small trenches were open from which a few of the soils of the site could be examined in plan and section. The strata were also examined as disturbed samples obtained by hand auger where trenches were not available or did not reach sufficient depth. Samples of 50 - 100g of soil were taken and intact samples removed in plastic boxes for laboratory examination.

In the laboratory the samples were described and examined by low and high-power microscope. The fine matter was then dispersed and the particles larger than fine sand were characterised by grain form and mineralogy.

This study was intended to address specific questions concerning the origin of strata found underlying a Roman pit and within the strata of a 12th century defensive bank. Observations on the soils and their parent materials may, however, have wider significance.

The strata beneath the Roman pit, within an abandoned industrial building, were studied in order to provide clues as to their origin. No vertical section of the strata was available and so they were sampled by hand auger to a depth of 60cm from the bottom of the pit.

The strata of the bank were examined in section and, in the case of the upper stratum, in plan. An attempt was also made to sample undisturbed and unaltered parent material near to the bank by hand auger but this was abandoned at a depth of 1.4 metres in weathered sand and clay - probably of natural origin but not unaltered as hoped.

Results

The samples returned to the laboratory are described in the appendix. Samples at site 1 were taken by hand auger from beneath the Roman pit at the following depths:

Sample FS98/1 and intact sample FS98/6	stratum 1	17.67-17.52m OD
Sample FS98/2	stratum 2	17.52-17.35m OD
Sample FS98/3	stratum 3	17.35-17.27m OD
Sample FS98/4	stratum 4	17.27-17.12m OD
Sample FS98/5	stratum 5	17.12-17.15m OD

Samples at site 2 were taken by hand auger from the base of the excavation trench (17.97m OD), immediately behind (west of) the 12th century bank. The lower bank strata were found to overlie 1m of dark, organic-rich mineral strata above a grey-green clayey sand. Samples were taken at the following depths:

Sample FS98/7	stratum 7	17.97-17.82m OD	= 1326
Sample FS98/8	stratum 8	17.82-16.80m OD	= 1325
Sample FS98/9	stratum 9	16.80-16.70m OD	=1324

Samples at site 3 were taken by hand from the south-facing section of the trench excavated through the bank, abutting the 12th Century wall. The samples came from the following contexts:

Sample FS98/13 and intact sample FS98/11 Sample FS98/14 and intact sample FS98/12 Sample FS98/15

context 1262 context 1314 context 1315

Parent materials

Existing geological maps record that Worcester lies on Keuper marl overlain by glacial and flandrian drift. The medieval city was built on terraces to the east of the River Severn and raised above its flood level. Excavation elsewhere in the city has revealed both glacial outwash sands and gravels of the terraces and the Keuper marl substrate - which suggests that the drift is thin and patchy.

The character of archaeological strata depends, to a great extent, on the parent material from which it is derived and the properties of the natural strata which lie immediately beneath it. Thus it was the first aim of this study to identify the natural material underlying this site and from which the mineral matter of its strata were most probably derived. It had also been suggested that the strata might include some material brought in from elsewhere and it was therefore necessary to characterise the local parent materials so that any elements of imported soil could be detected.

Undisturbed, in-situ examples of the local Keuper marl were not found in the excavation or in the core samples but context 1262 contained blocks of largely unweathered marl which had been deposited intact during the building of the bank. This was found to consist of a iron oxide (mostly hematite) rich calcareous matrix of silt and clay sized particles with a slightly lenticular structure, which may be a relic of prolonged periglacial freeze-thaw. The sample also contained sand grains and small stones which were probably contaminants.

The sand of sample FS98/5 consists almost entirely of well-sorted, rounded, pitted quartz grains which are typical of a glacial outwash deposit. Only a very small proportion (<5%) of the grains are other minerals or rock fragments and mafic (easily weathered) minerals are entirely absent.

Well-rounded gravel was also found mixed through much of the archaeological strata but was not located as an undisturbed parent material. The parent sand of FS98/5, however, is likely to be associated with the gravel and there is no reason to believe that it is not present within the area of the site - especially given the small area of parent materials that could be examined.

The core at site 2 was bottomed in grey-green clayey sand containing gravel but uncontaminated by organic matter or artefacts. This may be a mixed parent material which represents the interface of the sand and Keuper marl which has since been very heavily weathered due to a combination of acidity and waterlogging.

The final, natural and local parent material for the archaeological strata is fine mineral matter especially clay - derived from stones weathering out of the gravel. Many of these stones appear to be Devonian sandstone but other lithologies are present. The weathering has almost completely rotted many stones which gives the impression that the archaeological strata are less stony than they once were. The wide suite of minerals derived from the stones, and subsequently mixed into the archaeological strata by worms, complicates any attempt to identify soil material brought in from outside the site because any exotic minerals, not present in the sand or marl might simply be derived from the rotted stones of the local gravel - and not imported from elsewhere.

There are therefore two natural parent materials for the site deposits - Keuper Marl and outwash sand and gravel. The sand and gravel probably overlie the marl in thin patches which may have, in places, been mixed with each other and with the marl by human and natural activity before the area was intensively occupied.

From the beginning of the present, Flandrian interglacial these parent materials will have started to develop into horizonated soils. Organic matter from plant decay will have been mixed into the surface and some of this will have descended, with mineral matter, through the soil in solution and as fine particles. The gravel will have weathered to produce a broad suite of minerals not otherwise present in the sand or marl, especially where waterlogging and acidity promoted weathering. The result may have been a range of Brown Earth soils with very variable proportions of sand, silt and clay and large variations in drainage and thus soil moisture retention.

The Roman occupation of the site is most likely, therefore to have taken place on an already complex and mature soil with a well developed structure. The spoil from Roman pits and ditches will have contained a complex mixture of horizons derived from a number of parent materials. Subsequent human activities will then have added artefacts and contaminants such as charcoal, industrial debris, cess, bone and potsherds to create the familiar urban deposits of the site.

The Strata

Site 1 - beneath the Roman pit - samples 1 to 6

The hand core taken through the deposits at the base of the Roman pit revealed a series of strata ending in natural sand below 17.12m OD. It was not possible to determine the shape of the strata - their extent, form and relation to other features - but the materials themselves give some clues to their origin. None of the strata contained much organic matter, although flecks of charcoal were very clearly visible in the upper two strata. These contained mineral matter from the marl, sand and gravel as well as a proportion of weathered stones contributing other minerals.

The upper three strata were mottled and showed other evidence of prolonged waterlogging not surprising in such clayey soils, although the site itself appeared moderately well drained at the surface. The upper strata also contained a few fragments of ceramic and bone. A number of worm pores could be seen descending into the upper stratum from the pit above and some contamination by organic soil and artefact fragments from above is likely. Most of the artefacts are too large to have descended in this way and the lack of organic matter suggests that worm-pore or other contamination by vertical translocation has not been important in the formation of the deposits.

The uppermost of these coarsely stratified archaeological deposits consists of masses of soil of very mixed origins - blocks of relatively unmixed soil brought together. The strata as a whole do not represent the remains of an in-situ soil since the natural soil derived from the underlying sandy parent material is likely to be much sandier.

The clay is probably derived from the Keuper Marl - either from some distance away or from a deep pit or ditch which penetrated through the natural sand beneath. The ceramics and charcoal show that the strata have been influenced by nearby human activity and, although they may have been moved from the location where this occurred, there is no reason to think that this was far away.

The strata are unsorted, appear to lack finer stratification (it is difficult to be sure in samples taken from hand cores) and, although altered by weathering, waterlogging and soil fauna, seem to retain many of their original properties. Thus it seems unlikely that these deposits represent a gradual accumulation of soil but rather that they are the result of some relatively rapid process of deposition, probably caused by human activity.

The lower strata may represent a buried, natural soil, however because they grade into the natural sand which is unlikely to have been directly exposed on the site. Thus this sequence may result from some process such as the dumping of upcast from a ditch dug through preexisting stratigraphy containing artefacts. It is much less likely to result from the gradual accumulation of strata on an area of occupation or from the silting of a ditch.

Site 2 - to the west of the 12th Century bank - samples 7 to 9

The soil was cored at this point in order to retrieve undisturbed natural parent material for comparison with the archaeological deposits. The auger descended through more than 1 metre of archaeological strata, below 17.97m OD, to a light blue-grey sandy clay. This lacked artefacts or significant amounts of organic matter and may be the remains of the parent material - originally a mixture of sand, gravel and marl. It contained weathered stones and its colour and structure showed that it had been chemically reduced by waterlogging. The mineralogy of the sand grains within it is typical of the natural outwash sand parent material and contained no minerals which are definitely exotic to the site.

The uppermost stratum was a mid red-brown clay loam which is similar to the natural marl, although apparently contaminated by the local, natural sand mixed in from the soil above. This stratum was probably the western tail of the bank deposits, either in-situ or eroded off the edge of the bank. Below this and above the possible parent material was a deep layer of dark, moderately organic coarse sandy clay loam becoming less sandy and increasingly mottled with depth. There were increasing numbers of sesquioxide (the oxyhydroxides of Iron and Manganese) and organic coatings on old root pores towards the bottom of the stratum suggesting long term waterlogging and solution/precipitation in a broadly reducing environment.

The archaeological activity represented by these strata will have become much clearer when they were fully revealed by excavation. The evidence for waterlogging, however, corresponds with that from beneath the Roman pit, although these present strata are much more organic and "urban" in character. We may conclude that, although these are not waterlogged urban archaeological deposits as found closer to river level in many British towns, the slow drainage through the site and the relatively impermeable marl have promoted some of the same kinds of post-depositional change. These are characterised by complex redox processes and the solution/precipitation of organic and inorganic complexes in water moving through the site. Chemical activity is particularly concentrated where slightly oxygenated water is moving through pores in the reduced soil medium. Biological activity and the very complicated processes associated with highly phosphatic urban waste (mainly bone and cess) will have had a considerable effect on the processes taking place, on the soil material being affected and on the leachates, precipitates and soil residues which result.

Site 3 - deposits of the bank - samples 13,14 and 15

The three lower strata of the bank, immediately to the west of the city wall, were examined in section. A major component of all three is largely unaltered parent material, of which a high proportion is derived from the Keuper Marl.

The uppermost stratum (context 1262) is a mid reddish brown coarse sandy clay loam, although its true particle size distribution is hard to determine because the marl is compacted into small, hard lenses which make the deposit seem coarser than it is. The stratum contains very little archaeological contamination, despite abundant worm pores which have brought organic soil down from the strata above as well as thin, organic whole-soil coatings on ped surfaces which indicate that soil is being washed down fine fissures from above. The stratum is made up of blocks of soil mixed together and may derive directly from a natural soil immediately above the parent material which has been thrown-up to form the bank. Its colour is a mixture of those of the altered parent material (weathered marl, sand and gravel - including reds, greens and yellows from the weathering stones of the gravel), dark organic soil from above and occasional artefacts, of which charcoal flecks are the most visible.

The stratum below (context 1214) is more complex and consists of a mixture of redeposited archaeological strata mixed with natural soil similar to that in context 1262. It colour and texture vary greatly and it includes volumes of sandy clay loam, sandy clay and silty clay, representing the materials from which it is derived. About 30% by volume is a blue-grey sandy clay with abundant ceramic fragments, organic matter and charcoal. This stratum appears to be the upcast of a nearby excavation which cut through archaeological strata to the slightly weathered parent material beneath. The strong reduction of the archaeological deposits indicates that these may have been permanently waterlogged, before they were disturbed, as well as rich in organic matter (the subsequent decay of which has caused further reduction).

The lowest stratum (context 1215) is similar to that above - a mixture of redeposited soil and archaeological material - but appears to include in situ archaeological stratigraphy as well. It also contains a proportion of sand-grains with clean surfaces, which indicates more acid conditions - perhaps the result of its exposure at the ground surface at some earlier period.

The two upper strata (1262 and 1214) are probably derived from archaeological strata and the soil beneath which was thrown up from quarry pits or ditches to form the bank. The displaced archaeological strata were reduced and waterlogged - perhaps not dissimilar to samples 7 and 8 described above - but locally derived.

There is no evidently exotic component to any of the mineral suites from the bank to suggest that any material had been brought in to the site. The deep deposits from which samples 7 and 8 were taken may, perhaps, be within the quarry ditch from which the bank material came. Later urban occupation filled the ditch with organic urban soil and the underlying parent material - still red-brown sandy clay marl when first quarried for the bank - became reduced to the blue-grey of sample 9 because of the waterlogging and organic content of the quarry ditch above. Thus while context 1262 and sample 9 look dissimilar they may be essentially the same material, which further mineral analyses could determine.

The chemistry, pH and redox conditions of the strata vary greatly and have probably varied even more in the past, since they will have gradually developed a chemical equilibrium over the centuries. Thus, while good conditions exist in some strata (and within particular volumes of the mixed strata such as sample 1 and contexts 13-15) for the preservation of organic evidence - including pollen - such preservation may be patchy and such evidence may have been destroyed by earlier soil conditions which were less favourable to preservation than those found today. Some organic preservation may be expected, however, and the more organic rich and reduced strata (samples 1, 2, 3, 4, 7 and 8) might repay an examination for pollen and plant macroscopic remains. The preservation of less resistant organic materials and molluscs is much less likely because of the relatively harsh conditions that may have existed within the strata in the past.

Further study

A brief study such as this cannot hope to do more than point out interesting and relevant characteristics of archaeological deposits - especially when they can only be seen in small areas or auger samples. The material which makes up such deposits, however, is part of a wider pattern of archaeological "soils" and parent materials across the city of Worcester. Knowledge gained here will make it easier to understand the nature of stratigraphy elsewhere. It may be worthwhile, therefore, to build a reference collection of archaeological strata and parent materials for the city and to explicitly collect information from all sites (including non-archaeological excavations) concerning the underlying natural substrates and nature of the archaeological strata.

Further study of the samples from Friar street may yield useful information about the origins of each stratum but this will be compromised by the small area covered by the excavation which makes deposit interpretation more difficult.

David Jordan 17 September 1998

Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/3
Soil Munsell colour	7.5YR 4/2
Texture	sandy clay
Moisture	moist
Mottles	yes
Mottle abundance	<2%
Mottle size	2-5mm
Mottle colour	
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	very small - large
Stone shape	sub-rounded (with some sub-angular)
one abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	-
Peds	no
Ped size	
Ped shape	
Ped grade	
Voids	yes
Fissures	yes
Fissure size	very fine
Macropores	yes
Pore size	very fine
Pore % volume	<2%
Burrows	no
Worm holes	no
Packing density	high (in patches)
Soil strength	moderately strong
R ire type	semi-deformable
Cementation	none
	moderate
Plasticity	
Coats - clay, sand, org, Ca	yes - whole soil, clay
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	
Uncoated grains	few, He coatings
Enuviation	no
THUVIATION	
Fragig	no
nz-	
	10
A stafe factor (0/ - 1	-
Charge International	
WAR	
WOULS the second second	
Junung Stone	
UUICE CONTRACTOR	-



Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/4
	C. N. E. WARRENT & SEAL PRESS STATE SALES AND LODGE AND A SEAL STATES
Soil Munsell colour	10YR 4/3
Texture	clayey sand
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
Stone abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	-
Organic matter - humose	-
Peds	no
Ped size	
Ped shape	
Ped grade	
Voids	no
Fissures	
Fissure size	
Macropores	
Pore size	
Pore % volume	
Burrows	no
Worm holes	no
Packing density	high
Soil strength	moderately firm
Failure type	semi-deformable
Cementation	none
Stickiness	moderate
Plasticity	moderate
Coats - clay, sand, org, Ca	yes
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	no
Uncoated grains	no
Elluviation	no
lliuviation	no
Fragig	no
Concretions - Fe, Fe/Mn	very few Fe/Mn concretions.
Pan	no
Pan continuity	-
Artefacts - % volume	no
Ceramic fragments	no
Charcoal	no
Wood	no
Building stone	no
Other	-

Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/5
	We Carried Constraints and the second sec
Soil Munsell colour	7.5YR 4/4
Texture	sand
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
orie abundance	5%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	·
Organic matter - humose	
Peds	no
Ped size	
Ped shape	
Ped grade	
Voids	no
Fissures	
Fissure size	
Macropores	
Pore size	
Pore % volume	
Burrows	no
Worm holes	no
Packing density	high
Soil strength	loose
R ine type	semi-deformable
Cementation	none
Stickiness	non-sticky
Plasticity	non-plastic
Coats - clay, sand, org, Ca	yes
Coafed grams	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	no
Uncoated grains	no
Elluviation	no
I illuviation	
rragig	
Transie and the second s	
ran continuity	
ATTERACIS	
Charge Fragments	
Junung stone	
[4] : SPUTCES : 2 : 2 : 2 : 2 : 2 : 2 : 2 : 2 : 2 :	-

Site name Friar Street, Worcester

Site code FS 98

Sample location 2

Sample or context no.	FS98/7
	A REPORT STORE FREE COMMENDED AND AND AND AND AND AND AND AND AND AN
Soil Munsell colour	10YR 3/2
Texture	coarse sandy clay loam
Moisture	moist
Mottles	yes
Mottle abundance	<5%
Mottle size	2mm
Mottle colour	-
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	small
Stone shape	sub-rounded (with some sub-angular)
Stone abundance	<5%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	-
Peds	yes
Ped size	medium - small
Ped shape	sub-angular blocky
Ped grade	weakly developed
Voids	yes
Fissures	yes
Fissure size	very fine
Macropores	yes
Pore size	very fine and fine
Pore % volume	<2%
Burrows	no
Worm holes	yes
Packing density	moderate
Soil strength	moderately firm
Failure type	semi-deformable
Cementation	none
Stickiness	moderate
Plasticity	moderate
Coats - clay, sand, org, Ca	yes - whole soil, clay, organic precipitate
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	yes - whole soil coatings on some ped surface
	no
Elluviation	no
	yes - occasional coated ped surface
Constant	
Tau Dais continuit	
Artofacta 24 mol	-
Commis formation	yes, > 1070
Ceraine fragments	
	yes
Distance of the second s	
Other	
[24	-

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Site name Friar Street, Worcester

Site code FS 98

Sample location 1

Sample or context no.	FS98/1		
alasi di manajiri nya minina na kutuna di manana Ny mana ili di kata nya minina kata na			
Soil Munsell colour	5YR 4/3		
Texture	coarse sandy clay		
Moisture	moist		
Mottles	yes		
Mottle abundance	<5%		
Mottle size	2-5mm		
Mottle colour			
Roots	no		
Root type			
Roof abundance			
Root size			
Stones (+ stone relics)	yes		
Stone size	very small - large		
Stone shape	sub-rounded (with some sub-angular)		
one abundance	10%		
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment		
Magnetic susceptibility			
Organic matter - humose			
Peds	yes		
Ped size	medium		
Ped shape	sub-angular blocky		
Ped grade	very weakly developed		
Voids	yes		
Fissures	yes		
Fissure size	very fine and fine		
Macropores	yes		
Pore size	very fine and fine		
Pore % volume	2%		
Burrows	no		
Worm holes	yes		
Packing density	moderate and high (in patches)		
Soil strength	moderately firm		
L are type	semi-deformable		
Cementation	none		
Stickiness	moderate		
Plasticity	moderate		
Coats - clay, sand, org, Ca	yes - whole soil, clay, organic precipitate		
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones		
Coated peds	yes - whole soil coatings on some ped surface		
Uncoated grains	no		
Elluviation	no		
Illuviation	yes - occasional coated ped surface		
Fragig	no		
Concretions - Fe, Fe/Mn	very few Fe/Mn concretions.		
Pan	no		
Pan continuity	-		
Artefacts - % volume	yes, <5%		
Ceramic fragments	yes		
Charcoal	yes		
Wood	not observed		
Building stone	not observed		
Other			

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Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/2		
	The state of the second sec		
Soil Munsell colour	5YR 3/2		
Texfure	coarse sandy clay		
Moisture	moist		
Mottles	yes		
Mottle abundance	<5%		
Mottle size	2-5mm		
Mottle colour			
Roots	no		
Root type			
Root abundance			
Root size			
Stones (+ stone relics)	yes		
Stone size	very small - large		
Stone shape	sub-rounded (with some sub-angular)		
Stone abundance	10%		
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment		
Magnetic susceptibility			
Organic matter - humose			
Peds	yes		
Ped size	medium		
Ped shape	sub-angular blocky and angular blocky		
Ped grade	very weakly developed		
Voids	yes		
Fissures	yes		
Fissure size	very fine and fine		
Macropores	yes		
Pore size	very fine		
Pore % volume	<2%		
Burrows	no		
Worm holes	yes		
Packing density	high (in patches)		
Soil strength	moderately firm		
Failure type	semi-deformable		
Cementation			
Stickiness	moderate		
Plasticity	moderate		
Coats - clay, sand, org, Ca	yes - whole soil, clay, organic precipitate		
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones		
Coated peds	yes - whole soil coatings on some ped surface		
	yes, but very few		
EIIUVIATION	no		
Π	yes - occasional coated ped surface		
Casant and Ta Ta Da			
De-			
Artofacto 97 valumo			
Coronia Process	yes, <070		
Characal			
Wood	yes		
Dullding stores in the stores	not observed		
Other Stone			
[http://www.selfactory.com/actions/a			

Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/8		
	WERE STREET		
Soil Munsell colour	7.5YR 3/2		
Texture	clay loam		
Moisture	moist		
Mottles	yes		
Mottle abundance	5%		
Mottle size	2-5mm		
Mottle colour	2.5YR 3/4		
Roots	no		
Root type			
Root abundance			
Rootsize			
Stones (+ stone relics)	yes		
Stone size	very small - medium		
Stone shape	sub-rounded (with some sub-angular)		
one abundance	10%		
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment		
Magnetic susceptibility			
Organic matter - humose	-		
Peds	yes		
Ped size	small - medium		
Ped shape	sub-angular blocky		
Ped grade	very weakly developed		
Voids	yes		
Fissures	yes		
Fissure size	very fine		
Macropores	yes		
Pore size	very fine		
Pore % volume	<2%		
Burrows	no		
Worm holes	yes		
Packing density	moderate		
Soil strength	moderately firm		
I ure type	semi-deformable		
Cementation	none		
Stickiness	moderate		
Plasticity	moderate		
Coats - clay, sand, org; Ca	yes - whole soil, clay		
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones		
Coated peds	yes - whole soil coatings on some ped surface		
Uncoated grains	no		
Elluviation	no		
Illuviation	yes - occasional coated ped surface		
tragig	no		
Concretions - Fe, Fe/Mn	very few Fe/Min concretions.		
ran a state the second s	no		
Pan continuity	-		
Arteracts - % volume	yes, <5%		
Ceramic tragments	yes		
	yes		
WOOU Multiling atoms			
Other			



Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/9
	ACCENTREMENT OF TRANSPORTED AND A DEPARTMENT OF
Soil Munsell colour	5Y 5/2
Texture	clayey sand
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	no
Root type	
Root abundance	
Root size	-
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
Stone abundance	<10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	<u> </u>
Organic matter - humose	-
Peds	no
Pëd size	
Ped shape	
Ped grade	
Voids	yes
Fissures	no
Fissure size	
Macropores	yes
Pore size	very fine
Pore % volume	
Burrows	no
Worm holes	yes
Packing density	high
Soli strength	moderately strong
Fanure type	semi-deformable (
Cementation	none
STICKINESS	
Plasucity	
Coats - clay, sand, org, Ca	yes - whole soll, clay
Coaled grains	yes - Pe coatings on sand grains, relics of teruginous sandstones
	no
Dan	
Pathana ann tha ann an tha ann an tha	
Artafonto % rolumo	-
Caromic Francis	
Charge 1	
Wood	
Buildingatone	
Other	
I CHICH	

Site name Friar Street, Worcester

Site code FS 98

Sample location 2

Sample or context no.	FS98/10
	Representation of the second secon
Soil Munsell colour	2.5YR 4/4
Texture	clay loam
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	no
Root type	
Root abundance	
Rootsize	
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
one abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	
Peds	no
Ped size	
Ped shape	
Ped grade	
Yolds	no
Fissures	
rissure size	
Macropores	
Pore size	
Pore % volume	· · · · · · · · · · · · · · · · · · ·
Burrows	no
Worm holes	
Packing density	
Dow surengen	moderately IIm
Generated and the second secon	
Stickinger	
Diasticiti	
Costa clar april oral Co	Housiale
Coated arraine	yes - Gay and Fe
Coated neds	no
I incoated grains	no
Fluviation	
Huviation	
Fragig	no (but slightly explosive rupture may be fragic)
Concretions - Fe. Fe/Mn	
Pan	l no
Pan continuity	
Artefacts - % volume	no
Ceramic fragments	
Charcoal	
Wood	
Juilding stone	
Other	

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Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/13
Soil Munsell colour	5YR 4/3 - very mixed
Texture	coarse sandy clay loam
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	yes
Root type	fleshy and fibrous
Root abundance	few
Root size	fine and medium
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
Stone abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	
Peds	yes
Ped size	small to medium
Ped shape	sub-angular blocky and angular blocky
Ped grade	weakly developed
Voids	yes
Fissures	yes
Fissure size	very fine
Macropores	yes
Pore size	very fine and fine
Pore % volume	<2%
Burrows	no
Worm holes	yes
Packing density	high
Soil strength	moderately firm
Failure type	semi-deformable and brittle
Cementation	none
Stickiness	slight
Plasticity	moderate
Coats - clay, sand, org, Ca	yes - whole soil, clay
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	yes - whole soil coatings on some ped surface
Uncoated grains	no
Elluviation	no
llluviation	yes - occasional coated ped surface
Fragig	no
Concretions - Fe, Fe/Mn	very few Fe/Mn concretions.
Pan	no
Pan continuity	
Artefacts - % volume	yes, <5%
Ceramic fragments	yes
Charcoal	yes
Wood	not observed
Building stone	not observed
Other	

Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/14
Soil Munsell colour	5YR 4/3 to 7.5YR 4/2 - very mixed, in patches and thin strata
Texture	variable sandy clay loam
Moisture	moist
Mottles	no
Mottle abundance	
Mottle size	
Mottle colour	
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
one abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	-
Peds	yes
Ped size	small to medium
Ped shape	sub-angular blocky
Ped grade	very weakly developed
Voids	yes
Fissures	yes
Fissure size	very fine
Macropores	yes
Pore size	very fine and fine
Pore % volume	2%
Burrows	no
Worm holes	yes
Packing density	high
Soil strength	moderately firm
R ire type	semi-deformable
Cementation	none
Stickiness	slight
Plasticity	moderate
Coats - clay, sand, org, Ca	yes - whole soil
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	yes - whole soil coatings on some ped surface
Uncoated grams	
Elluviation	no
liluviation	yes - occasional coated ped surface
Fragig	no
Concretions - Fe, Fe/Min	
Den southairt	
ran continuity	
	yes, >3%
Charcoel	
Wood	yes
WUUU	
Other	

Site name Friar Street, Worcester

Site code FS 98

Sample or context no.	FS98/15
	all and the second s
Soil Munsell colour	7.5YR 3/0 to 4/2 - very mixed, in patches and thin strata
Texture	variable sandy clay loam
Moisture	moist
Mottles	yes
Mottle abundance	2%
Mottle size	2-5mm
Mottle colour	•
Roots	no
Root type	
Root abundance	
Root size	
Stones (+ stone relics)	yes
Stone size	very small - medium
Stone shape	sub-rounded (with some sub-angular)
Stone abundance	10%
Stone lithology	mixed - sedimentary, metamorphic and igneous from wide catchment
Magnetic susceptibility	
Organic matter - humose	
Peds	no
Ped size	
Ped shape	
Ped grade	
Voids	nó
Fissures	
Fissure size	
Macropores	
Pore size	
Pore % yolume	
Burrows	no
Worm holes	no
Packing density	high
Soil strength	moderately firm
Failure type	semi-deformable
Cementation	none
Stickiness	moderate
Plasticity	moderate
Coats - clay, sand, org, Ca	yes - whole soil, clay and Fe
Coated grains	yes - Fe coatings on sand grains, relics of feruginous sandstones
Coated peds	yes - whole soil coatings on some ped surface
Uncoated grains	no
Elluviation	no
Illuviation	yes - occasional coated ped surface
Fragig	no
Concretions - Fe, Fe/Mn	very few Fe/Mn concretions.
Pan	no
Pan continuity	-
Artefacts - % yolume	yes, <5%
Ceramic fragments	yes
Charcoal	yes
Wood	not observed
Building stone	not observed (
Other	-



Appendix 4: Watching brief records

Borehole	Thickness of archaeological deposits (m)	Notes on archaeological deposits	Artefactual evidence	Character of natural deposits
BH 1	2.6 - 3.00	Probable backfill of excavation, included concrete near base	None	Gravel
BH 2	2.7	Yellow-brown sandy clay at 2.4m bgs: dirty or redeposited natural?	None	Yellow brown sandy clay
BH 3	3.00	Dark grey-brown silty clay (2.8m thick), above mixed depsoit of greenish-brown silty clay with pebbles and stone (0.20m thick).	None	Sand and gravel
BH 4	2.7	Grey brown clay loam (2.7m thick).	None	Grey-green clay with gravel
BH 5	2.6	Dark grey-brown sandy loam (1.3m thick) over grey-brown sandy silt (0.6m), over iron slag deposit. Below this was layer of light grey- green clay.	1 sherd Roman pottery (assoc with iron slag deposit). Brick fragments in upper horizons	Sand and gravel
BH 6	2.7+	Dark grey-brown sandy loam, with possible iron slag layer	None	Sand and gravel

Appendix 5: Recorded information from pile spoil (WCM 100525)

Pile	Notes on archaeological deposits	Artefactual evidence	Character of natural deposits
P 54		Iron smithing slag	
P. 55		Iron smithing slag	
P 60	Deposits circa 3.50m thick	1 sherd pottery (C17), 1 tile	Not reached
P 61	Deposits circa 3.50m thick	<u></u>	Not reached
P 62	Deposits circa 3.50m thick	1 sherd pottery (C14-16)	Not reached
P 63	Deposits circa 3.50m thick. Lowest deposit dark grren-grey silt loam with charcoal flecks		Light yellow-brown sand
P 64	Deposits circa 3.50m thick		Not reached
P 91		4 sherds pottery (late post-medieval)	
P 95		Clay pipe, iron slag, bone	Mari
P 103	······································	1 sherd pottery (C15-16)	
P 116		1 sherd pottery (C2-4), tile, iron slag, bone	
P 123A	Deposits circa 3.80m thick		Light yellow-brown sand
P 158	Deposits circa 3.80m thick		Light yellow-brown sand
P 167		2 sherds pottery (C18), iron slag	
P 172	Deposits circa 3.80m thick		Light yellow-brown sand
P 176		2 sherds pottery (C18), iron slag, burnt stone	
P 180A	Deposits circa 3.80m thick, at base dark brownish grey silt loam, with charcoal		Mid brownish red clay silt
P 181 A	Deposits circa 3.80m thick, at base dark brownish grey silt loam, with charcoal		Mid brownish red clay silt
P 188		4 sherds pottery (C19-20), brick	
P 190	Deposits circa 3.80m thick, at base dark brownish grey silt loam, with charcoal		Mid brownish red clay silt
P 191		1 sherd Roman pottery, clay pipe, iron slag, bone	
P 192		1 sherd pottery (C17), tile, iron slag, glass, bone	

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D 2024		Dehavia nettens (Deman and OfO) tile breis	
P 203A		iron slag, glass, burnt stone	
P 206	Deposits circa 3.80m thick.Mid brownish grey silt loam/light grey-green sandy clay/mid-brown clay silt	· · · · · · · · · · · · · · · · · · ·	Light yellow-brown sand and gravel
P 207	Deposits circa 3.80m thick.Mid brownish grey silt loam/light grey-green sandy clay/mid-brown clay silt		Light yellow-brown sand and gravel
P 210		4 sherds pottery (C18), tile	
P 212		3 sherds pottery (2 Roman, 1 C18), iron slag	
P 215	Mid brownish grey silt loam/light grey-green sandy clay/mid-brown clay silt. circa 3.80m		Light yellow-brown sand and gravel
P 216	Mid brownish grey silt loam/light grey-green sandy clay/mid-brown clay silt		Light yellow-brown sand and gravel
P 217	Mid brownish grey silt Ioam	1 sherd pottery, tile, mortar	Light yellow-brown sand and gravel
P 218	Mid brownish grey silt Ioam	2 sherds pottery (post-medieval)	Light yellow-brown sand and gravel
P 219	Mid brownish grey silt loam	· · · · · · · · · · · · · · · · · · ·	Light yellow-brown sand and gravel
P 220	Mid brownish grey silt loam	3 tile fragments	Light yellow-brown sand and gravel
P 221		1 sherd pottery (C18), tile, brick, vessel glass, bone	
P 222		tile, brick	
P 224	· ·	1 sherd pottery (C19-20), vessel glass	
P 227	······································	Tile (3), stone, bone, burnst stone	
P 228			
P 245		2 sherds pottery (Roman), iron slag	
P 248A		Clay pipe, tile, lead sheet	
P 249		1 sherd pottery (C20), tile, bone	
P 251		2 sherds pottery (1 Roman & 1 C18)	
P 252		4 sherds pottery (3 Roman, 1 C13), tile, slate, bone	
P 255		4 sherds pottery (3 C18, 1 C19-20), brick, bone	

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Appendix 6: Catalogue of worked stone

I: OBJECTS

SITE A: evaluation trench 1998 (WCM 100198)

Context	Description	Stone	Date range
1140 (pit)	1) fragment rotary quern, slightly burnt ; diam c. 385 mm,	Lower Old Red Sandstone; pebbly sandstone from	$M1^{st} - M11^{th}$
Fig 31.6	th at rim 52 mm, 1.680 kg	Lugwardine or Witnington, Herefordshire	
	2) fragment grindstone, unevenly worn, so that surviving part of hole (?square or round) is not central; diam c	Grey micaceous sandstone, probably Coal Measures sandstone	
F1g 31.3	140 mm, th 72 mm, 810g		
44	3) fragment whetstone, well worn, with fairly wide	Eidsborg schist (Norwegian Rag)	دد
Fig 31.2	sharpening groove; 78 x 39 x 19 mm, 80g		
	4) small slab used as point sharpener with a fairly wide	Jurassic limestone; a fine-grained, shell-fragmental,	££
Fig 31.4	groove; 104 x 73 x 15 mm, 170g	banded limestone with some larger fossil shells,	
دد	5) large slab used as point sharpener , with a fairly wide groove; 210 x 145 x 60 mm, 2.200 kg	Lias	
Fig 31.7			
"	6) fragment from thick slab, may originally have been circular, flat, worn surface; now 76 x 68 x 46 mm, 320g	Lias	
Fig 31.1			
1169	Fragment rotary quern, slightly burnt, traces of pecked grinding surface; now 135 x 110 x 65 mm, th at rim 45 mm,	Lower Old Red Sandstone, pebbly sandstone possibly from Lugwardine or Withington, Herefordshire	$3^{rd} - M17^{rb}$
Fig 31.5	1.680 kg		,
1174	Small fragment, unworked but a quern material; 24 x 15 x 9 mm, 5g	Lower Old Red Sandstone from Lugwardine or Withington (cf 1140)	RBR - 14 th

SITE A: eva 101	Iuation trenches 1997 (HWCM 24905) Worked fragment, slightly burnt, surface; 119 x 54 x 35 mm, 310g	Lias	13 th - 17 th +	
104	Complete whetstone , slab type; 76 xx 41.5 x 18.5 mm, 105g	Grey, fine-grained, slightly micaceous sandstone, probably Coal Measures sandstone	14 th - 16 th	
200	Complete grindstone	Grey sandstone, probably Coal Measures sandstone	u/s	
504	Fragment rotary quern, could be Roman disc type, upper stone, with slot for handle on upper surface; th now 50 mm, 1.010 kg	Lower Old Red Sandstone, light coloured quartz conglomerate, possibly from Lugwardine or Withington, Herefordshire	?	

II: BUILDING STONE

SITE A: evaluation trench 1998 (WCM 100198)

Context	Description	Stone	Date range
1138	2 fragments, 74g	Grey Welsh slate	RBR - 18 th
1140	1 fragment, g	Lias	$M1^{st} - M11^{th}$
1150	2 fragments, slabs, possible paving stone, 2.100 kg	Lias	17 th /18 th - 19 th /20 th
1170	1 fragment, 72g	Lias	$13^{th} - 18^{th}$
1174	1 fragment, 44g	Lias	$RBR - 14^{th}$

SITE A: Evaluation trench 1999 (WCM 100525)

1402	1 fragment, 20g	Grey Welsh slate	$Med - L19^{th}/20^{th}$

SITE A: evaluation trenches 1997 (HWCM 24905)

118	1 frag, 125g	Lias	$13^{th} - 14^{th}$
۷۰۰۰۰۰	1 block, 1.560 kg	Lias	66
202	1 small fragment, 35g	Oolitic limestone	$15^{\text{th}} - 17^{\text{th}}$

SITE B: watching brief 1999 (WCM 100525)

P191	1 small fragment, 1g	Grey Welsh slate	RBR
P203A	1 fragment, 26g	Triassic sandstone	RBR – 19 th
P227	1 small fragment, 20g	Grey Welsh slate	?
P252	1 small fragment, 22g	Grey Welsh slate	RBR – 15 th

SITE C: evaluation trench perpendicular to city wall (WCM 100198)

1217	1 fragment, 62g	Lias	$13^{\text{th}} - 18^{\text{th}}$
1224	1 fragment, 454g	Lias	$M16^{th} - 18^{th}$
1244	1 fragment, 12g	Lias	17 th
1262	1 fragment, 58g	Lias	$1^{\text{st}} - 12/13^{\text{th}}$
1285	1 fragment, 420g	Lias	RBR – 17 th
۰ <i>۲</i>	4 fragments, 300g	Red Triassic sandstone x 2, 60 g Lias x 2, 240 g	$RBR - 17^{th}$
1286	4 fragments, 520g	Triassic sandstone, red x 3, green x 1	M11/12 th - 15/16 th
1288	4 fragments, 332g	Lias x 3, 40 g Grey Triassic sandstone x 1, 260 g	$3^{rd} - 14^{th}$
1293	1 fragment, 18g	Grey Triassic sandstone	?16 th
1299	2 fragments, slabs, possible paving, 780g	Lias	$16^{th} - M17^{th}$